	Educational institution "Royal Metropolitan University"
	Quality Management System Educational and Methodological Complex of the discipline "Propaedeutics of Therapeutic Dentistry" Department of Dental Disciplines, Royal Metropolitan University 560004 "Dentistry"

Ministry of Science, Higher Education, and Innovation of the Kyrgyz Republic
Educational Institution
"Royal Metropolitan University"
Department of Dental Disciplines



"APPROVED"

Vice Rector for Academic and
 and Administrative Affairs
 N.A. Urazalieva

"6" 09 2025



TEACHING AND METHODOLOGICAL COMPLEX OF THE DISCIPLINE

"PROPAEDUTICS OF THERAPEUTIC DENTISTRY"

of the main educational program
 in the specialty 560004 "Dentistry" (for foreign citizens)

Graduate qualification: Specialist (Doctor)

Bishkek 2025



Educational institution
"Royal Metropolitan University"

Quality Management System
Educational and Methodological Complex of the Discipline "Propaedeutics of Therapeutic Dentistry"
Department of Dental Disciplines, Royal Metropolitan University
560004 "Dentistry"

Ministry of Science, Higher Education, and Innovation of the Kyrgyz
Republic
Educational Institution
"Royal Metropolitan University"
Department of Dental Disciplines



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and Administrative Affairs
N.A. Urazalieva

"6" 09 2025



**WORKING PROGRAM OF THE DISCIPLINE
"PROPAEDUTICS OF THERAPEUTIC DENTISTRY"**

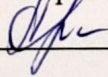
of the main educational program
in the specialty 560004 **"Dentistry" (for international students)**

Graduate Qualification: Specialist (Doctor)

Full-time program

Course	2
Semester	3
Exam (semester)	3
Credit (semester)	
Total credits in the curriculum	3
Total hours in the curriculum	90

Program developer:
A. E. Zholdosbekova

Reviewed and approved at a meeting of the
Department of Dental Disciplines
Protocol No. 1 dated September 6, 2025
Head of Department, PhD, A.K. Bektasheva
 (signature)

Bishkek 2025



Educational institution
"Royal Metropolitan University"

Quality Management System
Educational and Methodological Complex of the Discipline "Propaedeutics of Therapeutic Dentistry"
Department of Dental Disciplines, Royal Metropolitan University
560004 "Dentistry"

The work program for the course "Propaedeutics of Therapeutic Dentistry" has been developed in accordance with the requirements of the State Educational Standard for Higher Education in specialty 560004 "Dentistry."

The work program has been approved by the Educational and Methodological Department of the RMU

Head of the Educational and Methodological Department

Kurtubaeva N.R.

(Full Name)

[Signature]

(signature)

"06" 09 2025

The work program has been approved by the head of the main educational program for specialty 560004 "Dentistry"

Head of the Main Educational Program

[Signature]

(Full Name)

Sapurova A.Z.

(Signature)

"06" 09 2025

External review provided on

M.D., professor Chokotova G.S.

"21" 01 2025 (review attached)

The work program has been approved by a specialist from the RMU Quality and Monitoring Department

Q&M Department

Chamberliev V.

(Full Name)

[Signature]

(Signature)

"06" 09 2025

РЕЦЕНЗИЯ

на рабочую программу дисциплины
«Пропедевтика хирургической стоматологии»
по специальности 560004 «Стоматология»
(для иностранных граждан)
(ОУ «Роэль Метрополитен университет»)

Рабочая программа дисциплины «Пропедевтика хирургической стоматологии» разработана в соответствии с требованиями Государственного образовательного стандарта высшего профессионального образования по специальности «Стоматология» и соответствует структуре основной образовательной программы подготовки врача-стоматолога.

Цели и задачи дисциплины сформулированы чётко и отражают её пропедевтический характер. Программа направлена на формирование у студентов базовых теоретических знаний и практических навыков, необходимых для освоения хирургической стоматологии, включая вопросы асептики и антисептики, работы с хирургическим инструментарием, местного обезболивания, оказания неотложной помощи и выполнения элементарных хирургических манипуляций на фантомах.

Содержание дисциплины логично структурировано, последовательно раскрывает основные этапы подготовки стоматолога-хирурга и охватывает ключевые разделы: сбор анамнеза, диагностику заболеваний челюстно-лицевой области, основы хирургического вмешательства, травмы ЧЛЮ, а также практическую подготовку на фантомах и моделях. Междисциплинарные связи с фундаментальными и клиническими дисциплинами определены корректно и обеспечивают преемственность обучения. В программе детально представлены формируемые общепрофессиональные и профессиональные компетенции, результаты освоения дисциплины соотносятся с заявленными целями и содержанием учебных разделов. Учебно-методическое и информационное обеспечение дисциплины соответствует современным требованиям и включает основную и дополнительную литературу, нормативные документы, а также электронные образовательные ресурсы. Материально-техническая база кафедры обеспечивает проведение лекционных, практических и симуляционных занятий на должном методическом уровне. В целом рабочая программа дисциплины «Пропедевтика хирургической стоматологии» является методически выверенной и может быть рекомендована к утверждению и внедрению в учебный процесс стоматологического факультета.

**к.м.н., доцент кафедры
клинической стоматологии
и имплантологии ФПМО
КГМА им. И. К. Ахунбаева**



А.Р. Цой
Подпись _____
заверяю
16.08.2025г.
К.К. АХУНБАЕВ АТЫНДАГЫ КЫРГЫЗ МАМЛЕКЕТТИК МЕДИЦИНАЛЫК АКАДЕМИЯСЫ



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1. The working program of the academic discipline

1.1. Explanatory note

The mission of the OU RMU is to improve the health and quality of life of the population through high-quality training of medical personnel capable of intercultural interaction, based on the integration of advanced scientific knowledge, innovation and high standards of practice in the context of the unity of education, science and clinical activity.

Abstract of the academic discipline

"Propaedeutics of Surgical Dentistry" is a course covering the theoretical foundations of the structure and functions of the dental system and methods of examining dental patients. This course includes the principles of clinical reasoning, diagnosis, prevention, and basic therapeutic approaches in surgical dentistry. It is considered a core clinical discipline in dental education and serves as the foundation for further study in specialized areas of surgical dentistry and other clinical disciplines.

The purpose and objectives of the discipline

The purpose of discipline

To develop students' basic theoretical knowledge and practical skills necessary for subsequent study of surgical dentistry, to master the principles of diagnosis, prevention, and emergency care for major diseases and injuries of the maxillofacial region, and to develop clinical thinking and professional competence.

Objectives of the discipline

- Study of the basics of anatomy, topography and physiology of the maxillofacial region.
- Mastering the principles of asepsis and antisepsis in surgical dentistry.
- Study of instruments, equipment and materials used in surgical dentistry.
- Introduction to the basics of local anesthesia and pain relief.
- Formation of ideas about the diagnosis of the main surgical diseases and injuries of the maxillofacial region.
- Mastering the algorithm for examining a patient with a surgical dental profile.
- Development of skills in performing simple surgical manipulations (examination, probing, dressings, wound treatment).
- Training in the rules of providing first and emergency aid for injuries and acute inflammatory processes.
- Mastering the technique of preparing a patient for surgery.
- Development of skills in working with surgical instruments.
- Training in methods of clinical diagnostics of surgical diseases of the maxillofacial region.
- Mastering the principles of interpretation of X-ray studies.
- Development of skills in differential diagnosis of inflammatory, traumatic and tumor processes.



- Study of methods for preventing surgical diseases of the maxillofacial region.
- Formation of knowledge on the prevention of complications after surgical interventions.
- Training in the principles of preventing infectious complications in dental practice.
- Formation of professional ethics and deontology of a dentist.
- Developing responsibility for patient health.
- Formation of a humane attitude towards patients, especially children and patients in pain.
- Fostering accuracy, discipline and compliance with aseptic and safety rules.

The block "Propaedeutics of surgical dentistry" is included in the basic part of the professional cycle for the specialty "Dentistry" (code 560004).

The place of the discipline in the structure of the OOP (prerequisites, postrequisites)

This discipline is studied by students majoring in Dentistry (for foreign citizens) and is included in the compulsory scope of disciplines studied in the State Educational Standard of Higher Professional Education.

The content of the discipline "Propaedeutics of Surgical Dentistry" is based on the content of such previous disciplines as: Human anatomy (especially the anatomy of the head and neck), normal physiology, histology, embryology and cytology, pathological anatomy, pathological physiology, microbiology, virology and immunology, general chemistry and biochemistry, pharmacology (fundamentals of anesthesia and antisepsis). Subsequently, the knowledge gained during the study of the discipline "Propaedeutics of Surgical Dentistry" will be necessary when studying the following disciplines: surgical dentistry, pediatric surgical dentistry, maxillofacial surgery, orthopedic dentistry, therapeutic dentistry (in terms of complex treatment), pediatric dentistry.

The main purpose of the program in propaedeutics of surgical dentistry is to develop students' clinical thinking and the ability to interpret anamnesis data, clinical data, and additional research methods for the correct diagnosis and targeted therapy.

Based on the main objectives of the course "Propaedeutics of Surgical Dentistry", the program material consists of the following block:

Study of the anatomical and topographic features of the maxillofacial region, their age-related changes, and the principles of pathological processes. Methods of dental patient examination are mastered, including medical history collection and clinical diagnostic methods. Practical training in the discipline "Propaedeutics of Surgical Dentistry" is aimed at developing in students the primary professional skills and abilities necessary for working in a surgical dental office, mastering the



algorithms for patient examination, asepsis, antisepsis, and performing basic manipulations.

The total workload of the subject is 90 hours.

The course consists of lectures and practical exercises. Ongoing assessment includes tests and practical exercises using mock-ups, designed to test the required competencies. The final assessment is an exam.

Course prerequisites: human anatomy (especially head and neck anatomy), normal physiology, histology, embryology and cytology, pathological anatomy, pathological physiology, microbiology, virology and immunology, general chemistry and biochemistry, pharmacology

Postrequisites: surgical dentistry, pediatric surgical dentistry, maxillofacial surgery, orthopedic dentistry, therapeutic dentistry (in terms of complex treatment), pediatric dentistry.

Competencies of students formed as a result of mastering the discipline, planned results of mastering the academic discipline.

Graduate in the specialty Dentistry with the assignment of a specialist qualification "Doctor" in accordance with the goals of the OOP and the objectives of professional activity, must have the following professional competencies:

Code	Contents of competence
GC-1	able and ready to analyze socially significant problems and processes, to use methods of natural sciences, mathematics and humanities in various types of professional and social activities;
IC-1	able and ready to work with computer equipment and software for system and application purposes to solve professional problems;
SPC-1	able and willing to implement ethical, deontological and bioethical principles in professional activities;
SPC-2	able and ready for professional communication techniques; build interpersonal relationships, work in a group, constructively resolve conflict situations, tolerate social, ethnic, religious and cultural differences;
PC-2	able and ready to conduct and interpret interviews, physical examinations, clinical examinations, results of modern laboratory and instrumental studies, morphological analysis of biopsy, surgical and autopsy material of patients, and to prepare medical records for outpatient and inpatient children and adults.
PC-3	able and willing to conduct a pathophysiological analysis of clinical syndromes, use sound methods of diagnosis, treatment, rehabilitation and prevention among children, taking into account their age and the adult population;



PC-4	able and willing to apply aseptic and antiseptic methods, use medical instruments, carry out sanitization of treatment and diagnostic rooms, children's healthcare organizations, and possess the skills to care for sick children and adults;
PC-6	able and ready to work with medical and technical equipment used in work with patients, computer equipment, receive information from various sources, apply the capabilities of modern information technologies to solve professional problems;
PC-15	able and willing to collect and record a complete patient medical history, including oral health data;
PC-16	capable and ready to make a diagnosis based on the results of clinical and laboratory studies of biological materials and taking into account the laws of the course of pathology in organs, systems and the body as a whole.
PC-18	able and ready to identify the main pathological symptoms and syndromes of diseases in patients, to perform basic diagnostic measures to identify urgent and life-threatening conditions;
PC-19	able and ready to diagnose typical dental diseases of the hard and soft tissues of the oral cavity, dentofacial anomalies in patients of all ages;
PC-20	able and ready to analyze and interpret the results of modern diagnostic technologies in children, adolescents and adults for successful treatment and preventive activities;
PC-22	able and ready to perform basic treatment measures for the most common dental diseases and conditions in adults and children.

Learning outcomes (LO) of the discipline

LO1 To analyze socially significant and professional problems in surgical dentistry using scientific methods and principles of evidence-based medicine.

LO2 Use computer technologies and specialized software to solve professional problems in surgical dentistry (diagnostics, treatment planning, working with medical documentation and images).

LO3 Apply the principles of bioethics, deontology and medical ethics when providing surgical dental care to patients, including children, and interacting with their relatives.

LO4 To effectively communicate professionally with patients of various age groups, their parents and medical staff, work in a team and constructively resolve conflict situations in a surgical setting.

LO5 Conduct clinical examinations of surgical patients, collect anamnesis taking into account age and somatic characteristics, and prepare medical documentation.

LO6 Perform clinical and pathophysiological analysis of surgical dental diseases and injuries of the maxillofacial region, interpret the results of clinical and instrumental research methods.



LO7 Conduct primary diagnostics of inflammatory, traumatic and purulent-inflammatory diseases of the maxillofacial region, as well as assess the condition of soft and bone tissues.

LO8 To develop and justify a basic plan for the prevention and provision of surgical dental care using modern principles and technologies.

LO9 Apply aseptic, antiseptic, and infection control techniques and ensure the safety of surgical dental procedures, including preparation of instruments and the working field.

LO10 Use modern digital technologies (radiodiagnostics, 3D images, electronic documentation) for diagnosis, planning and monitoring of surgical dental treatment.

After mastering the discipline "Propaedeutics of surgical dentistry" the student:

Will know:

- Anatomical and topographic features of the maxillofacial region.
- The structure of the jaw bone tissue, soft tissues and vascular-nerve formations.
- Fundamentals of asepsis and antisepsis in surgical dentistry.
- Principles of organizing a surgical dental office.
- Classification of surgical dental diseases and injuries.
- Basic methods of local anesthesia in dentistry.
- Surgical instruments and their purpose.
- Fundamentals of diagnostics of inflammatory and traumatic processes of the maxillofacial region.
- Principles of emergency care in dentistry.
- Fundamentals of wound healing and tissue regeneration.

Will understand:

- The relationship between the anatomy of the maxillofacial region and clinical manifestations of diseases and injuries.
- The importance of correct diagnosis for choosing surgical treatment tactics.
- The role of infectious factors in the development of surgical diseases.
- The importance of observing asepsis and antisepsis to prevent complications.
- Principles of anesthesia in surgical dentistry.
- The influence of traumatic factors on the tissues of the maxillofacial region.
- The importance of early assistance in emergency situations.
- Causes of complications after surgical interventions.
- The role of proper preparation of the patient for surgery.
- The importance of postoperative care in the outcome of treatment.

Will be able to use:

- Basic surgical dental instruments according to their intended purpose.
- Methods of clinical examination of a surgical patient.



- Principles of asepsis and antisepsis in practical work.
- Methods of local anesthesia (at the level of understanding and demonstration).
- Algorithms for providing first aid for maxillofacial injuries.
- Methods to stop bleeding (pressure bandage, tamponade).
- Principles of immobilization in jaw injuries (theoretical).
- Methods of wound treatment and dressing application.
- Rules for preparing the workplace of a dental surgeon.
- Basic algorithms for managing a surgical patient.

Will be able to carry out:

- Collecting anamnesis from a surgical patient.
- Clinical examination of the maxillofacial region (inspection, palpation, assessment of condition).
- Identification of signs of inflammatory and traumatic diseases.
- Preparing tools and work area for reception.
- Compliance with the rules of asepsis and antisepsis.
- Assistance with simple surgical procedures.
- First aid for bleeding and injuries.
- Carrying out dressings (at a basic level).
- Preparation of medical documentation.
- Communication with the patient and his relatives.

Will be able to analyze:

- Patient complaints and anamnesis data.
- Clinical picture of inflammatory and traumatic processes.
- Localization, nature and prevalence of the pathological process.
- The severity of the patient's condition.
- Results of basic diagnostic methods.
- Errors in first aid.
- Risks of developing complications from surgical interventions.
- The effectiveness of emergency care provided.
- Compliance with aseptic rules in clinical work.
- The appropriateness of the chosen patient management tactics.

Will be able to synthesize:

- Algorithm for examination of a surgical patient.
- Emergency care plan for maxillofacial injuries.
- Sequence of actions for inflammatory diseases.
- Scheme of patient preparation for surgical intervention.
- An integrated approach to preventing complications.
- Rational tactics for managing a surgical patient.
- Workplace organization plan for a dental surgeon.



- Algorithm for aseptic processing of instruments and fields.
- Postoperative monitoring system.
- Basic clinical decisions in typical situations.

Will be able to evaluate:


- General condition of the surgical patient.
- The severity of the inflammatory process.
- The nature and severity of traumatic injuries to the maxillofacial region.
- Correct implementation of aseptic measures.
- Effectiveness of first aid.
- Quality of the dressing process (theoretical/demonstration).
- Risk of developing postoperative complications.
- Adequacy of the chosen treatment tactics.
- The level of organization of the surgical office.
- Compliance with medical ethics and deontology.

1.2. Recommended educational technologies

The following educational technologies are used to facilitate students' mastery of the academic discipline "Propaedeutics of Surgical Dentistry," to acquire knowledge, and to develop professional competencies:

- lecture with elements of discussion and problem solving;
- lectures - electronic presentations;
- analysis of specific situations;
- role-playing game "doctor - patient";
- lecture-visualization;
- problem lecture;
- conference session;
- training;
- debate;
- brainstorming;
- master class;
- small group method;
- classes using phantoms;
- analysis of clinical cases;
- situational tasks;
- preparation and defense of medical history;
- student's research work;
- holding subject Olympiads;
- preparation of written analytical papers;
- preparation and defense of abstracts;

1.3. Scope of the discipline and types of academic work

	Educational institution RoyalMetropolitan University
	Quality management system Educational and methodological complex of the discipline "Propaedeutics of surgical dentistry" Department of Dental Disciplines of the Educational Institution "RMU" 560004 "Dentistry"


The section data is presented in tabular form in accordance with the curriculum. It also specifies the volume of classroom instruction (lectures, seminars, practical classes, and labs) and independent student work (overall and by semester in which the course is studied), as well as the types of final assessments.

Form of study – full-time

According to the 2025 curriculum	3 sem.	Total	
		in hours	in loans
Total labor intensity	90	90	3
Classroom work	54	54	
Lectures	18		
Practical classes	36		
Independent work	18	18	
SRSP	18	18	
Type of final control	Exam		

1.4. Structure of the discipline

1.4.1. Thematic plan for studying the discipline –Reflects the course structure, reveals the sequence of study of sections and topics of the program; is presented in the form of a table and provides information on the distribution of the number of hours by topics, types of classes (lectures, seminars, practical classes, laboratory work, independent work of students), the competencies developed, the educational technologies used, the methods and methods of teaching, and forms of assessment.

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Subject plan for studying the discipline and competency matrix(workload is indicated in academic hours)

No.	Name sections and topics disciplines (lectures and practical classes)	Classroom activities				Total hours on classroom work	SRSP	Independent work of a student	Formed competencies	Used educational technologies, methods and	Dummies	Forms of current and border control academic performance
		lectures	seminars	practical classes	laboratory work							
3rd semester												
1	Deontology in maxillofacial surgery and surgical dentistry	2		2		4	2		<i>GC-1, IC-1, SPC-1, SPC-2,</i>	<i>lecture using video materials</i>	<i>Models of jaws</i>	<i>Assessment of the acquisition of practical skills (abilities)</i>
2	Dental surgery room. Sanitary standards			2		2		2	<i>GC-1, IC-1, SPC-1</i>		<i>Dental unit, jaw models, instruments</i>	<i>Testing, control work. Assessment of the acquisition of practical skills (abilities).</i>



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3	Special equipment, apparatus and tools for examination of dental patients and operations in the maxillofacial area.	2		2		4	2		<i>PC-4, PC-6, PC-15, PC-16, PK-18, PC-19</i>	<i>lecture using video materials</i>	<i>Models of jaws, surgical instruments</i>	<i>Testing, control work. Assessment of the acquisition of practical skills (abilities).</i>
4	Disinfection and sterilization. Asepsis and antisepsis during facial and oral surgery.			2		2		2	<i>PC-2, PC-4, PC-6, PC-15</i>		<i>Dental unit, jaw models, instruments</i>	<i>Classes using training equipment and simulators. Testing. Quiz. Assessment of the acquisition of practical skills (abilities).</i>
5	Preparing the surgical field and the surgeon's hands. Sterilizing	2		2		4	2		<i>PC-6, PC-15, PC-19, PC-20, PC-22</i>	<i>lecture using video materials</i>	<i>Dental phantoms (head/jaw)</i>	<i>analysis of clinical cases.</i>




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	instruments, dressings, and sutures.											<i>classes using phantoms.</i>
6	Preparing the patient for surgery. Preparing the surgeon's hands and the surgical field.			2		2		2	<i>PC-6, PC-15, PC-19, PC-20, PC-22</i>		<i>Phantoms of the head and jaws, dental unit, instruments</i>	<i>Classes using phantoms. Testing. Quiz. Assessing the acquisition of practical skills (abilities). Solving situational problems</i>
7	Instruments in surgical dentistry. Types, names, and purposes. Instruments for tooth extraction in the upper jaw.	2		2		4	2		<i>PC-6, PC-15, PC-19, PC-20, PC-22</i>	<i>Plotting lecture</i>	<i>Surgical instruments in dentistry</i>	<i>analysis of clinical cases. Classes using phantoms</i>
8	Instruments in surgical dentistry. Types, names, and purposes. Instruments for tooth			2		2		2	<i>PC-6, PC-15, PC-19, PC-20, PC-22</i>		<i>Phantom jaws, dental unit, instruments</i>	<i>business and role-playing educational game.</i>

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	extraction in the lower jaw.											<i>Classes using phantoms</i>
9	Care of surgical instruments in dentistry. Methods and stages of sterilization and disinfection in dentistry.	2		2		4	2		<i>PC-6, PC-15, PC-19, PC-20, PC-22</i>	<i>problematic lecture</i>	<i>Surgical instruments in dentistry</i>	<i>analysis of clinical cases. Classes using phantoms</i>
10	Prevention of hepatitis B, C, D and AIDS in surgical dentistry			2		2		2	<i>PC-4, PC-6, PC-15, PC-16, PK-18, PC-19</i>		<i>Phantom jaws, dental unit, instruments</i>	<i>analysis of clinical cases. Classes using phantoms</i>
11	Types of tooth retention, causes of eruption disorders and their consequences	2		2		4	2		<i>PK-2, PC-3, PC-4, PC-15, PC-16</i>	<i>lecture using video materials</i>	<i>Jaw dummies</i>	<i>Solving situational problems</i>
12	Symptoms and treatment methods for impacted teeth.			2		2		2	<i>PC-2, PC-3, PC-4,</i>		<i>Jaw dummies</i>	<i>Testing</i>

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13	Local anesthetics and medications used for local anesthesia. Classification.	2		2		4	2		PC-4, PC-6, PC-15, PC-16, PK-18, PC-19	lecture using video materials	Phantoms of the skull and jaws	analysis of clinical cases. Classes using phantoms
14	Mechanism of action of local anesthetics.			2		2	2		PC-2, PC-3, PC-4,		Surgical instruments in dentistry	Solving situational problems
15	Use of vasoconstrictors during local anesthesia (indications and contraindications).	2		2		4	2		PK-2, PC-3, PC-4, PC-15, PC-16	lecture-visualization	Surgical instruments in dentistry	analysis of clinical cases.
16	Use of drugs during general anesthesia (indications and contraindications).			2		2	2		PC-6, PC-15, PC-19, PC-20, PC-22		Phantoms of the Skull	analysis of clinical cases.
17	Mechanism of action of general anesthesia. Classification	2		2		4	2		PK-2, PC-3, PC-20, PC-22	lecture using video materials	Phantoms of the skull and jaws	Testing
18	Side effects and complications with local and general anesthesia			2		2	2		PC-6, PC-15, PC-19, PC-20, PC-22			Testing. Control work. Assessing the

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												acquisition of practical skills (abilities). Solving situational problems
		18		36		54	18	18				Exam
	Total hours by discipline:	18		36		54	18	18				

Examples of educational technologies, methods and teaching techniques (abbreviated): traditional lecture (L), lecture-visualization (LV), problem lecture (PL), lecture-press conference (LPC), lesson-conference (LC), training (T), debates (D), brainstorming (MSh), master class (MC), round table (RT), activation of creative activity (ATD), regulated discussion (RD), forum-type discussion (F), business and role-playing educational game (DI, RI), small group method (MG), classes using simulators, imitators (Tr), computer simulation (KS), analysis of clinical cases (KS), preparation and defense of medical history (IB), use of computer training programs (CTP), interactive atlases (IA), attendance of medical conferences, consultations (VK), participation in scientific and practical conferences (SPC), congresses, symposia (Sim), student educational and research work (UIRS), conducting subject Olympiads (O), preparation of written analytical works (AP), preparation and defense of abstracts (R), project technology (PT), excursions (E), distance educational technologies (DOT).

Sample forms of current and midterm monitoring of academic performance (abbreviated): T – testing, Pr – assessment of mastery of practical skills (abilities), ZS – solving situational problems, CR – test, KZ – control assignment, IB – writing and defending a medical history, CL – writing and defending a supervisory sheet, R – writing and defending an abstract, S – interview on test questions, D – preparing a report, etc.

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1.4.2. Organization of independent work of students

No	Topic of independent work for students of 3rd semester:	Assignment for independent work	Recommended literature	Deadlines surrender (week number)
1.	Organization of a surgical dental office	Abstract, presentation, preparation of the report.	1. Surgical dentistry: textbook / edited by S. V. Tarasenko. - Moscow: GEOTAR-Media, 2021 2. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018 3. Anatomy, physiology and biomechanics of the dental system / edited by S. D. Arutyunov, L. L. Kolesnikov, V. P. Degtyarev, I. Yu. Lebedenko - Moscow: GEOTAR-Media, 2017 4. Maxillofacial surgery: textbook / edited by A. Yu. Drobyshev, O. O. Yanushevich. - Moscow: GEOTAR-Media, 2021 5. Organization and equipment of a dental clinic, office. Sanitary and hygienic requirements. Ergonomic principles of a dentist's work: a textbook / edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2016	1
2.	Asepsis and antisepsis in surgical dentistry	Abstract, presentation, preparation of a report	1. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018 2. Dental materials science: textbook / E. S. Kalivradzhiyan, E. A. Bragin,	2



			<p>I. P. Ryzhova [et al.]. - Moscow: GEOTAR-Media, 2023</p> <p>3. Propaedeutic dentistry: situational tasks: a tutorial / E. A. Bazikyan [et al.]; edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2023</p> <p>4. Biological chemistry. Biochemistry of the oral cavity: textbook / T. P. Vavilova, A. E. Medvedev. - Moscow: GEOTAR-Media, 2023</p> <p>5. Features of disinfection and sterilization in dentistry: a tutorial / edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2020</p>	
3.	Surgical dental instruments	Abstract, presentation, preparation using dummies.	<p>1. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018</p> <p>2. Anatomy, physiology and biomechanics of the dental system / edited by S. D. Arutyunov, L. L. Kolesnikov, V. P. Degtyarev, I. Yu. Lebedenko - Moscow: GEOTAR-Media, 2017</p> <p>3. Biological chemistry. Biochemistry of the oral cavity: textbook / T. P. Vavilova, A. E. Medvedev. - Moscow: GEOTAR-Media, 2023</p> <p>4. Surgical dentistry: textbook / V. V. Afanasyev [et al.]; edited by V. V. Afanasyev. - 3rd ed., revised. - Moscow: GEOTAR-Media, 2021</p>	3



			5. Dental instruments: atlas / E. A. Bazikyan. - 3rd ed. , erased - Moscow: GEOTAR-Media, 2017	
4.	Methods of examination of a surgical patient	Abstract, presentation, preparation using dummies.	1. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018 2. Anatomy, physiology and biomechanics of the dental system / edited by S. D. Arutyunov, L. L. Kolesnikov, V. P. Degtyarev, I. Yu. Lebedenko - Moscow: GEOTAR-Media, 2017 3. Surgical dentistry: textbook / edited by S. V. Tarasenko. - Moscow: GEOTAR-Media, 2021 6. Human anatomy. Atlas for dentists and orthopedic dentists / L. M. Litvinenko, D. B. Nikityuk - Moscow: Litterra, 2017	4
5	Anatomical and topographic features of the maxillofacial region	Abstract, presentation, preparation of the report.	1 Human anatomy. Atlas for dentists and orthopedic dentists / L. M. Litvinenko, D. B. Nikityuk - Moscow: Litterra, 2017 2. Anatomy, physiology and biomechanics of the dental system / edited by S. D. Arutyunov, L. L. Kolesnikov, V. P. Degtyarev, I. Yu. Lebedenko - Moscow: GEOTAR-Media, 2017 3. Surgical dentistry: textbook / edited by S. V. Tarasenko. - Moscow: GEOTAR-Media, 2021	5
6	Basics of local anesthesia	Abstract, presentation,	1. Dental instruments: atlas / E. A. Bazikyan. - 3rd ed. ,	6




		preparation of the report.	<p>erased - Moscow: GEOTAR-Media, 2017</p> <p>2. Surgical dentistry: textbook / edited by S. V. Tarasenko. - Moscow: GEOTAR-Media, 2021</p> <p>3. Human anatomy. Atlas for dentists and orthopedic dentists / L. M. Litvinenko, D. B. Nikityuk - Moscow: Litterra, 2017</p> <p>4. Anatomy, physiology and biomechanics of the dental system / edited by S. D. Arutyunov, L. L. Kolesnikov, V. P. Degtyarev, I. Yu. Lebedenko - Moscow: GEOTAR-Media, 2017</p>	
7	Infiltration anesthesia	Abstract, presentation, preparation of the report.	<p>1 Anatomy, physiology and biomechanics of the dental system / edited by S. D. Arutyunov, L. L. Kolesnikov, V. P. Degtyarev, I. Yu. Lebedenko - Moscow: GEOTAR-Media, 2017</p> <p>3. Surgical dentistry: textbook / edited by S. V. Tarasenko. - Moscow: GEOTAR-Media, 2021</p> <p>Dental instruments: atlas / E. A. Bazikyan. - 3rd ed. , erased - Moscow: GEOTAR-Media, 2017</p> <p>3. Propaedeutic dentistry: textbook / E. S. Kalivradzhiyan et al. - Moscow: GEOTAR-Media, 2014</p> <p>4. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018.</p>	7



8	Conduction anesthesia	Abstract, presentation. Preparation using dummies.	<p>1 Anatomy, physiology and biomechanics of the dental system / edited by S. D. Arutyunov, L. L. Kolesnikov, V. P. Degtyarev, I. Yu. Lebedenko - Moscow: GEOTAR-Media, 2017</p> <p>3. Surgical dentistry: textbook / edited by S. V. Tarasenko. - Moscow: GEOTAR-Media, 2021</p> <p>Dental instruments: atlas / E. A. Bazikyan. - 3rd ed. , erased - Moscow: GEOTAR-Media, 2017</p> <p>3. Propaedeutic dentistry: textbook / E. S. Kalivradzhiyan et al. - Moscow: GEOTAR-Media, 2014</p> <p>4. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018.</p>	7
9	Preparing the patient for surgery. Preparing the surgeon's hands and the surgical field.	Abstract, presentation, report preparation.	<p>1. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018</p> <p>2. Dental materials science: textbook / E. S. Kalivradzhiyan, E. A. Bragin, I. P. Ryzhova [et al.]. - Moscow: GEOTAR-Media, 2023</p> <p>3. Propaedeutic dentistry: situational tasks: a tutorial / E. A. Bazikyan [et al.]; edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2023</p> <p>4. Biological chemistry. Biochemistry of the oral cavity: textbook / T. P. Vavilova, A. E. Medvedev. -</p>	8



			<p>Moscow: GEOTAR-Media, 2023</p> <p>5. Features of disinfection and sterilization in dentistry: a tutorial / edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2020</p>	
10	Prevention of hepatitis B, C, D and AIDS in surgical dentistry	Abstract, presentation, report preparation.	<p>1. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018</p> <p>2. Dental materials science: textbook / E. S. Kalivradzhiyan, E. A. Bragin, I. P. Ryzhova [et al.]. - Moscow: GEOTAR-Media, 2023</p> <p>3. Propaedeutic dentistry: situational tasks: a tutorial / E. A. Bazikyan [et al.]; edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2023</p> <p>4. Biological chemistry. Biochemistry of the oral cavity: textbook / T. P. Vavilova, A. E. Medvedev. - Moscow: GEOTAR-Media, 2023</p> <p>5. Features of disinfection and sterilization in dentistry: a tutorial / edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2020</p>	8
11	Local anesthetics and medications used for local anesthesia. Classification.	Abstract, presentation, report preparation.	<p>1. Introduction to Dentistry / Sevbitov AV - Moscow: GEOTAR-Media, 2018</p> <p>2. Dental materials science: textbook / E. S. Kalivradzhiyan, E. A. Bragin, I. P. Ryzhova [et al.]. -</p>	9

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			<p>Moscow: GEOTAR-Media, 2023</p> <p>3. Propaedeutic dentistry: situational tasks: a tutorial / E. A. Bazikyan [et al.]; edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2023</p> <p>4. Biological chemistry. Biochemistry of the oral cavity: textbook / T. P. Vavilova, A. E. Medvedev. - Moscow: GEOTAR-Media, 2023</p> <p>5. Features of disinfection and sterilization in dentistry: a tutorial / edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2020</p>
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1.4.3. Assessment tools for monitoring academic performance

- **Current and midterm (modular) control**

Current monitoring of students' knowledge may represent:

- oral survey;
- solving situational problems;
- assessment of the acquisition of practical skills using dummies;
- test task; test work;
- checking the completion of written homework;
- checking abstracts, reports, presentations.

Topics of abstracts (reports, presentations):

1. Organization of a surgical dental office
2. Sanitary and epidemiological regime in surgical dentistry
3. Modern requirements for equipping a surgical room
4. Organization of the workplace of a dental surgeon
5. Medical documentation in surgical dentistry
6. Asepsis and antisepsis: basic principles
7. Methods of sterilization of dental instruments
8. Disinfection in dental practice



9. Prevention of nosocomial infection
10. Infection control in dentistry
11. Classification of surgical dental instruments
12. Modern surgical instruments and their application
13. Rules for storing and preparing instruments
14. Tooth extraction instruments: classification and application
15. Soft tissue instruments
16. Anatomical and topographic features of the upper jaw
17. Anatomical and topographic features of the lower jaw
18. Blood supply of the maxillofacial region
19. Innervation of the maxillofacial region
20. Features of the soft tissues of the face and oral cavity
21. Methods of clinical examination of a surgical patient
22. Collection of anamnesis in surgical dentistry
23. Examination and palpation of the maxillofacial region
24. The role of radiographic methods in surgical dentistry
25. Fundamentals of differential diagnosis of maxillofacial diseases
26. Basics of local anesthesia in dentistry
27. Infiltration anesthesia: technique and indications
28. Conduction anesthesia: types and features
29. Complications of local anesthesia and their prevention
30. Allergic reactions to anesthetics

Sample situational problems for the discipline:
Situational tasks

Task 1. Organization of surgical procedures and asepsis

A student began a practical lesson in a surgical room. Before starting work, he failed to thoroughly sanitize his hands, put on non-sterile gloves, and began preparing instruments. During the preparation process, it became clear that some of the instruments had not been adequately sterilized.

Tasks:

1. Please indicate any errors made.
2. Describe the correct algorithm for preparing a doctor for work.
3. List the stages of instrument sterilization.
4. Explain the possible consequences of aseptic violations.

Task 2. Examination of a surgical patient

A 35-year-old patient presented with complaints of pain and swelling in the right lower jaw. The pain intensified with chewing. Examination revealed mucosal hyperemia, tenderness to palpation, and enlarged regional lymph nodes.

Tasks:



1. Make a patient examination plan.
2. What clinical diagnostic methods should be used?
3. Provide a preliminary diagnosis.
4. What further research is needed?

Problem 3. Complication of local anesthesia

During infiltration anesthesia, the patient suddenly experienced weakness, dizziness, pale skin, and cold sweat. The patient lost consciousness.

Tasks:

1. Determine the condition that has arisen.
2. Describe the algorithm for providing emergency care.
3. List the possible causes of this complication.
4. What preventive measures should be taken?

Problem 4. Bleeding after tooth extraction (theoretical situation)

After a tooth extraction, the patient continues to bleed from the socket. The patient is restless and experiencing moderate blood loss.

Tasks:

1. Identify possible causes of bleeding.
2. Describe the methods of temporary and permanent stopping of bleeding.
3. What errors could have led to this complication?
4. When is an urgent referral to a specialist required?

Problem 5. Facial soft tissue trauma

An 8-year-old child suffered a fall injury. A laceration of the lower lip was found, with moderate bleeding and jagged, dirty edges.

Tasks:

1. Describe the algorithm for primary surgical treatment of a wound.
2. Determine the indications for suturing.
3. What antiseptic measures need to be taken?
4. What recommendations should be given to parents after treating the wound?

Task 6. Violation of the technique of working with tools

During a practical lesson, a student incorrectly holds a surgical instrument (tweezers and scalpel), applies excessive force, and obstructs the surgical field. The instructor notes the risk of tissue injury.

Tasks:

1. Point out the errors in the technique of working with tools.
2. Describe the correct ways to hold basic surgical instruments.
3. What consequences can occur if the technique is incorrect?
4. What are the principles of safe tool use?

Problem 7. Allergic reaction to an anesthetic

After the administration of local anesthetic, the patient experienced itching, redness of the facial skin, swelling of the lips and eyelids, and difficulty breathing.

Tasks:

1. Determine the type of complication.
2. Describe the algorithm for providing emergency care.



3. What medications should be used?
4. What preventive measures should be taken before anesthesia?

Problem 8. Violation of sterility during dressing

While performing the dressing, the student touched the sterile material with non-sterile gloves, after which he continued the manipulation.

Tasks:

1. Assess the correctness of the student's actions.
2. Describe the rules for working with sterile material.
3. What complications may arise?
4. What is the correct procedure if sterility is compromised?

Task 9. Preparing the patient for surgery

A patient is scheduled for a tooth extraction. A medical history revealed a chronic condition (hypertension), and the patient is experiencing severe anxiety about the procedure.

Tasks:

1. What additional information needs to be clarified?
2. Describe the stages of preparing the patient for the intervention.
3. How to reduce patient anxiety?
4. What safety measures should be taken?

Problem 10. Errors in applying a bandage

After treating the wound, the student applied the bandage too tightly. After some time, the patient complained of pain, numbness, and increased swelling.

Tasks:

1. Please indicate any errors made.
2. Describe the rules for applying bandages.
3. What complications may arise?
4. How to fix the situation correctly?

*further see the FOS Application

Boundary (modular) control may represent:

- testing by section (computer);

Sample test assignments for midterm (modular) assessment:

1. The basic principle of asepsis is:

- A. Destroying germs in the wound
- B. Treating the infection with antibiotics
- C. Preventing the entry of microorganisms into the wound**
- D. Reducing pain

2. Antiseptics are aimed at:

- A. Injury Prevention
- B. Destruction of microorganisms in the wound and the body**
- C. Improved blood circulation
- D. Accelerated healing



3. Which tool is considered cutting?

- A. Tweezers B. Forceps
- C. Scalpel**
- D. Elevator

4. If the patient faints, it is necessary to:

- A. Sit the patient up B. Give water
- C. Place the patient with his legs elevated.**
- D. Give an antibiotic

5. The main method of temporary stopping of bleeding:

- A. Suturing
- B. Pressure bandage**
- C. Tooth extraction D. Taking analgesics

6. Infiltration anesthesia is used for:

- A. General anesthesia
- B. Anesthesia of a limited area of tissue**
- C. Treating infection D. Stopping bleeding

7. The main purpose of instrument sterilization:

- A. Cleaning from contaminants
- B. Complete destruction of all microorganisms**
- C. Improving appearance D. Removing odor

8. The main symptom of inflammation:

- A. Dryness
- B. Pain, swelling, redness**
- C. Numbness D. Itching


9. If sterility is compromised, it is necessary to:

- A. Continue working B. Ignore
- C. Replace tools and repeat processing.**
- D. Complete the procedure

10. The main goal of primary surgical treatment of the wound:

- A. Tooth extraction
- B. Wound cleaning and infection prevention**
- C. Pain reduction D. Improved aesthetics

*further see the FOS Application

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- **Final control**

Final control at the end of the study of the academic discipline it is carried out in the form of an exam, which is exhibited based on the results of testing and midterm (modular) control in the discipline.

1.4.4. Course policy and assessment criteria

Students' knowledge is assessed using a point-rating system in accordance with the standard "Regulations on the modular point-rating system for assessing students' knowledge.

Discipline "Propaedeutics of Surgical Dentistry" assessed on a 100-point scale:

The maximum score is 100, of which:

- SRS - 20 points;
- current control - 40 points
- midterm control (module completion) - 40 points.

The results of the two modules are added together to produce an average score.

Scoring Policy	Module 1	Module 2, etc.
Classroom work (activity in discussions, oral questioning, group work, etc.)	40 points	40 points
Independent work: essay, report	20 points	20 points
Total for the module (testing)	40 points	40 points
Total for the discipline:	100 points	
Exam		

Final assessment in the form of a test or exam is carried out based on the results of attendance, current and midterm (modular) assessment.

The final assessment form is an exam.

The following scale of grades and scores is used to evaluate student performance:

Rating and Scoring Scale				
Maximum score	Intervals			
	unsatisfactory	"satisfactorily"	"Fine"	"Great"
20	0-11	12-15	16-17	18-20
40	0-23	24-30	31-35	36-40
60	0-35	36-45	46-53	54-60
100	0-59	60-75	76-89	90-100

Academic achievement grading scale

Rating (points)	Letter grading system	Value for calculating GPA	Digital equivalent of the assessment	Assessment according to the traditional system
96-100%	A+	4.00	5	Great
93-95.99%	A	3.75		
90-92.99%	A-	3.67		



87-89.99%	B+	3.33	4	Fine
83-86.99%	B	3.00		
80-82.99%	B-	2.67		
77-79.99%	C+	2.33	3	Satisfactorily
73-76.99%	C	2.00		
70-72.99%	C-	1.67		
67-69.99%	D+	1.33	2	
63-66.99%	D	1.00		
60-62.99%	D-	0.67		
00-59.99%	F	0.00	1	Unsatisfactory
	P			Credit
	NP			Fail
	I		Not taken into account when calculating the average grade	Failed to comply with all disciplinary requirements for a valid reason
	W			Refusal to attend a course that is not mandatory
	AU			Attended the course as a listener, without receiving grades (awarded to a student if he/she has attended at least 80% of the classes in the additional discipline as a listener).

I - awarded to a student who has failed to complete all course requirements for a valid reason. The student has the right to complete all course requirements within the time limit established by the educational institution, after which the grade will be adjusted.

W - assigned to a student who decides to withdraw from a course no later than the sixth week of the semester. Applies only to elective courses.

AU - awarded to a student if he/she has attended at least 80% (eighty percent) of the classes in the additional discipline as a listener.

For each discipline, GPA is calculated automatically in the information system.



GPA (Grade Point Average) is a weighted average of a student's academic achievement. GPA is a key indicator of academic performance.

Based on academic performance, a GPA is calculated, with a maximum of 4.0. A student's GPA is calculated based on their academic performance in each semester and at graduation.

1.4.5. Educational, methodological and informational support of the discipline **List of sources and literature:**

a) main literature:

1. Dental Materials Science: Textbook / E. S. Kalivradzhiyan, E. A. Bragin, I. P. Ryzhova [et al.]. - Moscow: GEOTAR-Media, 2023
2. Propaedeutic dentistry: situational tasks: a tutorial / E. A. Bazikyan [et al.]; edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2023
3. Dentistry and Maxillofacial Surgery. Recording and Maintaining a Case History / edited by O. O. Yanushevich, V. V. Afanasyev. - 3rd ed., revised and enlarged. - Moscow: GEOTAR-Media, 2022.
4. Dental Materials Science with a Course in Occupational Health and Safety: Textbook / M. L. Mironova, T. M. Mikhailova. - Moscow: GEOTAR-Media, 2021
5. Surgical Dentistry: textbook / V. V. Afanasyev [et al.]; edited by V. V. Afanasyev. - 3rd ed., revised. - Moscow: GEOTAR-Media, 2021
6. Surgical Dentistry: Textbook / edited by S. V. Tarasenko. - Moscow: GEOTAR-Media, 2021
7. Maxillofacial surgery: textbook / edited by A. Yu. Drobyshev, O. O. Yanushevich. - Moscow: GEOTAR-Media, 2021
8. Surgical Dentistry. Inflammatory and Degenerative Diseases of the Salivary Glands: A Textbook / edited by A. M. Panin. - 2nd ed., revised and enlarged. - Moscow: Litterra, 2020
9. Features of disinfection and sterilization in dentistry: a textbook / edited by E. A. Bazikyan. - Moscow: GEOTAR-Media, 2020

b) additional literature:

1. Pediatric Maxillofacial Surgery. Clinical Case Studies: A Tutorial / edited by O. Z. Topolnitsky, A. P. Gurgenzadze. Moscow: GEOTAR-Media, 2020
2. Histology and embryology of the oral cavity organs and teeth: a tutorial / Gemonov V.V., Lavrova E.N., Falin L.I. - Moscow: GEOTAR-Media, 2019
3. Interaction of dental materials with the human body: a tutorial / Kurbanov O. R., Alieva A. O., Kurbanov Z. O. - Moscow: GEOTAR-Media, 2019
4. Oral surgery: textbook / Bazikyan E. A. [et al.] - Moscow: GEOTAR-Media, 2019
5. Pain relief and emergency care in outpatient dental practice: a tutorial / Sokhov S. T. [et al.] - Moscow: GEOTAR-Media, 2019.



6. Abscesses and phlegmons of the maxillofacial region and neck. Atlas: study guide: study guide / Afanasyev V. V., Yanushevich O. O., Urgunaliyev B. K. - Moscow: GEOTAR-Media, 2019
7. X-ray examinations in dentistry and maxillofacial surgery: atlas / A. P. Arzhantsev. - Moscow: GEOTAR-Media, 2019.
8. Emergency care in emergency conditions in dentistry / A. B. Bichun, A. V. Vasiliev, V. V. Mikhailov - Moscow: GEOTAR-Media, 2017
9. Odontogenic inflammatory diseases of the oral cavity / E. A. Bazikyan, A. I. Bychkov, I. Yu. Goncharov, M. V. Kozlova, G. N. Zhuruli, G. A. Volozhin, M. B. Morozov, A. A. Chunikhin, O. A. Bazikyan, M. N. Zudina - Moscow: GEOTAR-Media, 2017

List of resources of the information and telecommunications network "Internet" necessary for mastering the discipline

Provide links to websites that are publicly accessible.

List of resources of the information and telecommunications network "Internet" required for mastering the discipline (modules)


- www.dentalcare.com, www.ohi-s.com
- www.kyrlibnet.kg.
- www.iprbookshop.ru.
- www.consilium-medicum.com.
- www.medportal.ru.
- www.studmedlib.ru
- Cochrane.org, sciencedirect.com.
- www.mediliter.ru, www.meduniver.com,
- kingmed.info, medlit.biz,
- allmedbook.ru, booksmed.com, medicalenglish.ru,
- library.bsu.edu.ru.

1.4.6. Material and technical support of discipline

When teaching students, modern methods and forms of teaching are used, using the latest information technologies, electronic educational resources and other information systems necessary for the successful implementation of educational, scientific and therapeutic activities.

The department has the necessary equipment for teaching, including demonstration devices, multimedia, posters, and visual aids. Classroom requirements include computer labs, academic and specially equipped classrooms, and laboratories, as well as a blackboard.

The lecture room is equipped with a power supply kit (220 V, 2 kW, complete with an RCD), specialized furniture and office equipment (a blackboard for writing with chalk and felt-tip pen, a stand-lectern, a lecturer's desk, a chair-chair, classroom tables, a classroom chair, as well as technical teaching aids (a wall-mounted screen with an electric drive and remote control, a multimedia projector with a laptop).

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The practical lesson consists of two parts: the first half is a review of the student's theoretical knowledge (etiology, clinical picture, complaints, etc.); the second half is a general examination of the patient, a simulation center where students can examine dental materials and instruments, see how a dental unit works, conduct an examination in a dental chair, and practice on artificial teeth.

Table 1

No. p/p	Type	Name	Note
1.	Presentations.	Throughout the lecture course	From 20 to 30 slides per presentation
2.	Written and test assignments.	Throughout the lecture course	In a significant way quantity
3.	Practical classes.	Throughout the course	In a significant way quantity

List of premises used

Table 2.

No.	Audience type	List of equipment
1	An auditorium for lecture-type classes.	A stationary multimedia projector, laptop, 3x4 m screen, whiteboard, and audio equipment. (microphone, speakers)
2	Auditorium for seminars, ongoing monitoring and midterm assessment, group and individual consultations	Stationary multimedia projector, laptop, 3x4 m screen, interactive whiteboard, dummies, phantoms.

1.4.7. Student research work

The research project in the discipline "Obstetrics and Gynecology" has the following goals: increasing the level of professional and creative training of students, improving the forms of involving young people in scientific research, and using the creative potential of students to solve current scientific problems.

The research work is aimed at solving the following problems:

- to form an idea of the main stages of scientific research activities;
- to teach how to use the conceptual apparatus of scientific research in work;
- teach how to work with various information sources;
- development of skills for perception and analysis of professional information;
- development and improvement of decision-making and implementation abilities;



- training students by means of their acquisition of methods, techniques and skills for carrying out scientific research work during the learning process;
- development of their creative abilities, independence, initiative in studies and future professional activities within the framework of their specialty.

The program of scientific research work of students (SRW), as a section for mastering practical skills, includes:

- study of specialized literature and other scientific and medical information, achievements of domestic and foreign science and technology in the field of medical knowledge, preparation of scientific papers (literature reviews);
- participation in conducting scientific research or in carrying out certain developments in departments;
- collection, processing, analysis and systematization of scientific information on a topic or assignment;
- preparing reports and presenting a paper at a conference, preparing scientific work for publication;
- participation in mass events of the research and development system (student scientific conferences, seminars, subject Olympiads, competitions, Science Week, exhibitions, discussions, debates, etc.).

To solve the problem, students are offered to read and meaningfully analyze scientific monographs and articles on various issues of obstetrics and gynecology contained in list of resources of the information and telecommunications network "Internet":

<http://journals.medi.ru>

www.agog.org

www.obgyn.onlinelibrary.wiley.com

www.journals.lww.com

<http://www.doctor-ru.org/>

<http://www.med2000.ru/catalog.htm>

http://www.nlr.ru/res/inv/ic_med/index.php

<http://www.elibrary.ru/>

<http://www.medmir.com/>

<http://www.medLine.ru>

<http://varles.narod.ru>

<http://whodc.mednet.ru/>

<http://www.aonb.ru/iatp/guide/library.html>

<http://elibrary.rsl.ru/>

<http://studentam.net/>

<http://www.europeana.eu/portal/>

<http://kuzdrav.ru/special/guideline/cragmz.php>

The results of work with scientific monographs and articles are discussed during practical classes.

To develop and improve communication skills, decision-making skills, and medical tactics in emergency situations, special training sessions are organized in



the form of work in small groups, role-playing games, brainstorming, discussions, presentations, or, in preparation for which, students are divided into groups in advance, defending one or another point of view on the issue under discussion.

2. Educational and methodological materials

Educational and methodological materials (EMM), as methodological support for the discipline, are presented in the form of lecture texts, developments of practical classes, both in printed and electronic form.

2.1. Lecture notes

Lecture Topic #1: Ethics in Maxillofacial Surgery and Dental Surgery. Dental Surgical Room. Sanitary Standards

1. The purpose of the lecture:

To develop students' understanding of the principles of deontology in maxillofacial surgery and surgical dentistry, the specifics of professional communication with patients, and to provide systematic knowledge about the organization of a surgical dental office and compliance with sanitary and hygienic standards.

2. Issues under consideration:

- The concept of deontology in medicine and dentistry
- Ethical principles of work of a dental surgeon • Features of communication with surgical patients • Psychological preparation of the patient for surgical intervention
- Organization of a dental surgical office • Equipment and zoning of the office • Sanitary and epidemiological requirements • Asepsis and antisepsis in surgical dentistry • Methods of sterilization and disinfection • Prevention of nosocomial infections

3. Educational technologies:

- lecture using video materials

4. Primary and secondary literature:

1. Introduction to Oral and Maxillofacial Surgery / Peterson LJ – Mosby
2. Surgical dentistry / edited by T. G. Robustova – Moscow: GEOTAR-Media
3. Propaedeutics of surgical dentistry: a textbook – Moscow: GEOTAR-Media
4. Surgical dentistry: textbook / edited by V. V. Afanasyev – Moscow: GEOTAR-Media
5. Infection Control in Dentistry / Study Guide – Moscow: GEOTAR-Media
6. Medical Ethics and Deontology: Textbook – Moscow: GEOTAR-Media



Deontology Ethics is a branch of medical science that studies the norms and principles of professional conduct of healthcare professionals. In maxillofacial surgery and dental surgery, ethics is particularly important, as physicians are faced with invasive procedures, patient pain, and high levels of anxiety.

Medical deontology plays an important role in the daily work of a physician, particularly a surgeon. The term "deontology" (from the Greek deon - duty, logos - teaching) was introduced in the 18th century by the English philosopher Jeremy Bentham and encompasses the teachings of medical ethics and aesthetics, medical duty, medical confidentiality, and so on. It studies the principles of behavior of medical personnel, their relationships with patients, their families, and each other. Its responsibilities also include eliminating the "harmful consequences of inadequate medical practice." Over millennia of medical practice, many norms of deontology have become rituals, forming a kind of medical etiquette, similar to rules of good manners, the deeper meaning of which people do not always understand but strive to observe.

The main directions of the modern development of medical ethics and deontology were outlined by the outstanding Soviet surgeon N.N. Petrov (1945): "The main task of any medical deontology is to constantly remind medical workers that medicine should serve the benefit of sick people, and not sick people - the benefit of medicine."

Academician A.F. Bilibin (1967) wrote about the high moral demands placed on a doctor: "Learning to be a doctor means learning to be a human being," quite rightly noting that "...medicine is a sphere of service, not maintenance."

Characterizing the features of medicine, Academician I.A. Kassirsky noted that "medicine is a special, unique type of activity, distinguished in deontological terms by its extraordinary complexity and diversity, and some aspects of medical Activities that are not always controlled. A medical degree imposes enormous social, governmental, and human responsibility on those who receive it."

The fundamental principles of ethical conduct are humanism, respect for the patient, maintaining patient confidentiality, responsibility for treatment results, and professional competence. A dental surgeon must demonstrate tact, attentiveness, and empathy, especially when working with patients who are fearful of surgery.

Proper communication with the patient is particularly important. The doctor must clearly explain the diagnosis, treatment plan, and potential risks, and obtain informed consent. Psychological preparation of the patient is also crucial, as it reduces stress and improves the effectiveness of treatment.

The organization of a dental surgery room plays a key role in ensuring the quality and safety of medical care. The room must be equipped with modern equipment, including a dental unit, surgical instruments, sterilization equipment, and personal protective equipment. Proper zoning of the space is essential: a sterile zone, an instrument storage area, and a patient reception area are designated.

Sanitary and epidemiological regulations are aimed at preventing the spread of infections. In surgical dentistry, the rules of asepsis and antisepsis are strictly



observed. Asepsis aims to prevent microorganisms from entering the wound, while antisepsis aims to destroy them.

The key steps in ensuring sterility are disinfection, pre-sterilization cleaning, and sterilization of instruments. Various sterilization methods are used, including steam (autoclaving), dry heat, and chemical sterilization. Particular attention is paid to hand hygiene of medical personnel and the use of sterile gloves and instruments.

Preventing hospital-acquired infections involves adhering to infection control standards, proper disposal of medical waste, and regular disinfection of surfaces. Failure to comply with sanitary standards can lead to complications in patients and the spread of infectious diseases.

Thus, ethics, surgical room organization, and compliance with sanitary standards are fundamental aspects of a dental surgeon's training. Knowledge and practical application of these principles ensure patient safety, effective treatment, and a high level of professional performance.

Lecture Topic No. 2: Special equipment, apparatus and instruments for examining dental patients and performing operations in the maxillofacial region.

Disinfection and sterilization. Asepsis and antisepsis during facial and oral surgery.

1. The purpose of the lecture:

To develop students' systematic knowledge of specialized equipment and instruments used in surgical dentistry and maxillofacial surgery, as well as to study the principles of disinfection, sterilization, asepsis, and antisepsis during operations.

2. Issues under consideration:

- Equipment for a surgical dental office
- Classification of surgical instruments
- Instruments for examining dental patients
- Equipment for diagnostics and treatment
- Instruments for operations in the maxillofacial area
- The concept of disinfection, its types and methods
- Stages of pre-sterilization treatment
- Sterilization methods (physical, chemical)
- Asepsis and its importance in surgery
- Antisepsis: types and methods of application
- Prevention of infectious complications

3. Educational technologies:

- lecture using video materials

4. Primary and secondary literature:

1. Introduction to Oral and Maxillofacial Surgery / Peterson LJ – Mosby
2. Surgical dentistry / edited by T. G. Robustova – Moscow: GEOTAR-Media
3. Propaedeutics of surgical dentistry: a textbook – Moscow: GEOTAR-Media



4. Surgical dentistry: textbook / edited by V. V. Afanasyev – Moscow: GEOTAR-Media
5. Infection Control in Dentistry – Moscow: GEOTAR-Media
6. Sterilization and Disinfection in Medical Practice – A Textbook

Modern oral and maxillofacial surgery requires the use of high-tech equipment, specialized instruments, and strict adherence to infection control principles. Surgical room equipment must meet modern standards and allow for diagnostic and therapeutic procedures.

Specialized equipment includes dental units, surgical tables, suction systems, lighting, sterilization equipment, and personal protective equipment. Diagnostic equipment, including X-ray machines, digital visigraphs, and computed tomography systems, is also essential, allowing for an accurate assessment of the condition of the maxillofacial tissues.

Introduction to Dental Equipment

Dental equipment Dentistry plays a key role in modern dentistry, ensuring high-quality services and ensuring comfort for both patients and medical staff. Various types of dental equipment are used for the diagnosis, treatment, and prevention of oral and dental diseases.

The primary purpose of dental equipment is to ensure high-quality patient care and perform various dental procedures with high efficiency. Modern technologies allow dentists to work quickly and accurately, minimizing the risk of errors and increasing patient safety.

An important aspect of dental equipment is its diversity and specialization. Equipment exists for a variety of procedures, from routine dental examinations and cleanings to complex surgical procedures and implant placement. Each type of dental equipment has its own characteristics and is used according to the requirements of a specific procedure.

Among the main types of dental equipment we can highlight:

- Diagnostic equipment, including X-ray machines, intraoral cameras, dental scanners and other devices for obtaining information about the condition of the patient's oral cavity and teeth.
- Treatment equipment such as dental units, light polymerizers, endodontic devices and other devices necessary for carrying out treatment procedures.
- Surgical equipment used during surgical interventions, such as surgical navigation devices, micromotors, implantation instruments, etc.
- Preventive equipment, including devices for hygienic teeth cleaning, devices for preventive whitening and other tools for maintaining oral health.

Furthermore, dental equipment is constantly being improved and updated to keep pace with the latest technological advances and ensure the highest level of dental and oral care. Successful use of dental equipment requires not only highly qualified specialists but also proper selection and maintenance.

Main types of dental equipment



Dental equipment comprises a wide range of instruments and devices used by dentists to perform various procedures and surgeries. The main types of dental equipment can be roughly divided into the following categories:

1. Diagnostic equipment: includes various types of X-ray machines, intraoral cameras, scanners, and other devices used for patient examination and diagnosis. Using diagnostic equipment, a doctor can identify oral diseases and determine the necessary treatment methods.
2. Surgical equipment: includes surgical instruments, sterile surgical kits, suction machines, scalers, medical lasers and other devices used to perform oral surgery.
3. Treatment equipment: these include micromotors, filling materials, root canal treatment devices, dental vibrating brushes and other devices used to perform treatment procedures, remove caries, perform fillings and other manipulations.
4. Preventive equipment: includes devices for hygienic teeth cleaning, ultrasonic scalers, devices for polishing teeth, devices for preventive fluoridation of teeth, orthodontic instruments and many other devices that help prevent oral diseases and maintain dental health.



5. Implantological equipment: includes the device



Each of these types of dental equipment plays a vital role in the operation of dental clinics and offices, ensuring high-quality services and helping doctors effectively perform various procedures and surgeries. Modern technologies and the constant development of equipment allow dentists to provide their patients with a high standard of medical care and effectively address the diagnosis, treatment, and prevention of oral diseases.

Use of dental equipment in clinical practice

The use of dental equipment in clinical practice is an integral part of the work of dentists of various specialties. With the development of modern technology and scientific research, many innovative devices and instruments have emerged that improve the effectiveness of diagnosis, treatment, and prevention of oral diseases. In this section, we will examine the main types of dental equipment and their practical applications.



One of the most important pieces of equipment used by dentists is the dental chair. This specialized equipment allows the patient to comfortably position themselves during an appointment, providing a convenient position for various procedures. Modern dental chairs are typically equipped with electric drives for adjusting the backrest, seat height, and tilt, and are also equipped with assistant and doctor systems for convenient procedures.

Another essential element of dental equipment is dental instruments. Essential dental instruments include a mirror, probes, tweezers, a dental drill, an ultrasonic scaler, and others. These instruments are used to diagnose and treat various oral diseases, remove cavities, clean teeth, and perform other procedures.

One of the key aspects of dental practice is the use of X-ray equipment. X-ray machines produce images of teeth, jaws, and adjacent tissues for detailed examination and diagnosis. Modern X-ray machines offer high resolution and minimal radiation exposure, ensuring safety for patients and specialists.

To carry out effective preventative measures, dentists widely use dental units for hygienic teeth cleaning, enamel polishing, plaque removal, etc. Specialized devices and instruments allow for high-quality and painless preventative procedures.

Furthermore, dental equipment is widely used in clinical practice for surgical procedures, dental implants, endodontic treatment, and other complex procedures. Specialized devices and instruments ensure high precision and efficiency during surgical interventions, minimize risks for patients, and ensure rapid postoperative recovery.

Thus, the use of dental equipment in clinical practice plays a vital role in ensuring high-quality and professional dental care. Modern technologies and innovative developments enable dentists to effectively diagnose, treat, and prevent various oral diseases, providing patients with a high level of service and comfort during dental visits.

Innovations in dental equipment

Innovations in dental equipment play a key role in modern dental practice. Thanks to the constant advancement of technology and scientific research, dental devices are becoming increasingly effective, precise, and convenient for both dentists and patients.

One of the most significant innovations in dentistry is the introduction of digital technology. Digital X-ray machines allow for more detailed and accurate images of teeth and jaws, reducing radiation exposure for patients. Furthermore, digital scanners allow for the creation of 3D models of teeth and bones, simplifying diagnostics and treatment planning.

Another important innovation is laser equipment in dentistry. Lasers are used for a variety of procedures, such as cavity removal, periodontal treatment, soft tissue relaxation, teeth whitening, and more. Laser therapy offers several advantages, including more precise action, less damage to healthy tissue, reduced pain, and faster healing after treatment.



Innovative surgical instruments are widely used in dental surgery. Endodontic files made of nickel-titanium alloy are flexible and durable, allowing for better root canal cleaning and more effective dental treatment. Furthermore, surgical microscopes allow dentists to magnify and illuminate the work area, increasing the precision and efficiency of their operations.

An equally important development in dental equipment is the emergence of modern anesthesia systems. The use of computerized analyzers allows for the selection of optimal anesthetic doses, reducing the risk of complications and increasing patient comfort during procedures.

Thus, innovations in dental equipment play a vital role in improving the quality of dental services and providing more effective and comfortable treatment for patients. Growing interest in the development and implementation of new technologies contributes to the advancement of the dental industry and allows modern dentists to stay one step ahead in ensuring high-quality dental health.

Prospects for the development of dental technology

The prospects for the development of dental technology are vast and include a multitude of innovative technologies and approaches. One of the key areas of development in dental equipment is improving diagnostic capabilities. Modern technologies allow for more accurate and rapid diagnosis of various oral diseases, helping dentists deliver more effective treatment.

Another important aspect of dental technology advancement is the development and implementation of new materials. New dental materials are becoming increasingly stronger, more durable, and safer for patients. This allows for improved quality and longevity of dental structures such as crowns, bridges, and dentures.

The development of 3D printing technologies in dentistry is opening up new possibilities for creating custom-made dental prostheses and implants. 3D printing allows for the creation of highly accurate models of teeth and jaws, significantly improving the accuracy of prosthetic fit and reducing manufacturing time.

Another promising area of dental technology development is the implementation of artificial intelligence and machine learning technologies. AI can help dentists automate diagnostic processes, treatment planning, and clinical practice management. This will improve the quality of services provided and reduce the risk of errors.

With the development of digital technology, dental equipment is becoming increasingly user-friendly and ergonomic. Many processes that previously required significant time and effort can now be automated and simplified thanks to digital systems. This allows dentists to work more efficiently and conveniently, ultimately leading to improved treatment outcomes and increased patient satisfaction.

Thus, the prospects for the development of dental technology include a wide range of innovative technologies and approaches that will contribute to improving the quality of dental services and increasing the satisfaction of both patients and specialists. The introduction of modern technologies and materials, the development



of new methods, and the use of digital systems will create more comfortable, effective, and safe conditions for dental procedures.

Surgical instruments are divided into several groups: diagnostic (mirrors, probes), cutting (scalpels, scissors), grasping (tweezers), retracting (retractors), and dental extraction instruments (forceps, elevators). Each instrument has a strictly defined purpose and must be used with safety precautions.

Disinfection Disinfection is the first step in processing medical devices and is aimed at destroying pathogenic microorganisms. It can be performed using physical and chemical methods. Following disinfection, pre-sterilization cleaning is performed, which includes the removal of organic and inorganic contaminants.

Sterilization Ensures the complete destruction of all microorganisms, including spores. The most common method is steam sterilization in an autoclave. Dry-heat sterilization and chemical methods are also used. Sterility monitoring is accomplished using physical, chemical, and biological indicators.

Asepsis A system of measures aimed at preventing the introduction of microorganisms into a surgical wound. It includes sterilization of instruments, hand hygiene, the use of sterile materials, and maintaining a sterile surgical field.

Antiseptics Antisepsis is aimed at destroying microorganisms that have entered a wound or entered the skin and mucous membranes. A distinction is made between mechanical, physical, chemical, and biological antisepsis. In dental practice, antiseptic solutions are widely used to treat the surgical site and oral cavity.

Adherence to aseptic and antiseptic principles is particularly important during facial and oral surgery, as these areas are characterized by high levels of microbial contamination. Failure to adhere to these principles can lead to the development of infectious complications, including abscesses, cellulitis, and sepsis.

Prevention of infectious complications involves strict sterility control, proper instrument reprocessing, the use of disposable materials, and adherence to sanitary and hygienic standards. Training of medical personnel and ongoing monitoring of compliance with standards are also crucial.

Thus, knowledge and proper use of specialized equipment, instruments, and the principles of disinfection, sterilization, asepsis, and antisepsis are the foundation of safe and effective work for a dental surgeon. This knowledge ensures high-quality medical care and prevents complications in patients.

Lecture Topic #3: Preparing the Surgical Field and the Surgeon's Hands. Sterilizing Instruments, Dressings, and Sutures.

Preparing the patient for surgery. Preparing the surgeon's hands and the surgical field.

1. The purpose of the lecture:



To develop students' systematic knowledge of preparing the surgical field, the surgeon's hands, and the patient for surgical intervention, as well as master the principles of sterilizing instruments, dressings, and sutures to ensure infection safety.

2. Issues under consideration:

• The concept and importance of preparation for surgical intervention • Preparation of the patient for surgery (general and local) • Psychological preparation of the patient • Treatment of the surgical field • Preparation of the surgeon's hands • Methods of sterilization of surgical instruments • Sterilization of dressings • Sterilization of suture material • Sterility control • Prevention of infectious complications

3. Educational technologies:

- lecture using video materials

4. Primary and secondary literature:

1. Introduction to Oral and Maxillofacial Surgery / Peterson LJ – Mosby
2. Surgical dentistry / edited by T. G. Robustova – Moscow: GEOTAR-Media
3. Propaedeutics of surgical dentistry: a textbook – Moscow: GEOTAR-Media
4. Surgical dentistry: textbook / edited by V. V. Afanasyev – Moscow: GEOTAR-Media
5. Infection Control in Dentistry – Moscow: GEOTAR-Media
6. Sterilization and Disinfection in Medical Practice – A Textbook

Preparing the surgeon's hands and the surgical field. Disinfection and sterilization of instruments and dressings in outpatient and inpatient settings.

A set of strictly regulated and mandatory antimicrobial measures in specific medical or other institutions or industries is called an antimicrobial regime.

Antimicrobial measures are understood as a set of methods and techniques for the destruction, suppression of vital activity, reduction of population size and restriction of migration of microorganisms potentially pathogenic for humans for the purpose of treatment, prevention of the development and spread of infectious diseases.

Antimicrobial measures are varied. They can be divided into direct, indirect, and combined measures. Indirect measures include those that inhibit the migration of pathogens within and beyond a specific ecosystem, those that reduce the microbial population on the surface and inside a specific organism indirectly by activating the immune system's eliminative function (immunoprophylaxis, immunotherapy, and immunocorrection), and those that create unfavorable conditions for microbial proliferation (surgical wound debridement, drying burn surfaces with sterile air, etc.). A combination of direct and indirect methods of suppressing (destroying) microorganisms—asepsis and gnotobiotics—is widely used to prevent infectious



diseases.

To designate a group of measures with a direct damaging effect on microbes, the term "microbial decontamination" has been proposed as a set of measures with a direct damaging effect aimed at the complete or selective removal of microbes from environmental objects or living organisms.

Depending on the area of application of antimicrobial measures, a distinction is made between microbial decontamination of environmental objects - sterilization and

disinfection and microbial decontamination of living organisms - antisepsis and chemotherapy.

Sterilization

Sterilization (disinfection, sterilization) is understood as a set of physical and chemical methods for the complete removal of vegetative and dormant forms of microorganisms from environmental objects.

Sterilized objects are allowed to contain only a small number of thermophilic microbes, which do not multiply at human body temperature and therefore do not pose a danger to them.

Sterilization involves:

1. Prevention of the introduction of microorganisms into the human body during medical interventions, as well as the creation and maintenance of a germ-free (gnotobiotic) environment;
2. Elimination of microbial contamination of nutrient media and cell cultures during microbiological and immunological studies;
3. Prevention of microbial biodegradation of materials, including medicinal and diagnostic ones.

In medical practice, sterilization is performed on medicinal and diagnostic preparations introduced into the human body; dressings and suture material; syringes and injection needles; instruments; linens and patient care items; nutrient media, laboratory glassware; and, when creating an aseptic and germ-free environment (zone), all objects in the zone without exception.

Technologically, the sterilization process consists of the following stages:



- 1) disinfection (in case of microbial contamination of the material);
- 2) cleaning the material from grease, dirt and dust;
- 3) assembly, grouping and placement of materials in the container and sterilizer;
- 4) sterilization itself;
- 5) drying (with wet sterilization methods);
- 6) control of sterilization;
- 7) storage of sterilized materials.

Preparation for surgery is a critical step in ensuring patient safety and a successful outcome. This includes preparing the patient, the surgical site, and the surgeon's hands, as well as ensuring the sterility of instruments and materials.

Patient preparation begins with collecting a medical history, assessing the patient's general condition, and identifying any comorbidities. Particular attention is paid to the patient's allergy status, the presence of chronic diseases, and their psycho-emotional state. Psychological preparation plays an important role, as it reduces anxiety and promotes cooperation between the patient and the physician.

Local patient preparation includes oral hygiene, plaque removal, and antiseptic treatment. If necessary, medication is administered to prevent complications.

Surgical site preparation aims to reduce microbial contamination. This includes mechanical cleaning, treatment of the skin or mucous membrane with antiseptics, and isolation with sterile material. In dentistry, special attention is paid to the treatment of the oral mucosa, which harbors a large number of microorganisms.

Hand preparation is a key element of asepsis. It involves hygienic and surgical hand cleaning using antiseptics. The primary goal is to minimize the number of microorganisms on the skin of the hands. After cleaning, the surgeon puts on sterile gloves, providing additional protection.

Instrument sterilization is the complete destruction of all microorganisms, including spores. Steam sterilization in an autoclave is the most widely used method, providing high efficiency and reliability. Dry heat and chemical sterilization methods are also used.

Dressings (gauze, bandages, wipes) must be sterile and stored under special conditions. Sutures are also sterilized and must meet strength, biocompatibility, and sterility requirements.

Sterility control is performed using physical, chemical, and biological methods. This allows for the timely detection of sterilization process violations and the prevention of infectious complications.

Compliance with all stages of surgical preparation significantly reduces the risk of infection, ensures patient safety, and improves the effectiveness of surgical



treatment. Failure to follow these guidelines can lead to serious complications, including purulent-inflammatory processes.

Thus, preparation of the patient, surgical site, surgeon's hands, and instrument sterilization are fundamental elements of surgical dentistry. Strict adherence to these principles ensures a high level of quality medical care and the safety of surgical interventions.

Lecture Topic #4: Instruments in Surgical Dentistry. Types, Names, and Purposes. Instruments for Extracting Teeth in the Upper Jaw. Instruments in Surgical Dentistry. Types, Names, and Purposes. Instruments for Extracting Teeth in the Lower Jaw.jaws.

1. The purpose of the lecture:

To develop students' systematic knowledge of surgical dental instruments, their classification, purpose, and rules of use, as well as to study the features of instruments used in the extraction of teeth in the upper and lower jaws.

2. Issues under consideration:

- Classification of surgical dental instruments
- Instruments for patient examination
- Cutting, grasping and auxiliary instruments
- Instruments for tooth extraction
- Forceps: types and design features
- Elevators: types and purpose
- Instruments for tooth extraction of the upper jaw
- Instruments for tooth extraction of the lower jaw
- Rules for selecting instruments
- Principles of safe work

3. Educational technologies:

- lecture using video materials

4. Primary and secondary literature:

1. Introduction to Oral and Maxillofacial Surgery / Peterson LJ – Mosby
2. Surgical dentistry / edited by T. G. Robustova – Moscow: GEOTAR-Media
3. Propaedeutics of surgical dentistry: a textbook – Moscow: GEOTAR-Media
4. Surgical dentistry: textbook / edited by V. V. Afanasyev – Moscow: GEOTAR-Media
5. Atlas of surgical instruments – Moscow: GEOTAR-Media
6. Operative Surgery and Topographic Anatomy - A Textbook

Surgical instruments is an integral part of the dental surgeon's practice. The correct selection and proper use of instruments ensure the effectiveness and safety of surgical interventions.

Structure of surgical instruments

Instruments of a dental surgeon They are used in medical practice to perform various



surgeries. They are designed taking into account the anatomical features of the oral cavity and the specific nature of the procedure. The main categories of instruments used by a dental surgeon include anesthetics, tissue dissection instruments, clamps, curettes, and many other essential tools. Each instrument has its own unique design and purpose.

Instruments for dental anesthesia

Anesthesia plays a key role in dentistry, ensuring patient comfort during treatment. Various surgical instruments are used for this purpose, including syringes such as Carpule, retractors, scalpels, surgical scissors, tweezers, curettes, and more.

Carpule-type syringes

Carpule syringes are devices designed for anesthetic injections. They have a special design that allows for precise medication dosing and minimizes discomfort during administration. These syringes are often used in dentistry due to their reliability and ease of use. They consist of a cylindrical tube, a plunger, and a needle, ensuring easy manipulation.

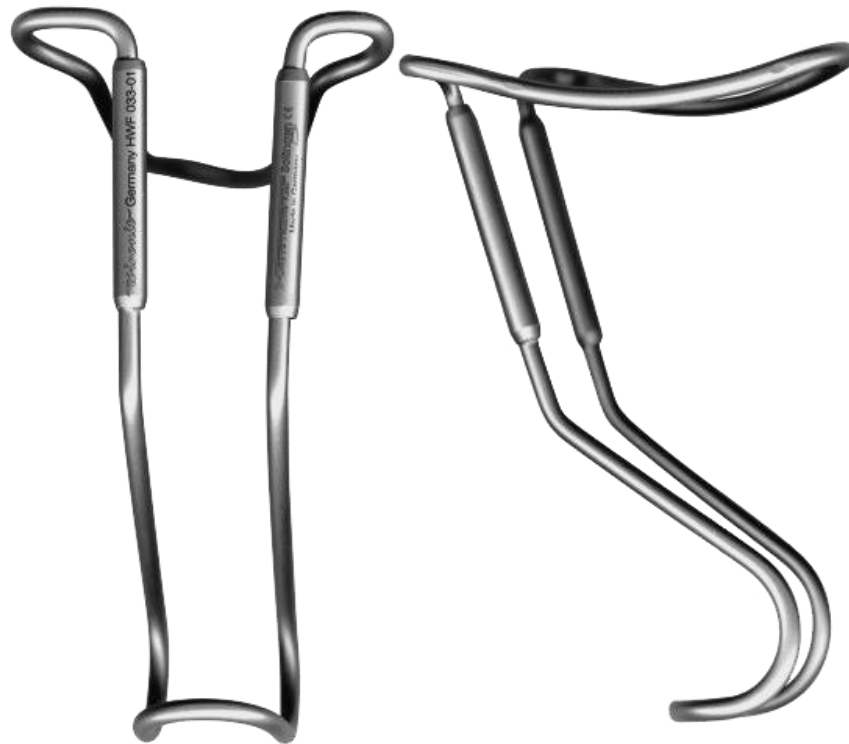
There are two types of these syringes with different loading methods: side-loading and rear-loading. The difference lies in the way the anesthetic ampoule is inserted. Carpule syringe (dental injector). Designed for local anesthetic injections, subcutaneous injections, and intramuscular injections.

Disposable syringes are ergonomic and easy to use. They allow the physician to control the anesthesia administration process and quickly change needles if necessary. Needle holders are categorized as microsurgical, vascular, and general surgical.

Microsurgical needle holders have a smooth or finely serrated working surface. The jaws are equipped with a return spring mechanism: the device opens when the handles are squeezed firmly, releasing the needle.

Vascular needle holders are used for suturing vessels. The working length ranges from 140 mm to 250 mm. The jaws are thin and curved.

General surgical needle holders (Hegar needle holders) have straight jaws with varying serrations. Length ranges from 140 to 250 mm. Mathieu needle holders. The handles are designed like pliers with a spring-loaded return mechanism. The working length is fixed at 160 mm, the jaws have a cross-shaped serration, and a central depression.



Retractors

Retractors Retractors are essential surgical instruments that help hold tissues in place to ensure unimpeded access to the surgical site. Retractors come in many different names, each with its own unique characteristics.

Farabeuf retractor

The Farabeuf retractor is used to enlarge the surgical field and support soft tissue. The instrument's name derives from the French anatomist and surgeon Louis Hubert Farabeuf.

It has a curved shape and adjustable angle, allowing the surgeon to comfortably work in various anatomical areas. Rounded ends prevent the corner of the mouth or lip from slipping. Working parts of varying lengths allow for optimal holding for patient comfort and ease of access to the treatment area.

Langenbeck retractor

The Langenbeck retractor is a flat plate with handles that is also used for tissue support. It comes in a variety of sizes, allowing for a variety of applications depending on the scope of the surgical procedure.

The blunt blade allows for smooth retraction of delicate muscle tissue or organs. The L-shaped working end effectively inserts and holds tissue and incision ends with minimal risk of trauma. The streamlined shaft facilitates access and inspection of deep, narrow cavities. The ergonomic ring handle prevents accidental slippage.

Commissure retractor

A commissure retractor is designed to hold the edges of a wound or incision open. Its design minimizes trauma to surrounding tissues and provides a clear view of the surgical field. It is an elastic ring that separates and holds the patient's lips and cheeks



in a predetermined position.

Available in plastic or metal, the retractor prevents soft tissue damage, allowing the physician to fully concentrate on the treatment process.

Scalpels



Scalpels They are the basic instruments for cutting tissue. They vary in shape and size, allowing them to be used in any surgical procedure.

Scalpel handle

The scalpel handle ensures comfortable use. It should be ergonomically designed and provide a secure grip, allowing the surgeon to control the blade's movement.

Types of handles:

- Straight.
- Curved at an acute or obtuse angle.
- Adjustable in length and angle.
- For regular blades or micro blades.
- Round or smooth, as well as multifaceted.

Handles are made from durable and wear-resistant materials, such as stainless steel or titanium alloys. To prevent slippage during use, the handle surface is serrated, coated with silicone, or coated with a special coating.

Scalpel blades

These are replaceable cutting elements that attach to the instrument's handle. They are used to cut soft tissue in the oral cavity during surgical procedures.

Scalpel blades come in a variety of shapes and sizes, allowing them to be used for a variety of incisions. The choice of blade depends on the type of surgery and the patient's anatomical features.

Types of blades for dental scalpels:

- Models #10 to #14 with sharp tips are used for deep but short cuts.
- Sickle-shaped with a sharpening on the inside - item No. 12 is used for



removing stitches.

- No. 12B - sharpened on both sides.
- No. 15C - has a curved edge and a thin back, convenient for performing manipulations on the periodontium.

There are also disposable blades—they are used once and then discarded. Unlike traditional blades, which can be sharpened and reused after sterilization, disposable blades are manufactured for single use only.



Surgical scissors

Surgical scissors They are used to cut tissue and materials during surgery. They come in a variety of shapes and sizes, allowing the surgeon to select the most appropriate instrument for a specific task.

Types of dental surgical scissors and their purposes:

- For cutting the ends of sutures when suturing gum tissue. These scissors have elongated handles and a shortened working part, with rounded or S-shaped ends and blades sharpened perpendicular to the handles.
- For removing stitches. These scissors have a shortened, heavy-duty working section and well-sharpened blades.
- For cutting and trimming soft tissue, special models with extended handles and a medium-sized working part are used.
- For work in the anterior region of the oral cavity, instruments with short handles but long blades are used.
- For cutting bandages and straightening the edges of gauze dressings. The handles are shortened, the straight blades are lengthened.



Periosteal instruments

Periosteal instruments are designed for working with the periosteum—the connective tissue covering bones. They help separate the periosteum from the underlying bone, which is important during bone surgery. This category of instruments includes separators, spatulas, curettes, and raspators.

Characteristics of periosteal instruments:

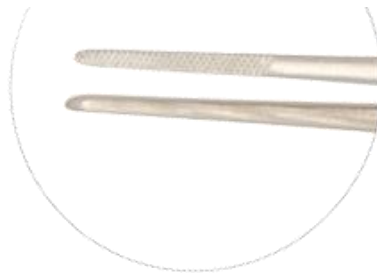
- material - high quality stainless steel,
- are durable, have a long service life, and are suitable for autoclaving;
- equipped with thin working parts, which can be curved or straight.

The edges are sharp or blunt. They allow for careful and precise separation of the mucous membrane from the bony periosteum.

Depending on the type of procedure, the doctor selects a tip of one shape or another (sharp, blunt, curved, flat), and selects the size taking into account the precise manipulation.

The ergonomic design of the handle guarantees a comfortable and secure grip of the tool, as well as precision in working with it.

A number of periosteal instruments are multifunctional. They can be used as separators, spatulas, or curettes.



Surgical tweezers

Surgical tweezers They are used to manipulate tissues, grasping them and holding them in the desired position. They come in various types, each of which determines the tool's functionality.

Dissection tweezers

Dissection tweezers have fine tips. Doctors use them when working with delicate tissue. Their design allows the surgeon to perform precise manipulations without causing trauma.

Clamping pliers

Clamping forceps are designed for the temporary grasping of tissue and vessels.



They can be used to stop bleeding. Clamps also provide excellent tissue retention.

Types of forceps and their purposes:

- For the teeth of the lower jaw - pliers with beak-shaped or angular cheeks.
- Narrow cheeks - for removing roots, incisors and canines.
- Removal of premolars of the upper jaw - with an S-shaped instrument with a wide working part, on the lower jaw - with beak-shaped forceps.
- Wide cheeks - for grasping and removing molars.
- For wisdom teeth - bayonets, straight or beak-shaped forceps.
- For the first and second upper molars - S-shaped instruments, separate for the right and left sides.

Features of application and characteristics of Kocherklemme clamps

Kocherklemme clamps are highly durable and reliable. They have serrated ends. This design ensures a more secure hold on fabrics, preventing them from slipping.

Clamp characteristics:

- The main part is curved along the plane, which facilitates the insertion of the clamp into deep areas of the oral cavity.
- The cheeks of the instrument on the inner surface are covered with small transverse teeth-notches across the entire width.
- The end of one of the working surfaces is equipped with a large longitudinal tooth. Its shape matches the recess between two teeth located on the opposite working surface.
- This jaw design provides a firm grip and hold on to tissue.
- The flint is located near the rings and ensures that the clamp is held in the closed position and also controls the compression force.
- The handles have standard ring grips that are designed to accommodate the index finger and thumb.

Features of using the Kocherklemme clamp:

- The instrument is made of high-strength, corrosion-resistant steel, which meets modern medical instrument standards.
- The clamp is designed taking into account the peculiarities of human anatomy, which reduces the risk of additional injury.
- The ergonomic shape of the instrument's handles reduces the risk of developing carpal tunnel syndrome. The surface of the clamps is polished to a mirror shine, giving them an aesthetically pleasing appearance.

Hemostatic forceps

Hemostatic forceps are used to stop bleeding by clamping blood vessels. Their design allows for effective bleeding control during surgery. Hemostatic forceps consist of two parts connected by a hinged clamp. The hinge mechanism allows for rotational movement within the oral cavity. A small ring at the end of the handle allows for comfortable gripping and securement of the instrument with the dentist's fingers.

Types of hemostatic forceps:

- Temporary blood flow occlusions. These are used to temporarily stop blood



flow before final restoration of vascular integrity.

- For temporary compression. Used for temporary compression of blood vessels when necessary.
- To support thrombus formation. Used to accelerate thrombus formation after suturing.



Surgical curettes

Surgical curettes They are used to remove tissue or growths from the oral cavity. They can be used for both diagnostic and therapeutic purposes.

The choice of curette shape depends on the type of surgery:

- Large-handled curettes are used for working with pathological soft tissues, such as large bone defects, so-called sequestral cavities, and massive cysts. The working part of this curette is shaped like a round or oval cup.
- Small spoons are used for thorough revision and removal of defects from small cavities (odontogenic periradicular cysts, granulomas, alveolitis, periodontitis).
- Instruments with an elongated working part and an S-shaped bowl are used when it is necessary to remove soft tissue from hard-to-reach areas.

Surgical forceps

Forceps Forceps are used for handling tissues or instruments during surgery. They provide reliable control over the surgeon's manipulations. The design of the forceps includes cheeks, handles (jaws), and a lock. The cheeks are anatomically shaped to tightly grasp the crown or root of a tooth. There are more than 10 types of surgical forceps, classified according to their purpose, anatomical location, design, and other factors.

Bone files

Bone files are used to shape bone material. They smooth the edges of bones after resection and shape them as desired. These are double-ended instruments, the active part of which is a file with a push-pull function. They are used with a firm grip and short, controlled finger movements. The teeth of most files are positioned so that they remove bone only when moving back and forth.

Surgical chisels (osteotomes)

Surgical chisels are used for cutting bone tissue. Their design allows for precise cuts while minimizing damage to surrounding tissue. There are different types of chisels: with a single-sided beveled edge, double-sided, or semicircular. A surgical mallet is



required to use chisels. Chisels are gradually becoming obsolete and are being replaced by rotary chisels.



Suture instruments (needle holders)

Needle holders They are indispensable tools when suturing. They provide a secure grip on the needle and allow the surgeon to manipulate it precisely.

Main characteristics of needle holders

Needle holders vary in size, shape, and needle gripping mechanism. The choice of needle holder depends on the type of procedure and the surgeon's preferences. The body is made of high-quality surgical steel, which is corrosion-resistant and easily sterilized.

Ergonomics - the needle holder should fit comfortably in the hand, not cause fatigue and ensure high precision of movements.

Size - the length of the instrument varies from 10 to 18 cm; shortened models are preferable for dentistry.

The locking mechanism is spring or lock; beginners find it convenient to work with ring locks.

Needle locking type - models with carbide inserts on the working jaws are preferable, as they securely hold the needle even under strong tension.

The tips have serrations that provide a firm grip on the needle.

Periotomes and elevators

Periotomes and elevators They are used to separate soft tissue from the underlying bone structure. These instruments help the surgeon gain access to the surgical site without damaging surrounding tissue.

Types of periotomes:

- Straight - have a rectangular cutting edge and are used for extracting anterior teeth.



- Curved - the working part is wedge-shaped or diamond-shaped, designed for removing teeth in the chewing zone.

Peculiarities:

- The cutting edge is located at both ends of the instrument; the surgeon can use either one or both, alternating sides.
- There are periostomes with flexible cutting parts that allow the instrument to be easily inserted into the area between the gum and the tooth, excise the periodontal ligament, and bend around complex and atypically located roots.

An elevator is a specialized instrument for removing tooth roots, parts of decayed teeth, or hard-to-reach teeth, such as wisdom teeth. The elevator's design allows the surgeon to create leverage for careful and precise extraction of the tooth or its fragments.

Types of elevators:

- Direct - used to remove the roots of teeth located in the front of the jaw.
- Curved - have a curved working part, which makes them convenient for working with hard-to-reach areas, such as wisdom teeth.
- Bayonet-shaped - suitable for removing fragments of damaged teeth or roots.
- A wisdom tooth elevator is a special instrument used to remove difficult teeth such as third molars.
- Elevators with a spatula shape are used for working with dense tissues or when it is necessary to create a lever for tooth dislocation.

Peculiarities:

- The working part of the elevator is inserted into the periodontal gap - the microscopic space between the tooth root and the bone tissue of the socket.
- By consistently and carefully increasing the range of motion, the surgeon tears hundreds of microfibers of the periodontal ligament that holds the tooth in place and "dislocates" it from the socket.

All instruments in surgical dentistry can be divided into several main groups. Diagnostic instruments include a dental mirror, probe, and tweezers, used for examining the oral cavity. Cutting instruments include scalpels and scissors, used for cutting soft tissue. Grasping instruments include tweezers and clamps, used for securing tissue and materials. Auxiliary instruments—retractors, hooks, and raspators—are used to widen the surgical field and remove tissue.

A special group of instruments is made up of tooth extraction tools, including forceps and elevators. Forceps are designed to grasp and extract teeth from the alveolus. Their design includes handles, a lock, and working parts (beaks), the shape of which corresponds to the anatomy of specific teeth.

Straight and S-shaped forceps are used to remove maxillary teeth. Straight forceps are used to remove incisors and canines. Curved-beak forceps are designed for premolars and molars. For upper molars, special forceps with a protrusion (spin) that fits into the bifurcation area of the roots are used. Bayonet root-extraction forceps are also used.



For lower jaw extractions, angled forceps are used because the anatomical features require a different direction of force application. Narrow forceps are used for incisors and canines, wider ones for premolars, and heavy-duty forceps with strong jaws for molars. A characteristic feature is the perpendicular positioning of the handles and working part.

Elevators are an essential complement to forceps and are used to loosen and extract teeth or their roots. Elevators come in straight, angled, and bayonet-shaped varieties. They allow access to hard-to-reach areas and are used for complex extractions.

The correct choice of instrument depends on the anatomical structure of the tooth, its position, and the condition of the roots and surrounding tissues. An instrument that is inappropriate for the clinical situation can lead to tissue trauma, root fracture, or other complications.

Working with instruments requires adherence to safety principles: proper grip, measured force, and controlled movements. The physician must clearly understand the purpose of each instrument and master the technique for its use.

Thus, surgical instruments are the basis for performing dental procedures. Knowledge of their classification, design, and application is essential for successful tooth extractions and other surgical procedures. Proper use of instruments minimizes tissue trauma and ensures favorable outcomes.

Lecture Topic #5: Care of Surgical Instruments in Dentistry. Methods and Stages of Sterilization and Disinfection in Dentistry. Prevention of Hepatitis B, C, D, and AIDS in Surgical Dentistry.

1. The purpose of the lecture:

To develop students' systematic knowledge of the rules for caring for surgical dental instruments, methods of disinfection and sterilization, as well as measures to prevent occupational infections (hepatitis B, C, D and HIV) in surgical dentistry.

2. Issues under consideration:

- The importance of proper care of dental instruments
- Stages of processing surgical instruments
- The concept of disinfection and its types
- Pre-sterilization cleaning of instruments
- Sterilization methods (physical and chemical)
- Sterilization quality control
- The concept of occupational infections in dentistry
- Routes of transmission of viral hepatitis and HIV
- Measures for the prevention of infection of medical personnel
- Use of personal protective equipment
- Post-exposure prophylaxis

3. Educational technologies:

- lecture using video materials



4. Primary and secondary literature:

1. Infection Control in Dentistry/CDC Guidelines
2. Surgical dentistry / edited by T. G. Robustova – Moscow: GEOTAR-Media
3. Propaedeutics of surgical dentistry: a textbook – Moscow: GEOTAR-Media
4. Surgical dentistry / edited by V. V. Afanasyev – Moscow: GEOTAR-Media
5. Infection Control in Healthcare Facilities – A Tutorial
6. Sterilization and disinfection in dentistry – Moscow: GEOTAR-Media

Proper care of surgical dental instruments is a critical element of infection control in dental practice. Instruments used during surgical procedures come into contact with blood and bodily fluids, requiring strict adherence to proper handling procedures. Instrument reprocessing involves several sequential steps: disinfection, pre-sterilization cleaning, and sterilization. Disinfection is aimed at killing pathogenic microorganisms and is performed immediately after instrument use. It can be accomplished using chemicals (antiseptic solutions) or physical methods.

Disinfection: purpose, methods, level of treatment

Sterilization of dental instruments ensures the safety of patients and healthcare workers. It is performed immediately after medical procedures and involves several preliminary steps.

Disinfection in dentistry is the destruction of pathogenic microorganisms, preventing infections and the spread of diseases. In dental practice, where contact with blood and saliva is inevitable, a high level of antisepsis is especially important. There are several methods of disinfection. Chemical disinfection involves the use of various antiseptic solutions, such as chlorhexidine, alcohol, and hydrogen peroxide. Physical disinfection can be accomplished using thermal methods, including autoclaving, which destroys all microorganisms, including spores.

Instrument reprocessing in dentistry is divided into three categories: low, medium, and high. Low reprocessing is suitable for objects that do not come into contact with blood (e.g., surfaces). Medium reprocessing is used for semi-metallic instruments, and high reprocessing is used for all surgical instruments and materials that come into direct contact with patient tissue.

Sterilization algorithms are specified in Methodological Letter No. 12/20-208 of March 21, 1995, "Organization of Sanitary-Hygienic and Disinfection-Sterilization Regimes in Dental Institutions." Instrument sterilization stages include disinfection, pre-sterilization cleaning, and sterilization itself. In practice, packaging and storage stages are added.



Disinfection of dental instruments

Disinfection of dental instruments is the initial stage of cleaning them after use. This is done manually or using specialized equipment such as washer-disinfectors.

Types of disinfection

According to the type of treatment, disinfection is classified as mechanical, chemical and physical.

Mechanical disinfection

This includes both manual cleaning and the use of washing machines and ultrasound.

Chemical disinfection

Soaking in disinfectant solutions. Chloramine, 3% hydrogen peroxide, and 1% acetic acid solutions are used. Treatment with special wipes is also possible.

Physical disinfection

This method involves treatment with high temperatures, ultrasound, and UV radiation. This method utilizes boiling, steam, air sterilizers, and ultrasound. UV chambers are used to store disinfected instruments to prevent bacterial accumulation.



Combined disinfection

Hardware disinfection is typically a combined process, combining physical, mechanical, and chemical methods to achieve the best results. The main treatment methods are high pressure, temperature, disinfectant solutions, and mechanical action.

Baths, installations and equipment for disinfection

Automated disinfection deserves special mention as the most promising, technologically advanced method. It is implemented using washer-disinfectors, which minimize human error and speed up the cleaning process. Machine disinfection also includes pre-sterilization preparation, and models with drying systems allow for immediate packaging of instruments.

Machine stages of instrument processing in dentistry: rinsing with cold water under pressure, thermal and/or chemical treatment with a special solution.

The machine logs key processes and performs all work strictly according to regulations. For example, the MELAtherm 10 and HYDRIM C61wd G4 washer-disinfectors perform a cleaning cycle in accordance with GOST ISO 15883-1-2011. HYDRIM records cycle validity information. This information can be viewed on the touchscreen. Click the USB icon in the main menu. The machine will record reports on the last five successfully completed cleaning cycles and data on the last five incomplete cycles. Information on all cycles performed by the HYDRIM can be accessed from a computer by connecting to the C61wd-LCS G4 web portal. Cycle information can be transferred to a computer using a USB storage device. The machine can track which data has already been transferred to the USB drive and automatically record only new information.

When cleaning complex instruments such as burs, endodontic files, forceps, elevators, and dentures, ultrasonic cleaning is the primary disinfection method. Cleaning occurs using high-frequency ultrasonic vibrations. These vibrations penetrate the porous surfaces of dentures, between the threads of burs and endodontic files, literally "knocking out" protein, fat, and mineral contaminants.

The handpieces are cleaned mechanically. The channels are blown with air and rinsed with water and a cleaning solution. This is much faster than manual cleaning. For example, with the KaVo QUATTROcare® Plus 2124A, it takes just one minute to clean four handpieces.

Products and solutions

Disinfectants and solutions in dentistry are used to kill pathogens on instruments, equipment, and surfaces. This is the first mandatory step in processing, preceding sterilization. The goal is to prevent the spread of infections and ensure the safety of patients and medical staff. The following items are disinfected: dental handpieces, saliva ejectors, denture blanks, impressions, and mirrors; surfaces include the work table, dental drill, patient chair armrests, mixing vessels, spatulas, and glasses.

Review of popular products: composition, spectrum of action, recommendations

Alcohol solutions. They evaporate quickly, leave no streaks, and are convenient for



treating small surfaces and tools.

Chlorine-containing products have a broad spectrum of activity and are effective against most microorganisms. Hydrogen peroxide has strong antiseptic properties and is used to disinfect surfaces and instruments. Aldehyde-containing products. Products whose active ingredient is glutaraldehyde or succinic aldehyde. This organic compound is a clear liquid, usually colorless or slightly yellow, with a pungent odor. It is highly soluble in water, alcohol, ether, and other organic solvents and has disinfectant properties.

Quaternary ammonium compounds (QACs) are disinfectants, antiseptics, and antistatic agents that exhibit antimicrobial activity against bacteria, viruses, and fungi. When working with chemicals, it is important to observe safety precautions: wear personal protective equipment (PPE), such as gloves, masks, and goggles. Avoid contact with mucous membranes, skin, and eyes. Disinfectant solutions are prepared daily and should be used throughout the day.

Disinfection quality control

Quality control of disinfection in dentistry is a key element in ensuring the safety of both patients and medical staff. In dental settings, where the risk of infection transmission is high, strict testing protocols are essential.

The first step is to select effective disinfectants that meet standards and recommendations. It's important to consider that different materials and surfaces require different approaches. For example, items that come into contact with blood or saliva require more stringent disinfection.

Monitoring the effectiveness of disinfection includes:

- microbiological tests that help detect the presence of pathogens after treatment;
- training staff on the rules for using disinfectants and adhering to protocols.

Modern technologies, such as automated disinfection and monitoring systems, improve process efficiency. The implementation of digital solutions helps reduce the risk of infection and increase patient confidence in dental facilities.

Pre-sterilization cleaning (PSC)

Pre-sterilization cleaning (PSC) in dentistry is the complete removal of residual biological fluids, proteins, and working materials such as cement, filling materials, and medications. These can damage the surface of instruments if left undisturbed for long periods of time.

Manual and mechanized PSO

Traditionally, search and rescue operations are classified as manual and mechanized.

The main stages are:

- rinsing under running water at least 30 °C;
- soaking in a cleaning solution for 15 minutes at a temperature of 50 °C;
- repeat rinsing under running water for 3–5 minutes until the detergent is completely removed;
- third rinse in distilled water - 30 seconds;



- drying products at a temperature of 85 °C.

Manual PSO

Nowadays, it's rarely used due to the more efficient use of automated car washes. With manual cleaning, all the above steps are performed using brushes, soft sponges, and cleaning solutions.

Mechanized search and rescue team

Mechanized PSO includes the use of washing and disinfection machines and ultrasonic baths. It is combined with the next stage – disinfection, which we described in detail above.

The result of high-quality PSO is the complete absence of contamination, biological tissues and fluids, as well as disinfectant solution residues on the treated equipment.

Ultrasonic cleaning: features and benefits

Ultrasonic cleaning is performed using specialized equipment. It is preferred for complex-shaped objects such as burs, endodontic files, pliers, elevators, and dentures.

Advantages:

- removes contaminants, including biological fluids, mineral deposits, grease and rust;
- penetrates into small cracks and hard-to-reach areas that are inaccessible for manual cleaning;
- does not damage fragile materials such as metal, plastic, ceramics or glass.

Ultrasonic cleaning takes no more than 7–10 minutes and effectively prepares instruments for sterilization.

Checking for residual contamination: visual and chemical

After the pre-treatment, personnel check for residual contamination of items both visually and using specialized chemical reagents. The goal is to ensure the absence of residual biological fluids, medications, materials, and contaminants.

The results of the inspection are recorded in the PSO quality control log.

Visual inspection

A visual inspection is performed by a physician or assistant and includes a thorough inspection of the instruments.

Chemical testing

Chemical testing involves an azopyram test to detect residual blood, and a phenolphthalein test to detect residual alkaline components of the cleaning agent. If the results are positive, the entire batch of instruments is sent for a second pre-sterilization test. If the results are negative, only the items on which the tests were performed undergo pre-sterilization preparation.

Washer-disinfector machines (WDM): when to implement

Today, the implementation of washer-disinfectors for pre-sterilization and disinfection cycles in clinics is the most promising method of process automation. The cost of equipment and its maintenance is offset by the acceleration of work processes, the elimination of human error, and improved disinfection quality that



meets standards.

Here are some specific situations where it is recommended to implement:

- A large flow of patients and, accordingly, instruments used.
- A large clinic with 5 rooms and its own sterilization room.
- In preparation for inspections by Rospotrebnadzor.
- If you want to reduce the risk of errors on the part of your staff.



Sterilization of dental instruments

Drying and packaging in dentistry are the final steps necessary to maintain the sterility of instruments before their use.

Methods of drying instruments

The choice of drying method for dental instruments depends on their type, material, design complexity, and requirements for subsequent sterilization.

When air-drying, place the instruments on a clean, dry cloth and leave them until the



moisture evaporates. This method is used before placing them in a drying cabinet. Drying cabinets quickly remove moisture through uniform heat distribution. Modern equipment allows for precise drying parameters for different types of instruments. Washer-disinfector dryers are integrated systems that combine the pre-treatment and disinfection stages with drying. The machine automatically switches to this mode after completing all stages, producing instruments ready for packaging.

Correct packaging: kraft bags, cassettes, heat-sealable packaging

There are several types of packaging for disinfected instruments, the choice of which depends on the subsequent processing method, the size of the item, and the sterilization level requirements. General guidelines include the integrity of the packaging material, the addition of sterilization indicators, and the labeling of the packaged instruments.

Kraft bags (paper)

Rectangular envelopes made of waterproof and heat-resistant kraft paper. Strength is ensured by the use of 2-6 layers. A color indicator on the bag indicates whether the instruments have been sterilized.

Combined bags (paper + film)

They differ from kraft paper bags in that they have a transparent side, facilitating instrument identification and visual inspection. They are used for sterilizing instruments in autoclaves.

Metal cassettes/containers

They are used for repeated use and storage of tools. They are easy to carry and resistant to high temperatures and chemicals.

Heat-sealable packaging

The bags are made of special materials that seal under high temperatures and maintain a hermetic seal. They are used with heat sealers. This method is suitable for steam, air, or gas sterilization. The rules for using this type of packaging are specified in GOST ISO 11607-2011, which specifies the adhesive layer width and process indicator requirements in accordance with ISO 11140-1.

Labeling and expiration date

The following labeling requirements apply: the sterilization date, expiration date, responsible person, and inventory name must be indicated on the packaging. This information is applied to labels with temperature indicators or date stamps.



Storage of sterile instruments

When storing sterile instruments, it is necessary to maintain sterile conditions and storage periods.

Storage conditions and periods

Storage of sterilized instruments is carried out under the following conditions:

- T: from +15 to +25 °C.
- Relative air humidity - no higher than 60%.

The room should be protected from direct sunlight, cleaned regularly, and the instruments themselves should be stored in a separate clean cabinet.

The shelf life is up to 20 days and is determined by the sterilization method and the institution's instructions.

UV storage: myth or necessity?

A UV chamber can be used as an additional storage method for sterilized instruments



to eliminate the risk of bacterial contamination. However, it's important to keep in mind that regular replacement of the UV lamps is required to maintain the unit's efficiency. Furthermore, improper placement of instruments can lead to contamination of items in areas inaccessible to UV rays. Therefore, storing equipment in UV chambers helps maintain sterility, provided all operating instructions are followed.

Regulations for replacing packaging and re-sterilization

The processes of re-sterilization, requirements for packaging and replacement of packaging are regulated accordingly:

- GOST R ISO 17664-2012
- GOST R ISO 17664-2012
- GOST ISO 11607-2-2018

Special aspects of sterilization in dentistry

Multi-stage sterilization control includes:

- Physical methods—checking temperature, time, etc. Modern equipment performs this function automatically, eliminating the human factor.
- Chemical methods - packaging indication
- Biological methods - laboratory tests and cultures.

All processes are recorded in the clinic documentation, in particular, in the registration log.

Sterilization and disinfection logs

Maintaining a sterilization log is regulated by SanPiN 3.3686-21 and is mandatory for dental clinics. All documents are certified by the director's signature and seal. These documents are kept for at least one year.

Sterility indicators and tests: chemical, biological

In dentistry, two types of tests are used: chemical and biological.

Biological tests are used for random inspection of batches of instruments. Spore tests are used for this purpose.

Chemical indicators

Chemical tests – in the form of tests, strips, and stickers for instrument packaging. They react to changes in physical parameters (temperature, pressure, time). There are several classes:

Class 1 - indication of cycle completion.

Class 2 - validation of equipment according to Bowie-Dick.

Class 4-6 - specialized high-precision tests that respond to 2 or more sterilization parameters.

Internal audits and personnel responsibility

Sterilization control in the clinic includes:

- daily checking of sterilization efficiency with recording in a log;
- chemical and biological tests at intervals established in the clinic;
- preventive maintenance of sterilization equipment.

Pre-sterilization cleaning involves the mechanical removal of blood, tissue, and



medicinal residues. This step is essential, as organic contaminants reduce the effectiveness of sterilization.

Sterilization ensures the complete destruction of all forms of microorganisms, including spores. The most common methods are steam sterilization (autoclaving), dry-heat sterilization, and chemical sterilization. Sterilization quality control is achieved using physical, chemical, and biological indicators.

Prevention of occupational infections, such as viral hepatitis B, C, and D, and HIV, is of particular importance in surgical dentistry. These diseases are transmitted through blood and bodily fluids, making dentists a high-risk group.

The main routes of infection are skin injuries caused by sharp instruments, contact with infected blood, and violation of aseptic technique. Therefore, the use of personal protective equipment (PPE) is mandatory: gloves, masks, goggles, and disposable gowns.

Vaccination of healthcare personnel against hepatitis B plays a crucial role, significantly reducing the risk of infection. In cases of accidental contact with biological material, post-exposure prophylaxis is used, including wound care and medication.

Adherence to infection control standards, proper workflow organization, and strict instrument care help minimize the risk of infection in dental practice.

Thus, care of surgical instruments, adherence to sterilization and disinfection procedures, and the prevention of viral infections are key elements of physician and patient safety in surgical dentistry.

Lecture Topic #6: Types of tooth retention, causes of eruption problems, and their consequences. Symptoms and treatment methods for impacted teeth.

1. The purpose of the lecture:

To develop students' understanding of the types of tooth retention, the causes of disrupted eruption, clinical manifestations, and modern approaches to the diagnosis and treatment of impacted teeth in surgical dentistry.

2. Issues under consideration:

- The concept of tooth retention
- Classification of impacted teeth
- Causes of impaired tooth eruption
- Pathogenesis of retention
- Clinical manifestations of impacted teeth
- Complications of retention
- Diagnostic methods (clinical and radiographic)
- Indications for surgical treatment
- Methods of surgical treatment of retention
- Orthodontic management of impacted teeth
- Postoperative complications and their prevention

3. Educational technologies:

- lecture using clinical examples and radiographic images



4. Primary and secondary literature:

1. Oral and Maxillofacial Surgery / Peterson LJ – Mosby
2. Surgical dentistry / edited by T. G. Robustova – Moscow: GEOTAR-Media
3. Surgical dentistry / edited by V. V. Afanasyev – Moscow: GEOTAR-Media
4. Propaedeutics of Surgical Dentistry – Moscow: GEOTAR-Media
5. Orthodontics: Diagnosis and Treatment of Impacted Teeth – A Tutorial
6. Radiology in Dentistry / White S., Pharoah M.

Retention teeth Impaction is a pathological condition in which a tooth is fully formed but fails to erupt into the oral cavity within the physiological timeframe. Impacted teeth remain embedded in bone or soft tissue, which can lead to functional and aesthetic problems.

An impacted tooth is a fully formed tooth in the jaw that has not erupted (or has only partially erupted). In some cases, impacted and semi-impacted teeth are asymptomatic; in others, they cause pain, inflammation (pericoronitis, periodontitis, periostitis, abscess, phlegmon), and may be associated with dystopia. The presence of impacted teeth in the oral cavity is detected using targeted radiography and orthopantomography. Depending on the clinical situation, treatment strategies for impacted teeth may vary (excision of the "hood" in pericoronitis, removal of the impacted tooth, orthodontic repositioning, etc.).

An impacted tooth is a condition in which a tooth located in the jawbone or covered by gums has difficulty fully erupting. Retention is a common anomaly in tooth eruption. Statistically, the most commonly impacted teeth are the lower and upper third molars (wisdom teeth), maxillary canines, and mandibular second premolars. Unerupted "wisdom teeth" occur in 35-45% of cases. Treatment of impacted teeth is a complex and challenging issue in modern surgical dentistry and orthodontics.

Causes of tooth retention

The presence of impacted teeth may be due to embryological factors. Teeth may remain impacted due to excessively thick walls of the dental sac around the crown of the erupting tooth, dense gingival tissue, and weak growth force. These factors prevent the tooth from fully erupting, resulting in it remaining impacted or semi-impacted.

Embryological prerequisites for retention also include abnormal alignment of the tooth germ, leading to its collision with an adjacent, previously erupted tooth. In this case, it is more accurate to speak of an impacted tooth rather than an impacted tooth—that is, a tooth whose eruption is disrupted by an obstruction from an adjacent tooth, resulting in retention.

It is theorized that during evolutionary development, due to a reduction in the amount of coarse animal and plant foods in the human diet, and consequently, a reduced chewing load, jaw reduction occurs due to a reduction in the distal alveolar



bone. This leads to a lack of space for teeth that erupt later than others (particularly wisdom teeth), and may lead to their impaction.

Risk factors

Risk factors that increase the likelihood of developing impacted teeth may include:

- genetic predisposition
- early loss or removal of baby teeth
- presence of supernumerary teeth
- developmental anomalies of the jaws
- poor nutrition,
- rickets
- general infectious exhaustion and somatic weakness of the body, etc.

Classification

Depending on the degree of impaction, a distinction is made between complete and partial impaction, and, accordingly, between impacted and semi-impacted teeth. An impacted tooth is completely covered by gum or bone tissue, invisible in the oral cavity, and inaccessible to palpation. The crown of a semi-impacted tooth is partially erupted, but most of it remains covered by gum tissue. Based on the depth of impaction, impacted teeth are classified as tissue-impacted (the tooth is located in the gum tissue) or bone-impacted (the tooth is located in the jawbone).

The position of the root and crown of an impacted tooth in the gum or bone can be:

- vertical - the tooth axis has a normal position, coinciding with the vertical line;
- horizontal - the tooth axis forms a right angle with the vertical; in this case, the position of the tooth can be transverse, sagittal or oblique;
- Angular - the tooth axis forms an angle with the vertical of less than 90°. Depending on the inclination, a distinction is made between mesial-angular (with a forward inclination), distal-angular (with a backward inclination), lingual-angular (with an inward inclination, toward the tongue), and buccal-angular (with an outward inclination, toward the cheek).

Reverse impacted teeth (usually lower eighth teeth) are extremely rare. These teeth have roots that are turned toward the alveolar ridge and crowns that are positioned toward the body of the jaw. Retention can be unilateral or bilateral, and symmetrical. Impacted teeth can be either primary or permanent teeth.

Symptoms of tooth retention

A semi-impacted tooth manifests itself through partial crown eruption in a particular area of the dental arch. As a result of constant trauma to the mucous membrane adjacent to the erupting crown, it becomes swollen and hyperemic. When the surrounding gum tissue becomes inflamed, gingivitis or pericoronitis develops.



Impacted teeth are often asymptomatic and are incidental radiographic findings. An objective sign of tooth impaction is its absence from the alveolar arch. An impacted tooth with tissue impaction may be identified as a gingival protrusion; in this case, its contours or individual parts can be palpated.

When an impacted tooth presses on adjacent teeth, displacement and root resorption may occur. Subjective complaints include discomfort and pain when chewing and opening the mouth. Cervical caries, pulpitis, or chronic apical periodontitis often develop at the site of contact between the impacted tooth and the erupted tooth. Irritation of the nerve fibers and endings can cause pain in the area of the unerupted tooth and paresthesia caused by neuralgia or trigeminal neuritis.

Follicular cysts often form in the area of impacted teeth, which can become infected and be complicated by purulent periostitis, pericyclic osteomyelitis of the jaw, purulent sinusitis, abscesses, and phlegmon. Inflammatory complications are accompanied by fever and general malaise.

Diagnostics

Diagnosing a semi-impacted tooth is straightforward: during a dental examination, the apex of the tooth is visible above the gum, the contours of the tooth are palpated, and the crown is detected by probing. An impacted tooth can only be reliably detected using targeted radiography or orthopantomography; in some cases, a CT scan is required. A semi-impacted tooth with plaque or tartar deposits may be mistaken for a root affected by caries.

CT scan of the maxillofacial region (3D reconstruction). An unerupted impacted maxillary canine on the right side, located at an angle within the alveolar process.

CT scan of the maxillofacial region (3D reconstruction). An unerupted impacted maxillary canine on the right side, located at an angle within the alveolar process.

Treatment of dental retention

The decision on treatment for an impacted tooth must be made carefully, based on the individual clinical situation and radiographic data. Often, specialists from various specialties, including dental surgeons and orthodontists, are involved in the treatment of impacted teeth.

If primary teeth are delayed in replacing and there is no physiological root resorption, their removal is indicated. If supernumerary teeth are the cause of the impaction, they also require extraction. If pericoronitis develops, surgical treatment is performed by excising a mucosal flap ("hood") in the area of the impacted tooth under local infiltration anesthesia.

Surgical treatment

Removal of an impacted tooth is necessary in the following cases:



- in case of incorrect placement (dystopia)
- lack of space for it in the dental row
- destruction of the tooth neck
- pronounced clinical symptoms
- development of complications.

Removing an impacted tooth is highly traumatic, requiring the removal of a mucoperiosteal flap, freeing the tooth from the bone using a burr, subsequent luxation with forceps and elevators, and placement of catgut sutures on the mucosa. Exposing the roots of adjacent teeth requires mandatory root apex resection with retrograde filling. Postoperative prophylactic antibiotics and antiseptic mouth rinses are prescribed. Wound healing after such extractions can be complicated by alveolitis.

Prognosis and prevention

An impacted tooth is a potential source of serious complications: periodontal cyst formation, caries, pulpitis, periodontitis, ulcerative stomatitis, pericoronitis, periostitis, osteomyelitis, abscesses, phlegmon, purulent lymphadenitis, odontogenic sinusitis, etc. Therefore, impacted teeth require mandatory treatment with the most appropriate method. Impacted teeth can be used as autografts for dental restoration.

Currently, there are no known methods for preventing tooth retention. General principles of prevention include monitoring the proper development of the child's jaws, the timing of tooth eruption, and timely orthodontic treatment.

There are several types of tooth retention. Based on the degree of eruption, a distinction is made between complete retention, in which the tooth is completely embedded in the bone, and partial retention, in which part of the crown erupts into the oral cavity. Based on their position in the jaw, impacted teeth are classified as vertical, horizontal, and atypically positioned. Retention is most commonly observed in third molars, maxillary canines, and premolars.

The causes of teething problems can be general or local. General causes include endocrine disorders, rickets, genetic factors, and systemic diseases. Local causes include insufficient space in the dental arch, malposition of the tooth bud, the presence of supernumerary teeth, dense bone tissue, or cicatricial changes in the mucous membrane.

The pathogenesis of retention is associated with a disruption of the normal tooth eruption process, which prevents the tooth from overcoming a bony or soft tissue barrier. As a result, the tooth remains embedded in the jawbone, which can cause pressure on adjacent structures.

The clinical manifestations of impacted teeth depend on their location. In some cases, impaction is asymptomatic and is discovered incidentally during an X-ray. However, complications can cause pain, inflammation of surrounding tissues, cyst formation, displacement of adjacent teeth, and malocclusion.

Diagnosis of impacted teeth involves clinical examination and radiographic methods



such as orthopantomography and computed tomography. These methods allow us to determine the tooth's position, orientation, and the extent of involvement of surrounding structures.

Treatment of impacted teeth depends on the clinical situation. The primary method is surgical removal of the impacted tooth. In some cases, a combination treatment is used, including surgical exposure of the tooth followed by orthodontic extrusion. The choice of method depends on the tooth's position, the patient's age, and the condition of the dental system.

Indications for extraction include pain, inflammatory complications, cyst formation, impaired chewing function, and the risk of damage to adjacent teeth. Postoperative complications, such as swelling, pain, and inflammation, are possible and require appropriate treatment and monitoring.

Thus, tooth retention is a significant clinical problem in surgical dentistry. Timely diagnosis and appropriate treatment can prevent complications and ensure the normal functioning of the dental system.

Lecture Topic #7: Local anesthetics and medications used for local anesthesia. Classification.

Mechanism of action of local anesthetics.

1. The purpose of the lecture:

To develop students' systematic knowledge of local anesthetics, their classification, mechanism of action, and application in surgical dentistry to ensure effective and safe pain relief.

2. Issues under consideration:

- The concept of local anesthesia in dentistry
- Classification of local anesthetics
- Ester and amide anesthetics
- Vasoconstrictor additives (vasoconstrictors)
- Forms of anesthetics
- Mechanism of action of local anesthetics
- Pharmacokinetics and pharmacodynamics
- Indications and contraindications for use
- Complications of local anesthesia
- Allergic reactions and their prevention

3. Educational technologies:

- lecture using diagrams and clinical examples

4. Primary and secondary literature:

1. Handbook of Local Anesthesia / Malamed SF
2. Surgical dentistry / edited by T. G. Robustova – Moscow: GEOTAR-Media
3. Propaedeutics of Surgical Dentistry – Moscow: GEOTAR-Media
4. Surgical Dentistry / edited by V. V. Afanasyev
5. Pharmacology for Dentistry – a study guide
6. Local Anesthetics in Dentistry – Review Materials

Local anesthetics (LA)) reversibly inhibit the formation and propagation of



impulses in nerves. This effect on sensory (afferent) nerves allows for painless surgical or dental procedures. a) Mechanism of action of local anesthetics. Impulse transmission along the axon occurs in the form of an action potential. The change in potential causes the opening (activation) of protein Na^+ channels, through which Na^+ rapidly enters the cell. Na^+ moves along the concentration gradient, since the Na^+ concentration outside the cell is 150 mmol/L, and inside the cell it is approximately 7 mmol/L. MAs inhibit this rapid influx of Na^+ , thereby blocking the occurrence and propagation of excitation. Most MAs are cationic amphiphilic compounds. This physicochemical property facilitates the insertion of MA molecules between the polar and non-polar domains of membranes. They are found in membrane phospholipids, as well as in protein ion channels. There is evidence that when MA bind to channel proteins, Na^+ channels are blocked. MA act in the cytosol, meaning that the drug must first penetrate the cell membrane. Uncharged substances also have local anesthetic properties. This suggests that such molecules bind to the nonpolar region of the protein channel or the hydrophobic region of membrane lipids. Side effects related to the mechanism of action. Since local anesthetics (MA) block Na^+ influx not only into sensory nerves but also into other excitable tissues, they are administered locally. Suppression of excitatory processes in the heart, although undesirable during local anesthesia, allows local anesthesia (MA) to be used for cardiac arrhythmias. b) Types of local anesthesia. Local anesthetics (LA) are administered in various ways, including by tissue impregnation (infiltration anesthesia), injection of the solution near a nerve branch containing fibers originating from the area to be anesthetized (conduction anesthesia, spinal anesthesia of segmental dorsal roots), or application to the surface of the skin or mucous membrane (superficial anesthesia). In each case, the local anesthetic (LA) diffuses to the nerves from a depot formed in the tissue or skin. Sensory nerves are highly sensitive, while motor nerves are less sensitive. Impulse conduction in sensory nerves is inhibited at concentrations below those required to achieve the corresponding effect in motor fibers. This difference may be due to the higher impulse frequency and longer duration of the action potential in nociceptive fibers compared to motor fibers. Alternatively, it may be related to the thickness of the sensory and motor nerves, as well as the distance between the nodes of Ranvier. During the spasmodic conduction of the impulse, only the membrane in the region of the node of Ranvier is depolarized. Since depolarization can occur even after blockade of 3 or 4 rings of the nodal nodes of Ranvier, the drug concentration required to achieve blockade of motor fibers must be higher. This explains why sensory stimuli conducted by myelinated A fibers are blocked later and to a lesser extent than signals conducted by unmyelinated C fibers. Since autonomic postganglionic fibers lack a myelin sheath, they are blocked by the local anesthetic (LA). As a result, blood vessels in the area of anesthesia dilate, as the influence of the sympathetic nervous system is reduced. Such local vasodilation is undesirable. c) Diffusion and effects of local anesthetic (LA). During diffusion from the injection site (from the interstitial space of connective tissue) to the axon of the sensory nerve,



the local anesthetic (LA) must pass through the perineurium. The multilayered perineurium is formed by connective tissue cells interconnected by tight junctions, thus forming a dense lipophilic barrier. Most local anesthetics (LAs) used in clinical practice are tertiary amines. At the pH of the interstitial fluid, they exist partly in a neutral, lipid-soluble form (symbolically represented by a particle with two red dots) and partly in a protonated form, i.e., as an amphiphilic cation (symbolically represented by particles with one blue and one red dot). The uncharged form penetrates the perineurium and enters the endoneurial space, where some of the drug molecules again acquire a positive charge in accordance with the local pH. A similar process occurs when the drug penetrates the axon membrane (axolemma) into the axoplasm, where it exerts its effect on the Na⁺ channel, and again during diffusion from the endoneurial space through the unfenestrated capillary endothelium into the blood. Thus, the concentration of a local anesthetic (LA) in the area of its action is determined by the rate of penetration into the endoneurium and axoplasm and the rate of diffusion into the capillary blood. To rapidly increase the drug concentration, there must be a correspondingly high concentration gradient between the drug depot in the connective tissue and the endoneurial space. Administration of low-concentration solutions will be ineffective. However, excessively high concentrations should also be avoided due to the risk of intoxication due to too rapid entry into the systemic circulation. To ensure a sufficiently prolonged local effect with minimal systemic effects, a vasoconstrictor (epinephrine, less commonly norepinephrine or vasopressin derivatives) is administered with the local anesthetic (LA). This restricts the spread of the drug from the injection site. This is due to decreased diffusion of the drug from the endoneurial space into the capillary blood. Furthermore, the addition of a vasoconstrictor helps create relative ischemia in the surgical field. Potential disadvantages of catecholamine-type vasoconstrictors include reactive hyperemia after the vasoconstrictor is "washed out" and cardiovascular stimulation when adrenaline enters the systemic circulation. Instead of adrenaline, a vasopressin analogue, felipressin, is used as a vasoconstrictor. This drug causes less reactive hyperemia and is not arrhythmogenic, but carries a risk of coronary spasm. Vasoconstrictors should not be used for local anesthesia of the fingers and toes. d) Chemical structure. Local anesthetics (LAs) have a similar chemical structure. Typically, they are secondary or tertiary amines. The nitrogen is linked through an intermediate carbon chain to a lipophilic group, which is most often an aromatic ring. The amine function means that the local anesthetic (LA), depending on the pK_a and the actual pH, exists as either a neutral amine or a positively charged ammonium cation; the pK_a of typical local anesthetics (LA) is 7.5-9.0. In the protonated form, the molecule contains both a polar hydrophilic fragment (protonated nitrogen) and a non-polar lipophilic fragment (aromatic ring), i.e., it has amphiphilic properties. Depending on the pK_a value at a physiological pH of 50 to 5% of the drug is present in the uncharged lipophilic form. This fraction is important because it represents the form of the local anesthetic (LA) that passes through the lipid bilayer of the membrane. To exert its effect, the uncharged drug



molecules must be converted to the cationic amphiphilic form. d) Local anesthetics (LA) used clinically are esters or amides. Ester-type local anesthetics (LAs) are inactivated in tissues by esterases. This is an advantage, as it reduces the risk of systemic intoxication. On the other hand, a high rate of metabolism shortens the duration of action of the drug. Procaine is not used for topical anesthesia, as its inactivation rate is higher than its penetration into the dermis or mucous membrane. In mepivacaine, the nitrogen, usually located at the end of the side chain, is contained in the cyclohexane ring. Lidocaine is primarily broken down in the liver by oxidative N-dealkylation. For effective local anesthesia, 0.25-1% solutions are used. 5% ointments are used for local anesthesia. Lidocaine is also used as an antiarrhythmic agent. Prilocaine and articaine undergo oxidative N-dealkylation only partially, as both molecules contain a substituent on the carbon atom adjacent to the nitrogen group. The articaine molecule contains a carboxymethyl group on the thiophene ring. At this position, ester cleavage occurs, forming a polar -COO- group, losing amphiphilicity, and yielding an inactive metabolite. Benzocaine is a member of a group of MAs lacking a nitrogen atom that could be protonated at physiological pH. It is used exclusively as a topical anesthetic. Another agent used for topical anesthesia is uncharged polidocanol, which has the formula: $\text{H}_3\text{C}-(\text{CH}_2)_{11}-(\text{O}-\text{CH}_2-\text{CH}_2)_9-\text{OH}$. It consists of hydrophobic and hydrophilic parts. In high concentrations, polidocanol is toxic and is used for obliteration (of esophageal varices in liver cirrhosis). e) Side effects of local anesthetics (LA). In the cell, a local anesthetic (LA) affects fast Na^+ channels, the opening of which initiates the formation of action potential. Local anesthetics (LA) block these channels. Fast Na^+ channels also function in other excitable tissues, including nerve cells of the brain and muscles, and cells of specialized conductive tissues of the heart. Therefore, the action of local anesthetics (LA) is not limited to nervous tissue. These drugs are not organ-specific. Accordingly, rapid administration or the entry of excessively high concentrations of local anesthetics (LA) into the circulation can cause serious side effects. Impulse conduction in the heart is disrupted, leading to AV blocks or, in the worst case, to suppression of ventricular automaticity. Function of various parts of the central nervous system (CNS) is impaired, causing loss of consciousness and seizures. Since there are no specific antidotes for local anesthetics (LA), symptomatic treatment should be initiated immediately. If signs of cardiac arrest are present, intravenous adrenaline should be administered. If CNS function is impaired, anticonvulsants, such as intravenous diazepam, should be administered. Ziconotide is a new antinociceptive drug for topical use. It is a synthetic analogue of conotoxin, which is used by sea snails with bell-shaped shells to paralyze their prey. This effect is due to the blockade of N-type Ca^{2+} channels. For severe chronic pain, ziconotide can be administered via an intrathecal needle into the spinal cord, where it blocks impulse transmission to the dorsal horn. Ziconotide is poorly tolerated and causes CNS side effects, so it is used as a last resort. Accordingly, rapid administration or the entry of excessively high concentrations of local anesthetics (LA) into the circulation can cause serious side effects. Impulse conduction in the heart is



disrupted, leading to AV blocks or, in the worst case, to suppression of ventricular automaticity. Function of various parts of the central nervous system (CNS) is impaired, causing loss of consciousness and seizures. Since there are no specific antidotes for local anesthetics (LA), symptomatic treatment should be initiated immediately. If signs of cardiac arrest are present, intravenous adrenaline should be administered. If CNS function is impaired, anticonvulsants, such as intravenous diazepam, should be administered. Ziconotide is a new antinociceptive drug for topical use. It is a synthetic analogue of conotoxin, which is used by sea snails with bell-shaped shells to paralyze their prey. This effect is due to the blockade of N-type Ca^{2+} channels. For severe chronic pain, ziconotide can be administered via an intrathecal needle into the spinal cord, where it blocks impulse transmission to the dorsal horn. Ziconotide is poorly tolerated and causes CNS side effects, so it is used as a last resort. Accordingly, rapid administration or the entry of excessively high concentrations of local anesthetics (LA) into the circulation can cause serious side effects. Impulse conduction in the heart is disrupted, leading to AV blocks or, in the worst case, to suppression of ventricular automaticity. Function of various parts of the central nervous system (CNS) is impaired, causing loss of consciousness and seizures. Since there are no specific antidotes for local anesthetics (LA), symptomatic treatment should be initiated immediately. If signs of cardiac arrest are present, intravenous adrenaline should be administered. If CNS function is impaired, anticonvulsants, such as intravenous diazepam, should be administered. Ziconotide is a new antinociceptive drug for topical use. It is a synthetic analogue of conotoxin, which is used by sea snails with bell-shaped shells to paralyze their prey. This effect is due to the blockade of N-type Ca^{2+} channels. For severe chronic pain, ziconotide can be administered via an intrathecal needle into the spinal cord, where it blocks impulse transmission to the dorsal horn. Ziconotide is poorly tolerated and causes CNS side effects, so it is used as a last resort.

Source:

https://meduniver.com/Medical/farmacologia/mexanizm_mestnoi_anestezii.html

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Local anesthesia is the primary method of pain relief in dentistry, allowing surgical and therapeutic procedures to be performed painlessly. Local anesthetics are widely used in surgical dentistry due to their effectiveness and relative safety.

Based on their chemical structure, local anesthetics are divided into two main groups: ester and amide. Ester anesthetics include novocaine and benzocaine, which are currently used less frequently due to a higher incidence of allergic reactions. Amide anesthetics (lidocaine, articaine, mepivacaine, bupivacaine) are the most widely used in modern dentistry due to their high efficacy and low toxicity.

In addition to anesthetics, vasoconstrictors (epinephrine, norepinephrine) are used in dental practice. They are added to constrict blood vessels, reduce bleeding, and prolong the anesthetic's effect. Their use requires caution in patients with cardiovascular disease.

Local anesthetics are available as solutions in ampoules or cartridges (carpules),



ensuring ease of use and sterility. Carpule systems are the most commonly used for injection anesthesia.

Local anesthetics act by blocking sodium channels in the nerve fiber membrane. This disrupts the generation and conduction of nerve impulses, leading to a reversible loss of pain sensitivity at the injection site. The anesthetic penetrates the nerve cell membrane in its non-ionized form and then blocks sodium channels from the inside.

The effectiveness of anesthesia depends on several factors: tissue pH, drug concentration, the presence of inflammation, and vascular supply. In inflamed tissues, the effectiveness of anesthetics is reduced due to changes in the acidity of the environment.

Indications for the use of local anesthetics include all types of dental procedures that involve pain: tooth extraction, drainage of abscesses, treatment of caries, and other procedures.

Contraindications include allergic reactions, severe cardiovascular disorders, and individual intolerance to the drug. Complications may include toxic reactions, allergies, and nerve damage due to improper injection technique.

Thus, local anesthetics are the basis of pain relief in surgical dentistry. Understanding their classification and mechanism of action allows the physician to perform dental procedures effectively and safely.

Lecture Topic #8: Use of Vasoconstrictors for Local Anesthesia (Indications and Contraindications). Use of Medications for General Anesthesia (Indications and Contraindications)**

1. The purpose of the lecture:

To develop students' systematic knowledge of the role of vasoconstrictors in local anesthesia, as well as medications used in general anesthesia, their indications, contraindications, and clinical significance in surgical dentistry.

2. Issues under consideration:

- The concept of vasoconstrictors
- The mechanism of action of adrenaline and its analogues
- Indications for the use of vasoconstrictors in local anesthesia
- Contraindications to the use of vasoconstrictors
- Complications with the use of vasoconstrictors
- Premedication in general anesthesia
- The main groups of drugs for general anesthesia
- Indications for general anesthesia in dentistry
- Contraindications to general anesthesia
- Prevention of complications during anesthesia

3. Educational technologies:

- lecture using clinical examples and diagrams



4. Primary and secondary literature:

1. Handbook of Local Anesthesia / Malamed SF
2. Miller's Anesthesia – Clinical Principles
3. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
4. Surgical Dentistry / edited by V. V. Afanasyev
5. Pharmacology in Dentistry – a study guide
6. Anesthesiology and resuscitation – basic course

Vasoconstrictors They are widely used in local anesthetic solutions in dentistry. Adrenaline and its analogs are the most commonly used, causing vasoconstriction at the injection site, reducing tissue blood flow.

The main effects of vasoconstrictors are: enhancing and prolonging the action of local anesthetic, reducing its systemic absorption, and decreasing bleeding in the surgical field. This is especially important during maxillofacial surgery.

Indications for the use of vasoconstrictors include the need for long-term and profound anesthesia, traumatic surgical procedures, and maintaining a dry surgical site. They are particularly effective during tooth extractions, abscess drainage, and complex surgeries.

Contraindications to the use of vasoconstrictors include severe cardiovascular diseases (coronary heart disease, arrhythmias, decompensated hypertension), thyrotoxicosis, severe diabetes mellitus, and individual sensitivity to adrenaline. These medications should be used with caution in children and elderly patients. The effect of a local anesthetic ceases when it is removed from the application site. Any factor that slows absorption into the bloodstream will prolong the local effect and may reduce the systemic toxicity of the drug, which is of practical importance when used in large volumes or doses. Typically, adrenaline or norepinephrine is used for this purpose at a concentration of 1:200,000 - 1:400,000 (in dentistry, 1:80,000). The effect is prolonged twofold, for example, from 1 to 2 hours. Vasoconstrictors should not be administered when anesthetizing terminal nerve trunks (fingers and toes, nose, penis). Due to obvious anatomical features, severe vasoconstriction in these areas can stop blood flow, leading to organ damage or loss. Sometimes it is necessary to reverse the effect of an anesthetic, for example, in dentistry after surgery is completed. In this case, the vasoconstrictor effect of adrenaline can be stopped by injecting the alpha-adrenergic blocker phentolamine into the anesthetized area. When absorbed, adrenaline and norepinephrine affect the heart and hemodynamics and reduce plasma potassium levels. The effect of these catecholamines is dangerous in cardiovascular diseases when used in conjunction with general anesthetics that sensitize the myocardium to the action of catecholamines (halothane), as well as for individuals taking tricyclic antidepressants and potassium-wasting diuretics. In addition to catecholamines, felypressin (synthetic vasopressin) can be used as a vasoconstrictor; in recommended doses, it does not affect heart rate or blood pressure, so it can be used in cardiovascular diseases. For patients taking MAO



inhibitors, catecholamines are dangerous only in case of cardiovascular pathology; In this situation, the use of felipressin is justified.

Complications associated with the use of vasoconstrictors can include tachycardia, increased blood pressure, anxiety, tremors, and, in rare cases, cardiac arrhythmias. Therefore, it is important to strictly adhere to the dosage and consider the patient's overall condition.

General anesthesia is a reversible, drug-induced reduction of consciousness, pain sensitivity, and reflexes. In dentistry, it is used for major surgical procedures, in patients with severe anxiety, mental disorders, or when local anesthesia is not feasible.

Medications for general anesthesia include drugs for premedication (sedatives, anxiolytics), induction (propofol, sodium thiopental), maintenance of anesthesia (inhalational anesthetics such as sevoflurane) and muscle relaxants.

Indications General anesthesia includes complex surgical interventions in the maxillofacial area, multiple tooth extractions, operations on children with uncooperative behavior, as well as cases of severe gag reflex or psycho-emotional instability of the patient.

Contraindications are severe decompensated diseases of the cardiovascular and respiratory systems, acute infections, severe anemia, as well as the lack of conditions for the safe administration of anesthesia.

Premedication plays an important role in reducing patient anxiety and preparing the body for anesthesia. It includes sedatives, antihistamines, and analgesics.

Therefore, the correct use of vasoconstrictors during local anesthesia and medications during general anesthesia is essential for the safe and effective performance of dental surgeries. Knowledge of indications and contraindications helps minimize the risk of complications and ensure a high level of medical care.

Lecture Topic #9: Mechanism of Action of General Anesthesia. Classification Side effects and complications with local and general anesthesia

1. The purpose of the lecture:

To develop students' systematic knowledge of the mechanisms of action of general anesthesia, its classification, as well as the adverse reactions and complications that arise when using local and general anesthesia in dental practice.

2. Issues under consideration:

- The concept of general anesthesia
- Mechanisms of action of general anesthesia on the central nervous system
- Stages of general anesthesia
- Classification of general anesthesia (inhalation, non-inhalation, combined)
- Drugs for general anesthesia
- Premedication and its importance
- Adverse reactions of local anesthesia
- Complications of local anesthesia
- Adverse reactions of general



anesthesia • Complications of general anesthesia • Prevention of complications

3. Educational technologies:

- lecture using clinical cases and diagrams

4. Primary and secondary literature:

1. Miller's Anesthesia – Clinical Principles
2. Handbook of Local Anesthesia / Malamed SF
3. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
4. Surgical Dentistry / edited by V. V. Afanasyev
5. Anesthesiology and resuscitation – basic course
6. Pharmacology for Dentistry – a study guide

General anesthesia is a state of reversible drug-induced suppression of consciousness, pain sensitivity, reflexes and muscle tone, which makes it possible to perform surgical interventions without pain and stress reaction of the patient.

The mechanism of action of general anesthesia is related to the effect of anesthetics on the central nervous system. These drugs affect the cerebral cortex, subcortical structures, reticular formation, and spinal cord, altering the transmission of nerve impulses. This results in decreased consciousness, loss of pain sensitivity, and muscle relaxation.

General anesthesia goes through several stages. Classically, these are the analgesia stage, the arousal stage, the surgical anesthesia stage, and the overdose stage. Modern medications allow for rapid achievement of the surgical stage and minimization of the arousal stage.

Current understanding of general anesthesia mechanisms. Classification of anesthesia. Preparing patients for anesthesia, premedication, and its administration. *General anesthesia* – a temporary, artificially induced condition in which reactions to surgical interventions and other nociceptive stimuli are absent or reduced.

The common components are divided into the following:

Inhibition of mental perception (anesthesia) – sleep This can be achieved with various medications (ether, fluorothane, relanium, thiopental, GHB, etc.).

Analgesia – pain relief This is achieved by using various means (local anesthesia, inhalation anesthetics, non-steroidal anti-inflammatory drugs, narcotic analgesics, Ca⁺⁺ channel blockers, etc.).

Relaxation is the relaxation of striated muscles. It is achieved by introducing depolarizing (myorelaxin, listenon, ditilin) and non-depolarizing (arduan, pavulon, norcuron, tracrimum, etc.) muscle relaxants.

Neurovegetative blockade It is achieved by neuroleptics, benzodiazepines, ganglionic blockers, and inhalation anesthetics.

Maintaining adequate blood circulation, gas exchange, acid-base balance, thermoregulation, protein, lipid and other types of metabolism.

Specialized components of general anesthesia. The choice of components depends



on the specific pathology, surgical intervention, or resuscitation situation. These tasks are addressed by private anesthesiology. For example, the delivery of anesthesia during coronary artery bypass grafting differs from that during neurosurgical procedures.

Due to the use of a wide range of anesthetic drugs in multicomponent anesthesia, there is no single anesthesia clinic. Therefore, when discussing anesthesia clinics, we mean single-component anesthesia.

Modern concepts of the mechanism of general anesthesia.

The effect of anesthetics occurs primarily at the level of the formation and propagation of the action potential within neurons themselves, and especially at interneuronal contacts. The first idea that anesthetics act at the synapse level belongs to C. Sherrington (1906). The precise mechanism of anesthetic action remains unknown to this day. Some scientists believe that by binding to the cell membrane, anesthetics inhibit the depolarization process, while others believe that anesthetics close sodium and potassium channels in cells. Studies of synaptic transmission have noted the potential for anesthetics to act on various components of the process (inhibition of the action potential on the presynaptic membrane, suppression of neurotransmitter formation, and decreased sensitivity of postsynaptic membrane receptors to it).

Despite the valuable knowledge about the subtle mechanisms of anesthetic interactions with cellular structures, anesthesia is considered a unique functional state of the central nervous system. N. E. Vvedensky, A. A. Ukhtomsky, and V. S. Galkin made significant contributions to the development of this concept. According to the theory of parabiosis (N. E. Vvedensky), anesthetics act on the nervous system as strong irritants, subsequently causing a decrease in the physiological lability of individual neurons and the nervous system as a whole. Recently, many specialists have supported the reticular theory of anesthesia, according to which the inhibitory effect of anesthetics primarily affects the reticular formation of the brain, leading to a reduction in its ascending activating effect on higher-lying areas of the brain.

Classification of anesthesia.

By factors affecting the central nervous system.

- Pharmacodynamic anesthesia – basic (the effect is achieved by the action of pharmacological substances);
- Electronarcosis (use of an electric field) and hypnonarcosis (use of hypnosis). The use of the latter is extremely limited.

By the route of drug administration.

- Inhalation anesthesia - the administration of drugs is carried out through the respiratory tract (mask, endotracheal, endobronchial).
- Non-inhalation anesthesia - drugs are administered intravenously (mainly) or intramuscularly.

By the number of drugs used.

- Mononarcosis is the use of one narcotic drug.
- Mixed anesthesia is the simultaneous use of two or more narcotic drugs.



- Combined anesthesia is the use of different narcotics at different stages of the surgery or a combination of narcotics with substances that selectively affect certain bodily functions (muscle relaxants, analgesics, ganglionic blockers). In the latter case, anesthesia is sometimes called multicomponent anesthesia.

For use at different stages of the operation.

- Induction anesthesia is a short-term, rapid-onset anesthesia without arousal. It is used to quickly put the patient to sleep and to reduce the amount of the primary narcotic.

- Maintenance (main, primary) anesthesia is anesthesia that is used throughout the entire operation.

- Additional - when adding the effect of another substance to the main anesthesia.

- Basic anesthesia (basic anesthesia) is a superficial anesthesia in which, before or simultaneously with the main anesthetic, an anesthetic agent is administered to reduce the dose of the main narcotic drug.

Premedication is the administration of medications before surgery in order to reduce the incidence of intra- and postoperative complications.

Premedication is necessary to solve several problems:

- decreased emotional arousal;
- neurovegetative stabilization;
- decreased reactions to external stimuli;
- creating optimal conditions for the action of anesthetics;
- prevention of allergic reactions to agents used in anesthesia;
- decrease in glandular secretion.

Essential drugs.

The following main groups of pharmacological substances are used for premedication:

- Hypnotics (barbiturates: sodium ethaminal, phenobarbital, benzodiazepines: radedorm, nozepam, tazepam).
- Tranquilizers (diazepam, phenazepam). These medications have hypnotic, anticonvulsant, hypnotic, and amnesic effects, relieve anxiety, enhance the effects of general anesthetics, and increase pain threshold.
- Neuroleptics (aminazine, droperidol).
- Antihistamines (diphenhydramine, suprastin, tavegil).
- Narcotic analgesics (promedol, morphine, omnopon) relieve pain, have a sedative and hypnotic effect, and potentiate the effects of anesthetics.
- Anticholinergic agents (atropine, metacin). These drugs block laryngeal reflexes and inhibit glandular secretion.

Premedication regimens.

The following schemes are the most widespread.

Before emergency surgery, patients are administered a narcotic analgesic and atropine (promedol 2% - 1.0 mg/kg, atropine - 0.01 mg/kg). Droperidol and antihistamines may be administered if indicated.

Before a planned operation, a typical premedication regimen includes:



- the night before - a sleeping pill (phenobarbital - 2 mg/kg) and a tranquilizer (phenazepam - 0.02 mg/kg);
- in the morning at 7 am (2-3 hours before surgery) - droperidol (0.07 mg/kg), diazepam (0.14 mg/kg);
- 30 minutes before surgery - promedol 2% - 1.0, atropine (0.01 mg/kg), diphenhydramine (0.3 mg/kg).

In some cases, an extended premedication regimen is necessary with the administration of drugs over several days and the use of pharmacological substances from other groups.

General anesthesia is classified as inhalational, non-inhalational, and combined. Inhalational anesthesia is administered using volatile anesthetics (sevoflurane, isoflurane). Non-inhalational anesthesia is administered intravenously (propofol, sodium thiopental, ketamine). Combined anesthesia combines both methods to achieve optimal results.

Premedication is used to prepare the patient for anesthesia and includes sedatives, antihistamines, and analgesics. It reduces anxiety, decreases the risk of complications, and facilitates the anesthesia process.

When using local anesthesia, side effects may occur, such as allergic reactions (skin rash, itching, swelling), toxic reactions in case of overdose, vasovagal reactions (fainting), and nerve damage if the injection technique is incorrect.

Complications of local anesthesia include hematomas, infections at the injection site, trismus of the masticatory muscles, and systemic toxicity in case of accidental intravascular injection of the drug.

General anesthesia can cause adverse effects on the cardiovascular system (hypotension, arrhythmia), respiratory system (respiratory depression, hypoxia), and central nervous system (prolonged arousal, confusion). Allergic reactions to anesthetics may also occur.

Complications of general anesthesia include gastric aspiration, laryngospasm, bronchospasm, hypoxia, respiratory arrest, and cardiovascular complications. These conditions require immediate intervention by the anesthesia team.

Prevention of complications includes a thorough examination of the patient, the correct choice of anesthesia method, adherence to drug dosages, and continuous monitoring of vital functions.

Thus, knowledge of the mechanism of action of general anesthesia, its classification, as well as possible side effects and complications is a prerequisite for the safe performance of dental surgical interventions.

2.2. Development of practical/seminar/laboratory classes

3rd semester

Lesson Topic 1: Deontology in Maxillofacial Surgery and Surgical Dentistry



1. Objective of the lesson:

To develop students' understanding of deontological principles in maxillofacial surgery and surgical dentistry, the specifics of a physician's professional conduct, ethical standards for communication with patients and their relatives, and the role of deontology in ensuring the quality of medical care.

2. Educational technologies:

- lecture-discussion
- work in small groups
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

• deontology • medical ethics • medical confidentiality • informed consent • psycho-emotional state of the patient • professional communication of the doctor

4. Questions for the lesson:

• The concept of deontology in medicine and dentistry • Features of deontology in surgical dentistry • Psychological aspects of communication with surgical patients • Informed consent of the patient • The role of the doctor in building patient trust

5. Questions for self-control:

• Define deontology • What are the basic principles of medical ethics • What is medical confidentiality • What is the role of doctor-patient communication in surgery

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Medical Ethics and Law / Hope T., Savulescu J.
4. Introduction to Oral and Maxillofacial Surgery / Peterson LJ
5. Medical Ethics / Study Guide – GEOTAR-Media
6. Psychology of Communication in Medicine – a Textbook

7. List of questions and tasks for independent work:

• studying educational material from lectures and literature • working with situational tasks on deontology • analysis of conflict situations in dental practice • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

• Principles of medical ethics in surgical dentistry • Psychological preparation of the patient for surgery • Doctor-patient confidentiality and its importance in



dentistry • Conflict situations in dental practice and ways to resolve them • The role of communication between doctor and patient in the success of treatment

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Deontology in maxillofacial surgery and surgical dentistry is a system of professional ethical norms and rules of conduct for physicians aimed at ensuring a trusting relationship with the patient, increasing the effectiveness of treatment and reducing psycho-emotional stress.

In surgical dentistry, ethical principles are particularly important, as patients often experience fear of surgery, pain, and potential complications. The doctor must consider the patient's psychological state and demonstrate tact, consideration, and respect.

The fundamental principles of medical ethics are humanism, professional responsibility, maintaining medical confidentiality, honesty, and respect for the patient. Informed consent, which requires a full and understandable explanation to the patient of the nature of the disease, treatment methods, and potential risks, is of particular importance.

A maxillofacial surgeon must be able to communicate effectively not only with patients but also with their families, especially in pediatric practice. This helps reduce anxiety and build trust in the doctor.

An important aspect is preventing conflicts that may arise due to pain, fear, or a patient's lack of information. In such cases, the doctor's professional behavior and ability to explain medical procedures are crucial.

Thus, ethical conduct is an integral part of the professional work of a dental surgeon. Adherence to it ensures not only successful treatment outcomes but also the development of a positive patient attitude toward medical care.

Lesson Topic 2: Dental Surgical Room. Sanitary Standards

1. Objective of the lesson:

To develop students' systematic knowledge of the organization of a dental surgery room, its equipment, functional zoning, as well as sanitary, hygienic, and anti-epidemic requirements that ensure the safety of patients and medical personnel.

2. Educational technologies:

- lecture-discussion
- work in small groups



- analysis of regulatory documents
- post-testing

3. Basic concepts that students should learn:

- dental surgery room • sanitary and epidemiological regime • asepsis and antisepsis • sterilization and disinfection • infection control • medical waste

4. Questions for the lesson:

- Requirements for the organization of a dental surgery room • Equipment of a dental surgery room • Functional areas of the room • Sanitary and hygienic operating conditions • Prevention of nosocomial infections

5. Questions for self-control:

- List the basic requirements for a surgical room • What does the sanitary and epidemiological regime include • What zones exist in a dental office • How is infection prevention carried out

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Infection Control in Dentistry/CDC Guidelines
4. Propaedeutics of Surgical Dentistry – GEOTAR-Media
5. Infection Control in Healthcare Facilities – A Tutorial
6. Sterilization and Disinfection in Dentistry – GEOTAR-Media

7. List of questions and tasks for independent work:

- study of regulatory documents on sanitary requirements • analysis of the organization of a dental office • work with issues on infection control • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

- Organization of a dental surgical room • Sanitary and epidemiological regime in dentistry • Prevention of nosocomial infections • Asepsis and antisepsis in surgical dentistry • Disposal of medical waste in dental practice

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

A dental surgery room is a specialized unit within a dental clinic, designed to perform surgical procedures in the oral cavity and maxillofacial area. Its organization must comply with strict sanitary, hygienic, and anti-epidemic



requirements.

The main objective of organizing the office is to ensure the safety of the patient and medical staff, create conditions for high-quality surgical procedures, and prevent infectious complications.

The equipment of a dental surgery room includes a dental unit, surgical instruments, sterilization equipment (autoclave, dry-heat oven), aspiration systems, surgical field lighting, and personal protective equipment (gloves, masks, gowns, glasses).

Functionally, the office should be divided into zones: work (operating), sterilization, and auxiliary. This zoning allows for maintaining the required level of asepsis and preventing cross-infection.

The sanitary and epidemiological regime includes a set of measures aimed at preventing the spread of infections. It includes regular disinfection of surfaces, sterilization of instruments, adherence to personal hygiene rules for staff, and proper disposal of medical waste.

Adherence to the principles of asepsis and antisepsis is of particular importance. Asepsis is aimed at preventing microorganisms from entering the surgical field, while antisepsis is aimed at destroying them once they reach the tissue.

Prevention of hospital-acquired infections includes monitoring the sterility of instruments, using disposable materials, regularly sanitizing the office, and adhering to infection control standards.

Thus, proper organization of the dental surgical room and strict adherence to sanitary standards are the basis for safe and effective surgical dental practice.

Lesson Topic 3: Special equipment, apparatus and instruments for examining dental patients and performing operations in the maxillofacial area.

1. Objective of the lesson:

To develop students' systematic knowledge of the specialized equipment of a dental surgical room, diagnostic and surgical equipment, as well as instruments used in examinations and surgical interventions in the maxillofacial region.

2. Educational technologies:

- lecture-discussion
- demonstration of tools and equipment
- work in small groups
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

• dental surgical equipment • diagnostic instruments • surgical instruments • sterilization equipment • aspiration system • x-ray diagnostics • surgical field



4. Questions for the lesson:

• Basic equipment for a dental surgery room • Instruments for clinical examination of a patient • Equipment for diagnostics in maxillofacial surgery • Surgical instruments and their classification • Features of using instruments during operations

5. Questions for self-control:

• List the main groups of dental instruments • What devices are used for diagnostics in the maxillofacial region • What is considered surgical equipment • How is the safety of using instruments ensured

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Peterson LJ Oral and Maxillofacial Surgery
4. Propaedeutics of Surgical Dentistry – GEOTAR-Media
5. Atlas of Dental Instruments – Elsevier
6. Radiology in Dentistry / White S., Pharoah M.

7. List of questions and tasks for independent work:

• study of the classification of dental instruments • analysis of modern equipment in surgical dentistry • work with clinical cases • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

• Modern equipment for dental surgery • Instruments for diagnostics in maxillofacial surgery • Surgical instruments: classification and application • X-ray examination methods in dentistry • Safety of work with dental equipment

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Specialized equipment in a dental surgery room plays a key role in ensuring the quality of diagnostics and the effectiveness of maxillofacial surgical procedures. Modern dentistry requires the use of high-tech equipment and a wide range of specialized instruments.

The basic equipment includes a dental unit, a surgical table, a system for lighting the surgical field, an aspiration system, sterilization equipment (autoclave, dry-heat oven), as well as X-ray and digital diagnostic equipment.

Patient examination instruments include a dental mirror, probe, tweezers, spatula, and auxiliary instruments for assessing the condition of the mucous membrane,



teeth, and periodontium. These allow for a primary diagnosis and the detection of pathological changes.

Diagnostic equipment includes X-ray machines, orthopantomographs, computed tomography (CT) scanners, and visiographs. These methods allow us to assess bone condition, tooth position, and the presence of pathological processes in the maxillofacial region.

Surgical instruments are divided into cutting instruments (scalpels, scissors), grasping instruments (tweezers, clamps), retractors, and specialized instruments for tooth extraction (forceps and elevators). Each instrument has a strictly defined purpose and is used depending on the clinical situation.

Proper use of instruments requires adherence to aseptic principles, precise technique, and knowledge of the anatomical features of the maxillofacial region. Failure to follow these guidelines can lead to tissue injury and complications.

Thus, knowledge of special equipment, apparatus and instruments is the basis of the professional training of a dental surgeon and ensures the safety and effectiveness of surgical treatment.

Lesson Topic 4: Disinfection and Sterilization. Asepsis and Antisepsis in Facial and Oral Surgeries.

1. Objective of the lesson:

To develop students' systematic knowledge of the principles of disinfection and sterilization, as well as the basics of asepsis and antisepsis during surgical interventions in the maxillofacial region, aimed at preventing infectious complications.

2. Educational technologies:

- lecture-discussion
- demonstration of instrument processing stages
- work in small groups
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

• disinfection • sterilization • pre-sterilization cleaning • asepsis • antisepsis • infection control • hospital-acquired infection

4. Questions for the lesson:

• The concept of disinfection and its types • Stages of processing dental instruments • Sterilization methods • The concept of asepsis and its importance in



surgery • Antisepsis and its types • Prevention of infectious complications

5. Questions for self-control:

• What are disinfection and sterilization? • Name the methods of sterilization. • What is the difference between asepsis and antisepsis. • What infection prevention measures are used in dentistry.

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Infection Control in Dentistry – CDC Guidelines
4. Propaedeutics of Surgical Dentistry – GEOTAR-Media
5. Sterilization and Disinfection in Medicine – A Textbook
6. Oral Surgery Infection Control Manual – Elsevier

7. List of questions and tasks for independent work:

• study of the stages of instrument sterilization • analysis of sanitary standards of a dental office • work with clinical situations on infection control • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

• Modern methods of sterilization in dentistry • Asepsis in surgical dentistry • Antiseptic agents in maxillofacial surgery • Prevention of nosocomial infections • Infection control in the dental office

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Disinfection, sterilization, asepsis, and antisepsis are the foundation of infection control in surgical dentistry and maxillofacial surgery. Their proper use helps prevent the development of hospital-acquired infections and ensure the safety of patients and medical staff.

Disinfection is the process of destroying pathogenic microorganisms in environmental objects. It is performed using chemical and physical methods and is the first step in processing instruments after use.

Sterilization is the complete destruction of all forms of microorganisms, including spores. It is a mandatory step in the processing of surgical instruments. The main sterilization methods include steam (autoclaving), air (dry-heat oven), and chemical methods. Sterility is monitored using indicators.

Pre-sterilization cleaning removes organic contaminants (blood, tissue, and medications) that can reduce the effectiveness of sterilization. This step is mandatory



before sterilizing instruments.

Asepsis is a system of measures aimed at preventing the introduction of microorganisms into the surgical wound. It includes the use of sterile instruments, hand hygiene, a sterile surgical field, and adherence to surgical site procedures.

Antisepsis is a set of measures aimed at destroying microorganisms that have already entered a wound or tissue. In dentistry, chemical antiseptics (chlorhexidine solutions, hydrogen peroxide, iodine-containing preparations) as well as physical methods are used.

Strict infection control is especially important in surgical dentistry, as the oral cavity is an environment with a high microbial load. Failure to adhere to aseptic and antiseptic protocols can lead to complications such as abscesses, cellulitis, and septic conditions.

Thus, disinfection, sterilization, asepsis and antisepsis are key elements of safe surgical practice and mandatory conditions for the provision of high-quality dental care.

Lesson Topic 5: Preparing the Surgical Field and the Surgeon's Hands. Sterilizing Instruments, Dressings, and Sutures.

1. Objective of the lesson:

To develop students' systematic knowledge and practical skills in preparing the surgical field and the surgeon's hands, as well as methods for sterilizing surgical instruments, dressings, and suture materials to ensure asepsis in surgical dentistry.

2. Educational technologies:

- lecture-discussion
- demonstration of hand and field processing algorithms
- work in small groups
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

• surgical field • surgical hand antisepsis • preoperative patient preparation • sterilization of instruments • dressing material • suture material • asepsis

4. Questions for the lesson:

• Stages of preparing the surgical field • Methods of treating the surgeon's hands
• Types of instrument sterilization • Sterilization of dressings • Sterilization of suture material • Sterility control in surgery

5. Questions for self-control:



- How is the surgeon's hands treated?
- What does the preparation of the surgical field include?
- What sterilization methods are used in dentistry?
- What are the requirements for suture material?

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Propaedeutics of Surgical Dentistry – GEOTAR-Media
4. Infection Control in Dentistry – CDC Guidelines
5. Sterilization and Asepsis in Surgery - A Textbook
6. Oral Surgery Principles – Elsevier

7. List of questions and tasks for independent work:

- study of algorithms for processing the surgeon's hands
- analysis of the stages of preparing the surgical field
- study of methods for sterilizing materials
- preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

- Modern methods of treating the surgeon's hands
- Preparation of the surgical field in dental surgery
- Sterilization of surgical instruments
- Sterilization of dressings
- Suture materials in surgical dentistry

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Preparation of the surgical field, the surgeon's hands and sterilization of materials are key elements of ensuring asepsis in surgical dentistry and maxillofacial surgery. Surgical site preparation aims to minimize microbial contamination of the skin or mucous membrane in the surgical area. This includes mechanical cleaning, treatment with antiseptic solutions (chlorhexidine, povidone-iodine), and isolation with sterile material. In dentistry, special attention is paid to the oral cavity, which is a naturally infectious environment.

Surgeons must prepare their hands for surgery. This includes hygienic hand washing with soap, surgical antiseptic cleaning with alcohol-based and antiseptic solutions, and the use of sterile gloves. The goal is to minimize the presence of transient and resident skin microflora.

Instrument sterilization is performed with the goal of completely destroying all microorganisms, including spores. The primary methods are steam (autoclaving), air (dry-heat oven), and chemical methods. Sterility monitoring is performed using physical, chemical, and biological indicators.

Dressings (gauze, bandages, wipes) must be sterile and stored in conditions that



prevent recontamination. They are most often sterilized using steam or in single-use packaging.

Suture material is also subject to mandatory sterilization. It must be biocompatible, durable, and resistant to infection. Both absorbable and non-absorbable materials are used.

Compliance with all stages of preparation of the surgical field, the surgeon's hands, and the sterilization of materials ensures a high level of infection safety and prevents the development of postoperative complications.

Thus, these measures are the basis of safe surgical practice and a prerequisite for the provision of high-quality dental care.

Lesson Topic 6: Preparing the Patient for Surgery. Preparing the Surgeon's Hands and the Surgical Field.

1. Objective of the lesson:

To develop students' systematic knowledge and practical skills in preoperative patient preparation, surgeon's hand hygiene, and surgical site preparation, aimed at ensuring the safety of surgical interventions and preventing infectious complications.

2. Educational technologies:

- lecture-discussion
- demonstration of algorithms for preparing a patient and a surgeon
- work in small groups
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

• preoperative preparation of the patient • surgical hand antisepsis • surgical field • asepsis • antisepsis • infection control • psycho-emotional preparation of the patient

4. Questions for the lesson:

• Stages of patient preparation for surgery • Psychological preparation of the patient • Medical preparation before surgery • Methods of treating the surgeon's hands • Preparation of the surgical field • Prevention of infectious complications

5. Questions for self-control:

• What stages does patient preparation for surgery include? • How are the surgeon's hands treated? • What does the preparation of the surgical field include? • Why is preoperative preparation important?



6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Propaedeutics of Surgical Dentistry – GEOTAR-Media
4. Infection Control in Dentistry – CDC Guidelines
5. Oral Surgery Principles and Practice – Elsevier
6. Sterility and Asepsis in Surgery - A Textbook

7. List of questions and tasks for independent work:

- study of the algorithm for preoperative patient preparation
- analysis of methods of antisepsis of the surgeon's hands
- study of the stages of preparation of the surgical field
- preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

- Preoperative preparation of the patient in surgical dentistry
- Psychological aspects of preparing the patient for surgery
- Antisepsis of the surgeon's hands: modern methods
- Preparation of the surgical field in dentistry
- Prevention of infectious complications in surgery

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Preparing a patient for surgery is a crucial step in dental and maxillofacial surgery. It aims to reduce the risk of complications, ensure the safety of the procedure, and create optimal conditions for tissue healing.

Preoperative preparation includes several components: a general medical examination, assessment of the patient's physical status, identification of contraindications to surgery and anesthesia, and laboratory and instrumental examinations if necessary. Particular attention is paid to collecting the patient's medical history, including allergy status and the presence of chronic diseases.

An important step is psychological preparation of the patient. The doctor should reduce anxiety, explain the nature of the upcoming procedure, its stages, and possible consequences, which helps build trust and improves patient cooperation with the medical staff.

Preparing the surgeon's hands is a mandatory procedure before surgery. This includes hygienic hand washing, disinfection with antiseptic solutions, and donning sterile gloves. The main goal is to minimize the number of microorganisms on the skin of the hands, including transient and resident microflora.

Surgical site preparation aims to create aseptic conditions in the surgical area. This includes mechanical cleansing of the skin or mucous membrane, treatment with antiseptics (chlorhexidine, povidone-iodine), and isolation with sterile materials. In



dentistry, preparation of the oral cavity, which is initially an infectious environment, is particularly important.

Compliance with all stages of preoperative patient preparation, treatment of the surgeon's hands and the surgical field is the basis for preventing infectious complications and ensures the safety of surgical intervention.

Thus, a comprehensive approach to preparation for surgery is a prerequisite for successful treatment in surgical dentistry and maxillofacial surgery.

Lesson Topic 7: Instruments in Surgical Dentistry. Types, Names, and Purposes. Instruments for Tooth Extraction in the Upper Jaw.

1. Objective of the lesson:

To develop students' systematic knowledge of surgical dental instruments, their classification, purpose, and application features, and to study the instruments used for tooth extraction in the upper jaw.

2. Educational technologies:

- lecture-discussion
- demonstration of tools
- work in small groups
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

• surgical dental instruments • tooth extraction forceps • elevators • anatomical shape of tooth roots • tooth extraction technique • surgical instruments

4. Questions for the lesson:

• Classification of surgical dental instruments • Instruments for examination and manipulation • Instruments for tooth extraction • Features of tooth extraction in the upper jaw • Types of forceps and their purpose • Elevators and their application

5. Questions for self-control:

• Name the main groups of dental instruments • What instruments are used to extract teeth • What forceps are used on the upper jaw • In what cases are elevators used

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Oral and Maxillofacial Surgery / Peterson LJ
4. Propaedeutics of Surgical Dentistry – GEOTAR-Media



5. Atlas of Dental Instruments – Elsevier
6. Dental Extraction Techniques – Tutorial

7. List of questions and tasks for independent work:

• study of the classification of dental instruments • analysis of types of forceps and elevators • work with clinical cases of tooth extraction • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

• Modern surgical instruments in dentistry • Forceps for extracting teeth of the upper jaw • Elevators: types and applications • Techniques for extracting teeth in the upper jaw • Errors and complications during tooth extraction

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Surgical dental instruments are a collection of specialized instruments used for diagnosis, surgery, and tooth extraction. Knowledge of their classification and purpose is essential for a dental surgeon.

All instruments are divided into several groups: diagnostic (mirror, probe, tweezers), cutting (scalpels, scissors), grasping (clamps, tweezers), auxiliary (raspators, retractors) and special surgical instruments for tooth extraction (forceps and elevators).

The main instruments used for tooth extraction are forceps and elevators. Forceps are designed to grasp, loosen, and extract teeth from their sockets. They consist of jaws, a clamp, and handles. The jaws are shaped to match the anatomy of individual teeth, ensuring effective and safe extraction.

Upper jaw tooth extraction has anatomical challenges related to the thinness of the bone tissue and the shape of the roots. Special forceps are used for this procedure:

- **Straight tweezers**– used for incisors and canines of the upper jaw
- **S-shaped tongs**– used for premolars
- **Pliers with a spike (bayonet-shaped)**– for molars of the upper jaw, provide fixation in the area of root bifurcation
- **Bayonet pliers**– used to remove tooth roots

Elevators are used as auxiliary instruments for removing roots and difficult teeth. They come in straight, angled, and bayonet-shaped varieties. Their action is based on the principle of leverage, allowing for the gentle dislocation of a tooth or its fragments.

The choice of instrument depends on the tooth's anatomy, root condition, bone density, and the clinical situation. Incorrect use of instruments can lead to root fracture, injury to surrounding tissue, and other complications.



Therefore, knowledge of instruments for removing teeth in the upper jaw and the ability to use them correctly is an important part of the training of a dental surgeon.

Lesson Topic 8: Instruments in Surgical Dentistry. Types, Names, and Purposes. Instruments for Extracting Teeth in the Lower Jaw.

1. Objective of the lesson:

To develop students' systematic knowledge of surgical dental instruments, their classification and purpose, and to study the features of instruments used for tooth extraction in the lower jaw, taking into account anatomical conditions.

2. Educational technologies:

- lecture-discussion
- demonstration of tools
- work in small groups
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

• Surgical dental instruments • Forceps for the lower jaw • Elevators • Anatomy of the lower jaw • Technique of tooth extraction • Tooth axis and direction of force

4. Questions for the lesson:

• Classification of surgical dental instruments • Basic instruments for tooth extraction • Anatomical features of the lower jaw • Forceps for teeth of the lower jaw • Elevators and their application • Features of the technique of lower tooth extraction

5. Questions for self-control:

• What groups of instruments are used in surgical dentistry? • What are the differences between lower jaw forceps? • What elevators are used for tooth extraction? • What anatomical features influence the extraction technique?

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Oral and Maxillofacial Surgery / Peterson LJ
4. Propaedeutics of Surgical Dentistry – GEOTAR-Media
5. Atlas of Dental Instruments – Elsevier
6. Dental Extraction Techniques – Tutorial



7. List of questions and tasks for independent work:

• study of types of forceps for the lower jaw • analysis of tooth extraction techniques • comparison of instruments for the upper and lower jaw • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

• Surgical instruments in dentistry • Forceps for removing teeth from the lower jaw
• Elevators: types and applications • Features of removing teeth from the lower jaw
• Errors and complications during tooth extraction

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Surgical dental instruments include a wide range of instruments used for diagnosis, surgery, and tooth extraction. Of particular importance are instruments for tooth extraction, which are divided into forceps and elevators.

Forceps for extracting teeth from the lower jaw have anatomical peculiarities due to dense bone tissue and the position of the teeth. Unlike the upper jaw, the lower jaw is more massive, requiring the use of instruments with enhanced grip and a more pronounced lever action.

The main types of mandibular forceps include:

- **Forceps for incisors and canines**– narrow, with thin cheeks, ensure precise grip of the tooth
- **Premolar pliers**- wider, designed for multi-rooted teeth
- **Molar pliers (bark pliers)**- massive, with wide cheeks that provide a secure grip on the crown part
- **Parrot beak pliers**– used for lower molars, provide deep penetration to the neck of the tooth

Elevators are also widely used in lower jaw tooth extractions, especially in complex cases. They are used to dislocate teeth and roots from the alveolus. The main types include:

- direct elevators
- corner elevators
- bayonet elevators

The technique for extracting teeth in the lower jaw requires consideration of bone density and limited tooth mobility. The basic principle is gradual loosening of the tooth, followed by its extraction along the axis of least resistance.

Incorrect instrument selection or excessive force can lead to root fracture, damage to the alveolar process and other complications.

Thus, knowledge of instruments for removing teeth in the lower jaw and the correct technique for using them are an important part of the training of a dental surgeon



and ensure the safety of surgical interventions.

Lesson Topic 9: Care of surgical instruments in dentistry. Methods and stages of sterilization and disinfection in dentistry

1. Objective of the lesson:

To develop students' systematic knowledge of the rules for caring for surgical dental instruments, the stages of their processing, methods of disinfection and sterilization, as well as the principles of infection control in dental practice.

2. Educational technologies:

- lecture-discussion
- demonstration of instrument processing stages
- work in small groups
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

- disinfection • sterilization • pre-sterilization cleaning • infection control • asepsis
- antisepsis • surgical instruments

4. Questions for the lesson:

- Concept of care for surgical instruments • Stages of processing dental instruments
- Disinfection methods • Sterilization methods • Sterilization quality control • Prevention of infectious complications

5. Questions for self-control:

- What stages does instrument processing include? • What is the difference between disinfection and sterilization? • What sterilization methods are used in dentistry? • How is sterility controlled?

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Infection Control in Dentistry – CDC Guidelines
4. Propaedeutics of Surgical Dentistry – GEOTAR-Media
5. Sterilization and Disinfection in Medicine – A Textbook
6. Oral Surgery Infection Control Manual – Elsevier

7. List of questions and tasks for independent work:

- study of the stages of instrument processing • analysis of modern sterilization



methods • study of sanitary standards of a dental office • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

• Modern methods of sterilization in dentistry • Stages of processing surgical instruments • Disinfection in dental practice • Asepsis and infection control • Prevention of nosocomial infections

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Care of surgical instruments is a critical element of infection control in dental practice. All instruments that come into contact with blood and body fluids must undergo rigorous multi-step reprocessing.

The processing process includes several successive stages: disinfection, pre-sterilization cleaning and sterilization.

Disinfection Aimed at destroying pathogenic microorganisms on the surface of instruments, it is performed immediately after use using chemical solutions or physical methods.

Pre-sterilization cleaning Involves the mechanical removal of residual blood, tissue, and medicinal substances. This step ensures the effectiveness of subsequent sterilization.

Sterilization Sterilization is the process of completely destroying all forms of microorganisms, including spores. The main methods of sterilization include:

- **Steam method (autoclaving)**- the most effective and widespread
- **Air method (dry heat oven)**
- **Chemical method**(for heat-sensitive materials)
- **Plasma sterilization**(modern high-tech method)

Sterility control is carried out using physical, chemical and biological indicators, which ensures the safety of instruments.

Proper care of instruments after sterilization is of particular importance: they must be stored in sterile packaging in compliance with the storage terms and conditions.

Compliance with all stages of instrument processing helps prevent the spread of infections, including viral hepatitis and HIV infection.

Thus, proper organization of care for surgical instruments is the basis for safe dental practice and a prerequisite for high-quality medical care.

Lesson Topic 10: Prevention of Hepatitis B, C, D and AIDS in Surgical Dentistry



1. Objective of the lesson:

To develop students' knowledge of the transmission routes of viral hepatitis B, C, D, and HIV infection, measures to prevent occupational infection in surgical dentistry, and infection control algorithms when working with high-risk patients.

2. Educational technologies:

- lecture-discussion
- analysis of clinical situations
- work in small groups
- analysis of infection safety protocols
- post-testing

3. Basic concepts that students should learn:

• viral hepatitis B, C, D • HIV infection • occupational risk of infection • parenteral transmission • infection control • post-exposure prophylaxis • personal protective equipment

4. Questions for the lesson:

• Routes of transmission of viral hepatitis and HIV • Occupational risks in dentistry • Infection prevention measures • Use of personal protective equipment • Processing of instruments and the surgical field • Post-exposure prophylaxis

5. Questions for self-control:

• What are the routes of transmission of HIV and hepatitis? • What protective measures are used in dentistry? • What does post-exposure prophylaxis include? • Which patients are at risk?

6. Primary and secondary literature:

1. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Infection Control in Dentistry – CDC Guidelines
4. WHO Guidelines on HIV and Hepatitis Prevention in Healthcare
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Infection Safety in Medicine – A Textbook

7. List of questions and tasks for independent work:

• study of transmission routes of viral infections • analysis of standard precautions • work with algorithms for post-exposure prophylaxis • preparation of papers and presentations

Topics of abstracts (reports, presentations):

• Prevention of HIV infection in dentistry • Viral hepatitis and professional risk of



a doctor • Personal protective equipment in surgical dentistry • Post-exposure prophylaxis of infections • Infection control in the dental office

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Viral hepatitis B, C, D and HIV infection pose a serious problem for healthcare workers, especially in surgical dentistry, where there is a high risk of contact with blood and body fluids.

The main routes of transmission of these infections are parenteral (bloodborne), contact, and, less commonly, vertical transmission. In dental practice, the main risks are needlesticks, instrument cuts, and contact of bodily fluids with mucous membranes or broken skin.

Prevention of occupational infection includes a set of measures based on the principles of infection control:

- strict adherence to the rules of asepsis and antisepsis
- use of personal protective equipment (gloves, masks, glasses, protective screens, gowns)
- mandatory sterilization of instruments
- proper disposal of sharp objects (needles, blades)
- use of disposable instruments when necessary

Of particular importance is the observance of standard precautions (universal precautions), according to which every patient is considered as potentially infectious.

An important element of prevention is vaccination of medical personnel against hepatitis B, which significantly reduces the risk of occupational infection.

In emergency situations (injections, cuts), post-exposure prophylaxis is carried out, including immediate treatment of the wound with antiseptics, registration of the case and, if necessary, the prescription of antiviral therapy.

Strict adherence to the rules for handling medical waste and regular monitoring of the sterility of instruments are also necessary.

Thus, the prevention of viral hepatitis and HIV infection in surgical dentistry is a mandatory part of the professional activity of a doctor and is aimed at ensuring the safety of medical staff and patients.

Lesson Topic 11: Types of tooth retention, causes of eruption disorders and their consequences

1. Objective of the lesson:



To develop students' systematic knowledge of tooth retention, the causes of dental eruption disorders, clinical manifestations, and possible complications, as well as to teach the basics of diagnosing this pathology in children and adolescents.

2. Educational technologies:

- lecture-discussion
- analysis of radiological images
- work in small groups
- analysis of clinical cases
- post-testing

3. Basic concepts that students should learn:

- tooth retention • complete and partial retention • dystopia • eruption disorders • impacted tooth • orthopantomography • retention complications

4. Questions for the lesson:

- Definition of tooth retention • Classification of retention • Causes of impaired tooth eruption • Clinical manifestations of retention • Diagnostic methods • Complications of impacted teeth

5. Questions for self-control:

- What is tooth retention? • What types of retention exist? • The main causes of eruption problems • What complications can arise with retention?

6. Primary and secondary literature:

1. Pediatric Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
2. Oral and Maxillofacial Surgery / Peterson LJ
3. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
4. Pediatric Dentistry – McDonald & Avery
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Radiology in Dentistry / White S., Pharoah M.

7. List of questions and tasks for independent work:

- study of types of tooth retention • analysis of X-ray images • analysis of clinical cases of eruption disorders • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

- Tooth retention in children and adolescents • Causes of teething disorders • Diagnosis of retained teeth • Complications of tooth retention
- Modern methods of treatment of retention

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St.,



172

Summary of the lesson (methodological block):

Tooth retention is a pathological condition in which a tooth has formed but does not erupt into the oral cavity within the physiological timeframe. This condition is common in pediatric and adolescent dentistry and requires prompt diagnosis and treatment.

There are several types of dental retention:

- **Complete retention**— the tooth is located entirely in the bone tissue and has no connection with the oral cavity
- **Partial retention**— part of the tooth has erupted, but the process is not completed
- **Bone retention**— the tooth is completely surrounded by bone tissue
- **Tissue (mucous) retention**- the tooth is covered only by the mucous membrane
- **Dystopic retention**— the tooth is located outside the normal position of the dental arch

The causes of teething disorders can be local and general.

Local causes:

- lack of space in the dentition
- abnormal position of the tooth bud
- presence of supernumerary teeth
- dense bone tissue
- early loss of baby teeth

Common reasons:

- endocrine disorders
- genetic factors
- systemic diseases
- metabolic disorders

Clinical manifestations of retention may be absent in the early stages, but as complications develop, pain, swelling, inflammation, displacement of adjacent teeth and malocclusion appear.

Diagnosis includes clinical examination and radiographic methods (orthopantomography, CT), which allow determining the position of the impacted tooth and its relationship to surrounding structures.

The consequences of tooth retention can be significant:

- formation of dentoalveolar anomalies
- development of inflammatory processes (pericoronitis)
- resorption of the roots of adjacent teeth
- formation of cysts and tumor-like formations
- violation of the aesthetics and function of the bite

Thus, tooth retention is an important clinical problem that requires early detection, accurate diagnosis and a comprehensive approach to treatment to prevent



complications and form a correct bite in children and adolescents.

Lesson Topic 12: Symptoms and Treatment Methods for Impacted Teeth.

1. Objective of the lesson:

To develop students' knowledge of the clinical symptoms of impacted teeth, modern diagnostic methods, and treatment principles for this condition in children and adolescents, as well as algorithms for choosing patient management tactics.

2. Educational technologies:

- lecture-discussion
- analysis of radiological images
- analysis of clinical cases
- work in small groups
- post-testing

3. Basic concepts that students should learn:

• impacted tooth • clinical symptoms • dystopia • surgical exposure of the crown • orthodontic extrusion • tooth extraction • complications of retention

4. Questions for the lesson:

• Clinical manifestations of impacted teeth • Diagnosis of retention • Indications for treatment • Conservative and surgical treatment methods • Orthodontic treatment of impacted teeth • Complications in the absence of treatment

5. Questions for self-control:

- What are the symptoms of tooth retention? • What diagnostic methods are used? • What is surgical treatment?
- When is removal of an impacted tooth indicated?

6. Primary and secondary literature:

1. Pediatric Oral and Maxillofacial Surgery – Peterson LJ
2. Pediatric Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
3. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
4. Pediatric Dentistry – McDonald & Avery
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Orthodontic Treatment of Impacted Teeth – tutorial

7. List of questions and tasks for independent work:

• study of symptoms of impacted teeth • analysis of clinical cases • study of treatment methods • preparation of abstracts and presentations



Topics of abstracts (reports, presentations):

- Clinical signs of impacted teeth • Diagnosis of impacted teeth in children • Surgical treatment of impacted teeth • Orthodontic extraction of teeth • Complications of impacted teeth and their prevention

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Impacted teeth are teeth that are fully formed but have not erupted into the dental arch within the normal timeframe. The clinical presentation depends on the depth of the tooth, its position, and the presence of complications.

Symptoms of impacted teeth

Clinical manifestations can be varied and often depend on the stage of the pathological process:

- absence of one or more teeth in the dental row
- asymmetry of the dental arches
- delayed eruption of permanent teeth
- displacement of adjacent teeth
- malocclusion
- periodic pain in the area of the impacted tooth
- swelling and inflammation of the mucous membrane (with partial retention)
- development of pericoronitis (more often with retention of third molars)
- formation of cystic cavities around the tooth

In some cases, impacted teeth may remain asymptomatic for a long time and be detected accidentally during an X-ray examination.

Diagnostic methods

The main diagnostic methods are:

- clinical examination
- orthopantomography
- targeted radiography
- CT (cone beam computed tomography)

These methods allow us to determine the position of the tooth, the angle of inclination, the depth of occurrence and the relationship to adjacent anatomical structures.

Treatment methods for impacted teeth

Treatment depends on the clinical situation and includes:

1. Observation

It is used in the absence of complications and in a favorable position of the tooth.

2. Surgical treatment

- removal of an impacted tooth



- surgical exposure of the crown

3. Orthodontic treatment

- surgical exposure + fixation of an orthodontic button
- subsequent extraction of the tooth into the dental arch

4. Combination treatment

A combination of surgical and orthodontic methods is the most effective in preserving a tooth.

5. Tooth extraction

Shown at:

- incorrect position of the tooth
- lack of space in the dental row
- development of complications (cysts, resorption of the roots of adjacent teeth)
- impossibility of orthodontic treatment

Complications if left untreated

- development of inflammatory processes
- cyst formation
- tooth displacement and malocclusion
- resorption of the roots of adjacent teeth
- chronic pain

Lesson Topic 13: Local anesthetics and medications used for local anesthesia.

Classification.

1. Objective of the lesson:

To develop students' systematic knowledge of local anesthetics, their classification, pharmacological properties, and medications used for local anesthesia in surgical dentistry and maxillofacial surgery.

2. Educational technologies:

- lecture-discussion
- analysis of clinical situations
- working with drug classification tables
- analysis of drugs using examples
- post-testing

3. Basic concepts that students should learn:

• local anesthesia • local anesthetics • infiltration anesthesia • conduction anesthesia • amide and ether anesthetics • vasoconstrictors • analgesia

4. Questions for the lesson:

• The concept of local anesthesia • Classification of local anesthetics • Mechanism



of action of anesthetics • Types of dosage forms • Drugs with vasoconstrictors •
Indications for the use of local anesthesia

5. Questions for self-control:

• What groups of local anesthetics exist? • What is the difference between amide and ester anesthetics? • What drugs are used in dentistry? • Why are vasoconstrictors added?

6. Primary and secondary literature:

1. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
2. Surgical Dentistry / edited by T. G. Robustova – GEOTAR-Media
3. Pharmacology in Dentistry – Elsevier
4. Local Anesthesia in Dentistry – Malamed SF
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Fundamentals of Pharmacology in Dentistry - A Textbook

7. List of questions and tasks for independent work:

• study of the classification of local anesthetics • analysis of drugs used in dentistry
• comparison of amide and ester anesthetics • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

• Modern local anesthetics in dentistry • Classification of local anesthetics •
Vasoconstrictors in anesthetics • Safety of local anesthesia in children •
Complications of local anesthesia

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St.,
172

Summary of the lesson (methodological block):

Local anesthesia is the primary method of pain relief in dental and maxillofacial surgery. It allows for painless surgical procedures while maintaining patient consciousness.

Local anesthetics are medicinal substances that temporarily block the conduction of nerve impulses in the area of their application, providing reversible tissue pain relief.

Classification of local anesthetics

1. By chemical structure:

Ether anesthetics:

- novocaine (procaine)
- tetracaine
- benzocaine

Peculiarities:



- relatively short action
- more frequent allergic reactions
- are used less frequently nowadays

Amide anesthetics:

- lidocaine
- articaine
- mepivacaine
- bupivacaine
- ultracaine (articaine + epinephrine)

Peculiarities:

- high efficiency
- longer lasting effect
- low risk of allergies
- widely used in dentistry

2. By duration of action:

- short-acting (procaine)
- medium duration (lidocaine, mepivacaine)
- long-acting (bupivacaine)

3. By method of application:

- infiltration anesthesia
- conduction anesthesia
- surface (application) anesthesia

Local anesthetic medications

In dental practice, combination preparations containing:

- local anesthetic
- vasoconstrictor (adrenaline, epinephrine)

The role of vasoconstrictors:

- reduce bleeding
- prolong the effect of the anesthetic
- reduce systemic toxicity

Clinical significance:

The choice of local anesthetic depends on:

- patient's age
- somatic condition
- duration of the operation
- volume of surgical intervention
- presence of concomitant diseases



Lesson Topic 14: Mechanism of action of local anesthetics.

1. Objective of the lesson:

To develop in students a deep understanding of the mechanism of action of local anesthetics at the level of nerve fibers, ion channels, and nerve impulse conduction, and to teach them to interpret the clinical effects of anesthesia in dental practice.

2. Educational technologies:

- lecture with elements of discussion
- working with diagrams and tables
- analysis of clinical situations
- modeling the mechanism of action
- post-testing

3. Basic concepts that students should learn:

• nerve impulse • sodium channels • depolarization • repolarization • blockade of impulse conduction • nociception • local anesthesia

4. Questions for the lesson:

• How a nerve impulse is formed • The structure of a nerve fiber • The mechanism of penetration of anesthetic into a cell • Blockade of sodium channels • The effect of pH on the action of anesthetic • Factors affecting the effectiveness of anesthesia

5. Questions for self-control:

• How local anesthetics block nerve impulses • What happens to sodium channels • Why inflammation reduces the effectiveness of anesthesia • What factors affect the depth of anesthesia

6. Primary and secondary literature:

1. Local Anesthesia in Dentistry / Stanley F. Malamed
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Surgical Dentistry / edited by T. G. Robustova
4. Pharmacology for Dentistry – Elsevier
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Fundamentals of Pharmacology - Textbook

7. List of questions and tasks for independent work:

• study of nerve impulse transmission • analysis of the action of anesthetics at the cellular level • comparison of the effectiveness of various drugs
• preparation of diagrams and presentations

Topics of abstracts (reports, presentations):



- The mechanism of action of local anesthetics on nerve fibers
- The role of sodium channels in pain transmission
- Factors influencing the effectiveness of anesthesia
- Reasons for the ineffectiveness of local anesthesia
- Modern theories of local anesthesia

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Local anesthetics are drugs that temporarily and reversibly block the transmission of nerve impulses, causing a loss of pain sensitivity in a specific area without losing the patient's consciousness.

The main mechanism of action

Local anesthetics act at the nerve fiber level, blocking the transmission of pain impulses. Their action is due to their effect on voltage-gated sodium channels in the nerve cell membrane.

1. Normal impulse conduction

Normally, when a nerve ending is irritated, the following occurs:

- opening of sodium channels
- entry of Na^+ ions into the cell
- membrane depolarization
- formation and conduction of nerve impulses

2. Action of local anesthetic

Local anesthetic:

- penetrates the nerve fiber membrane in lipophilic form
- inside the cell it is converted into an active ionized form
- binds to sodium channels from the inside
- blocks their opening

3. Result of the action:

- the entry of Na^+ into the cell stops
- depolarization does not occur
- the nerve impulse is not formed
- the pain signal is not transmitted to the central nervous system

Important physiological features:

1. Influence of pH of the environment

- in an acidic environment (inflammation) the effectiveness of anesthesia is reduced
- the ionized form of the drug increases, penetrating the cell less effectively



2. Selectivity of action

First, the following are blocked:

- pain fibers
- temperature
- tactile
- motor

3. The role of nerve fiber diameter

- thin fibers are blocked faster
- thick motor fibers - later

Clinical significance:

Understanding the mechanism of action allows us to:

- choose the right anesthetic
- take into account inflammation at the injection site
- predict the effectiveness of pain relief
- prevent anesthesia failures

Lesson Topic 15: Use of vasoconstrictors during local anesthesia (indications and contraindications).

1. Objective of the lesson:

To develop students' knowledge about the role of vasoconstrictors in local anesthetics, their clinical significance, indications and contraindications for use in dental practice.

2. Educational technologies:

- lecture-discussion
- analysis of clinical situations
- working with drug tables
- analysis of contraindications
- post-testing

3. Basic concepts that students should learn:

- local anesthesia
- vasoconstrictors • adrenaline (epinephrine) • norepinephrine • duration of anesthesia • tissue ischemia • systemic effects

4. Questions for the lesson:

- What are vasoconstrictors? • The mechanism of action of vasoconstrictors • Why adrenaline is added to anesthetics • Indications for the use of vasoconstrictors •



Contraindications for use • Complications with use

5. Questions for self-control:

• What is the role of vasoconstrictors in anesthesia? • What drugs are used? • Which patients are at risk? • Why are they not used for some diseases?

6. Primary and secondary literature:

1. Local Anesthesia in Dentistry / Malamed SF
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Surgical Dentistry / edited by T. G. Robustova
4. Pharmacology in Dentistry – Elsevier
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Fundamentals of Pharmacology - Textbook

7. List of questions and tasks for independent work:

• study of types of vasoconstrictors • analysis of clinical indications • study of contraindications • preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

• The role of adrenaline in local anesthesia • Vasoconstrictors in dental practice • Indications for the use of vasoconstrictors • Contraindications to adrenaline in dentistry • Complications with the use of vasoconstrictors

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

Vasoconstrictors are vasoconstrictors added to local anesthetic solutions to enhance and prolong their action. The most commonly used agent is adrenaline (epinephrine), less commonly norepinephrine and felypressin.

Mechanism of action of vasoconstrictors:

- narrowing of peripheral vessels at the injection site
- decreased blood flow
- slowing the absorption of anesthetic into the systemic circulation
- increasing the duration and depth of anesthesia
- reduction of the toxic effect of the anesthetic

Indications for the use of vasoconstrictors:

1. In surgical dentistry:

- tooth extraction
- opening of abscesses
- patchwork operations



- implantation
- 2. In therapeutic dentistry:**
- treatment of moderate and deep caries
 - endodontic treatment
- 3. General indications:**
- the need for long-term pain relief
 - the need to reduce bleeding
 - work in well-vascularized tissues

Contraindications to the use of vasoconstrictors:

Absolute:

- severe forms of cardiovascular diseases
- recent myocardial infarction
- uncontrolled arterial hypertension
- severe arrhythmias

Relative:

- diabetes mellitus
- thyrotoxicosis
- pregnancy (especially the first trimester)
- childhood (limited use)
- taking certain medications (tricyclic antidepressants, beta-blockers)

Complications with use:

- tachycardia
- increased blood pressure
- anxiety, tremor
- headache
- heart rhythm disturbance

Clinical significance:

Proper use of vasoconstrictors allows:

- increase the effectiveness of anesthesia
- reduce bleeding
- reduce the toxicity of anesthetics
- improve the quality of surgical interventions

Lesson Topic 16: Use of Medications for General Anesthesia (Indications and Contraindications)

1. Objective of the lesson:



To develop in students a systematic understanding of the groups of medications used for general anesthesia in surgical dentistry and maxillofacial surgery, and to teach them to reasonably determine the indications and contraindications for their use.

2. Educational technologies:

- lecture-discussion
- analysis of clinical protocols
- working with drug tables
- analysis of clinical situations
- post-testing

3. Basic concepts that students should learn:

• General anesthesia • Premedication • Induction of anesthesia • Inhalation anesthetics • Non-inhalation anesthetics • Muscle relaxants • Centrally acting analgesics • Contraindications to anesthesia

4. Questions for the lesson:

• Classification of drugs for general anesthesia • Premedication drugs • Drugs for induction and maintenance of anesthesia • Indications for general anesthesia in dentistry • Contraindications to general anesthesia • Possible complications of drug therapy

5. Questions for self-control:

• What groups of drugs are used for general anesthesia? • What is included in premedication? • In what cases is anesthesia indicated in dentistry? • What conditions are contraindications?

6. Primary and secondary literature:

1. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
2. Surgical Dentistry / edited by T. G. Robustova
3. Clinical Anesthesia in Dentistry – Elsevier
4. Pharmacology for Dental Anesthesia / Malamed SF
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Fundamentals of Anesthesiology - Textbook

7. List of questions and tasks for independent work:

• study of groups of general anesthetic drugs • analysis of clinical indications • analysis of contraindications • preparation of diagrams and presentations

Topics of abstracts (reports, presentations):

• Modern drugs for general anesthesia • Premedication in dental practice • Inhalation and non-inhalation anesthesia • Safety of general anesthesia in children • Complications of drug anesthesia



8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

General anesthesia is a reversible drug-induced condition characterized by loss of consciousness, pain sensitivity, reflexes and muscle tone, allowing for pain- and stress-free surgical interventions.

Medications used for general anesthesia are divided into several main groups, each of which performs a specific function.

1. Premedication

It is performed before anesthesia in order to prepare the patient:

- sedatives (midazolam, diazepam)
- anticholinergics (atropine)
- antihistamines
- analgesics

Target:reduction of anxiety, prevention of complications, stabilization of hemodynamics.

2. Induction of anesthesia

Provides rapid induction of anesthesia:

- propofol
- sodium thiopental
- ketamine
- etomidate

3. Maintenance of anesthesia

- sevoflurane
- isoflurane
- nitrous oxide

4. Muscle relaxants

Used to relax muscles:

- succinylcholine
- rocuronium
- vecuronium

5. Opioid analgesics

- fentanyl
- morphine
- remifentanyl



Indications for general anesthesia in dentistry:

- extensive surgical interventions in the maxillofacial region
- multiple tooth extractions
- maxillofacial injuries
- psychoneurological diseases
- severe fear of dental treatment
- ineffectiveness of local anesthesia
- allergy to local anesthetics

Contraindications to general anesthesia:

Absolute:

- terminal conditions of the patient

Relative:

- severe cardiovascular pathology
- decompensated liver and kidney diseases
- acute infectious diseases
- severe anemia
- decompensated diabetes mellitus
- lack of preoperative preparation

Possible complications:

- respiratory depression
- hypotension
- arrhythmia
- allergic reactions
- aspiration syndrome
- postoperative nausea and vomiting

Lesson Topic 17: Mechanism of action of general anesthesia. Classification.

1. Objective of the lesson:

To develop in students a systematic understanding of the mechanism of action of general anesthesia at the level of the central nervous system, and to study modern approaches to the classification of general anesthesia methods used in surgical dentistry and maxillofacial surgery.

2. Educational technologies:

- lecture-discussion
- working with CNS diagrams
- analysis of clinical cases
- comparative tables



- post-testing

3. Basic concepts that students should learn:

- general anesthesia • central nervous system • synaptic transmission • GABA receptors
- CNS inhibition • inhalation anesthesia • non-inhalation anesthesia • stage of anesthesia

4. Questions for the lesson:

- What is general anesthesia? • Mechanism of action at the level of the central nervous system • Theories of anesthesia • Stages of general anesthesia • Classification of general anesthesia • Differences between inhalation and non-inhalation anesthesia

5. Questions for self-control:

- How does general anesthesia affect the central nervous system? • Which brain structures are suppressed first? • What types of general anesthesia exist? • What is the difference between inhalation and intravenous anesthesia?

6. Primary and secondary literature:

1. Clinical Anesthesia / Barash P.
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Surgical Dentistry / edited by T. G. Robustova
4. Pharmacology for Anesthesia – Elsevier
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Fundamentals of Anesthesiology - Textbook

7. List of questions and tasks for independent work:

- study of theories of general anesthesia • analysis of the stages of anesthesia • comparison of anesthesia methods • preparation of diagrams and presentations

Topics of abstracts (reports, presentations):

- The mechanism of action of general anesthesia on the central nervous system • Theories of anesthesia: a modern view • Stages of general anesthesia • Inhalation and intravenous anesthesia • Modern methods of general anesthesia in dentistry

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

General anesthesia is a reversible drug-induced depression of the central nervous system, which results in the loss of consciousness, pain sensitivity, reflexes, and



muscle tone, allowing for pain- and stress-free surgical procedures.

Mechanism of action of general anesthesia

Modern concepts of the mechanism of general anesthesia are based on the influence of anesthetics on various levels of the central nervous system:

1. Depression of the cerebral cortex

- decreased consciousness
- loss of perception of external stimuli

2. Impact on subcortical structures

- suppression of pain centers
- change in emotional reactions

3. Effect on the spinal cord

- reflex blockade
- decreased motor activity

4. Molecular mechanism

The main effects are related to:

- activation of GABA receptors (GABA-A)
- strengthening of inhibitory processes
- decreased excitability of neurons
- NMDA receptor blockade (especially ketamine)

Stages of general anesthesia (classical classification of Guedel):

1. **Analgesia**- decreased pain sensitivity
2. **Excitation**- unstable behavior, loss of control
3. **Surgical anesthesia**- optimal condition for surgery
4. **Overdose (asphyxia)**- suppression of vital centers

Classification of general anesthesia

1. By route of administration:

- inhalation (sevoflurane, isoflurane, nitrous oxide)
- non-inhalation (propofol, sodium thiopental, ketamine)

2. By depth:

- superficial
- moderate
- deep

3. By number of drugs:

- monoanesthesia
- combined anesthesia

4. By purpose:

- surgical
- diagnostic
- supporting

Clinical significance:

Understanding the mechanism of action allows us to:

- choose the right anesthesia method
- predict the depth of anesthesia



- prevent complications
- individualize patient treatment

Lesson Topic 18: Side effects and complications when using local and general anesthesia.

1. Objective of the lesson:

To develop students' knowledge of possible adverse reactions and complications during local and general anesthesia in dentistry and maxillofacial surgery, as well as to teach the principles of their prevention and emergency care.

2. Educational technologies:

- lecture-discussion
- analysis of clinical situations
- analysis of emergency care algorithms
- work in small groups
- post-testing

3. Basic concepts that students should learn:

• local anesthesia • general anesthesia • toxic reactions • allergic reactions • anaphylactic shock • vasovagal reactions • respiratory depression • cardiovascular complications

4. Questions for the lesson:

• Side effects of local anesthesia • Complications of general anesthesia • Allergic reactions to anesthetics • Toxic effects of local anesthetics • Anaphylactic shock • Prevention of complications

5. Questions for self-control:

• What are the most common complications with local anesthesia? • What is the danger of an anesthetic overdose? • What complications arise with general anesthesia? • How to provide first aid for anaphylaxis

6. Primary and secondary literature:

1. Local Anesthesia in Dentistry / Malamed SF
2. Surgical Dentistry / edited by V. V. Afanasyev – GEOTAR-Media
3. Surgical Dentistry / edited by T. G. Robustova
4. Clinical Anesthesia / Barash P.
5. Propaedeutics of Surgical Dentistry – GEOTAR-Media
6. Fundamentals of Anesthesiology - Textbook



7. List of questions and tasks for independent work:

- study of complications of local anesthesia
- analysis of complications of general anesthesia
- analysis of emergency care algorithms
- preparation of abstracts and presentations

Topics of abstracts (reports, presentations):

- Complications of local anesthesia in dentistry
- Anaphylactic shock: causes and treatment
- Toxic reactions to anesthetics
- Complications of general anesthesia
- Prevention of complications in dental practice

8. Location of the lesson:

Department of Dental Disciplines, Russian Medical University, Moskovskaya St., 172

Summary of the lesson (methodological block):

The use of both local and general anesthesia in dentistry is safe when the technique is followed and the drugs are chosen correctly; however, adverse reactions and complications of varying severity are possible.

Complications of local anesthesia

1. General toxic reactions

Occur with an overdose of anesthetic or its rapid entry into the bloodstream:

- dizziness
- tinnitus
- metallic taste in the mouth
- convulsions
- loss of consciousness

2. Allergic reactions

- itchy skin
- hives
- Quincke's edema
- anaphylactic shock

3. Vasovagal reactions

- fainting
- bradycardia
- lowering blood pressure

4. Local complications

- hematoma
- nerve damage
- lockjaw
- injection site infection
- tissue necrosis (with improper technique)

Complications of general anesthesia

1. Respiratory complications



- respiratory depression
- laryngospasm
- bronchospasm
- aspiration of gastric contents

2. Cardiovascular complications

- arterial hypotension
- arrhythmia
- heart failure

3. Neurological complications

- awakening during surgery
- postoperative confusion
- headache

4. Allergic reactions

- reactions to anesthetics and adjuvants
- anaphylactic shock

Prevention of complications:

- careful collection of anamnesis
- taking into account allergic status
- choosing the right dosage
- compliance with anesthesia technique
- patient monitoring
- availability of emergency aid

Algorithm for assistance in anaphylactic shock:

- immediate discontinuation of the drug
- adrenaline injection
- ensuring airway patency
- oxygen therapy
- infusion therapy
- hospitalization

3. Methodological recommendations/instructions for students

3.1. Methodological recommendations for students on studying the discipline

The study of the theoretical part of the disciplines is intended not only to deepen and consolidate the knowledge acquired in the classroom, but also to promote the development of students' creative skills, initiative, and time management.

The material taken during lectures must be regularly reviewed and supplemented with information from other sources of literature, presented not only in the course program, but also in periodicals.

When studying a course, you should first read the recommended literature for each topic and compile a brief summary of the key concepts, terms, and information that must be memorized and that is fundamental to mastering



subsequent topics in the course. To expand your knowledge of the course, it is recommended to use online resources; conduct searches in various systems and use materials from websites recommended by the instructor.

Each student keeps a workbook, the design of which must meet the requirements, the main ones are the following:

- the title page indicates the subject, well, group, last name, Name, student's patronymic;
- each work is numbered in accordance with the methodological instructions, indicate the date of completion of the work;
- write down the title of the work in full, purpose and principle of the method, briefly characterize the progress of the task and the object of the study;
- If necessary, provide a graphic image; The results of the tasks are presented in the form of graphic images with mandatory captions to them, as well as tables or describe verbally;
- at the end of each work, a conclusion or inference is made, which are discussed when summing up the lesson.

All initial notes must be made in a notebook as you complete the tasks.

To check the student's academic activity and the quality of his or her work, the workbook is periodically checked by the teacher.

The material taken during lectures must be regularly reviewed and supplemented with information from other sources of literature, presented not only in the course program, but also in periodicals.

When studying a course, you should first read the recommended literature for each topic and compile a brief summary of the key concepts, terms, and information that must be memorized and that is fundamental to mastering subsequent topics in the course. To expand your knowledge of the course, it is recommended to use online resources; conduct searches in various systems and use materials from websites recommended by the instructor.

3.2. Methodological recommendations for the implementation of practical/seminar classes, laboratory work.

Practical classes These are held after lectures and serve as explanatory, generalizing, and reinforcing elements. They can be held not only in the classroom but also outside the educational institution.

During practical classes, students absorb and comprehend new learning material. Practical classes are systematic, regularly following each lecture or two or three lectures.

Practical classes are carried out according to the schedule of the educational process and independent work of students in disciplines.

When preparing for practical classes, it is necessary to study the methodological recommendations for its implementation in advance. Pay attention



to the purpose of the lesson, on the main questions to prepare for the lesson, on the content of the lesson topic.

Before each practical lesson, students review the seminar plan, including a list of topics and questions, a bibliography, and homework assignments for the material covered. The following seminar preparation plan is recommended:

1. Work through lecture notes;
2. Read the main and additional literature recommended for the section being studied;
3. Answer the questions in the seminar plan;
4. Study the topic and select literature for writing essays, reports, etc.;

3.3. Methodological recommendations for completing independent work.

When studying the discipline "Propaedeutics of Surgical Dentistry", the following types of independent work of students are used:

- study of theoretical material using lecture notes and recommended teaching aids, educational dummies, educational literature, and reference sources;
- independent study of some theoretical issues not covered in lectures, with writing papers and preparing presentations;

WITH Students are invited to read and analyze monographs and scientific articles on issues in obstetrics and gynecology. The results of their work with these texts are discussed during practical classes.

To develop independent work skills, students complete assignments by independently consulting textbooks, reference books, and scientific and methodological literature. Assignment completion is assessed both during practical classes through oral presentations and group discussions, and through written independent work.

Section 1.4.2 provides topics for independent study of theoretical material, assignment for each topic, deadline for submitting work, educational literature.

Section 1.4.3. contains topics for writing an abstract.

Section 2.2 provides assignments, problems, and exercises for each course topic. A list of necessary literature for independent study is provided.

Independent work helps students develop essential skills such as choosing and solving a given problem, collecting and analyzing published data, and the ability to identify key points and draw informed conclusions.

3.4. Guidelines for completing papers, reports, and essays

Abstract - a written summary of the content of a scientific paper on the given topic. This is an independent research work, where the student reveals the essence of the problem being studied with elements of analysis on the topic of the abstract.

Brings together different points of view, as well as personal views on the issues of the topic of the paper. The content of the abstract should be logical, presentation of the material to wear



problematic and thematic nature.

Requirements for the abstract:

The volume of the abstract may vary within the range 9-10 printed pages.

Main sections: table of contents (plan), introduction, main content, conclusion, list of references.

The text of the abstract should contain the following sections:

- title page with indication: names of the university, departments, essay topics, Full name of the author and full name of the teacher

- introduction, relevance of the topic.
- main section.
- conclusion (analysis of literature search results); conclusions.
- the list of literary sources must have at least 10 bibliographic titles, including network resources.

The text part of the abstract is formatted on a sheet of the following format:

- top indent – 2 cm; left indent – 3 cm; right indent – 1.5 cm; bottom indent – 2.5 cm;
- text font: Times New Roman, font height – 14, space – 1.5;
- Page numbers are at the bottom of the sheet. The first page is not numbered.

The abstract must be written competently and in a respectful manner. References to references, including periodicals from the past five years, must be included.

Abstract evaluation criteria:

- relevance of the research topic;
- compliance of the content with the topic;
- depth of material processing;
- the correctness and completeness of the development of the questions posed;
- the significance of the conclusions for further practical activities;
- correctness and completeness of use of literature;
- compliance of the abstract design with the standard;
- the quality of the message and answers to questions during the defense of the abstract.

3.5. Guidelines for preparation for final certification.

Final certification in the form of a credit test for the course "Propaedeutics of Surgical Dentistry" is conducted based on the results of attending classes, current and midterm (modular) control.

In this regard, to successfully pass the final assessment, it is recommended that the student attend all classes and actively participate in classroom activities and complete independent work.

All modules are conducted according to a modular schedule. The tests themselves have three sections: an exam, a module, and a practice mode. The exam and module are available as scheduled, and the practice mode is available on the online educational platform, a platform where students can practice solving tests



online.

Each student has their own ID number and password to access this platform. Students can log in from a computer, tablet, or phone, select a course, and view the necessary course materials and lecture notes for each topic within the chosen course (inPPT or PDF format), complete the test task (MCQ).

3.6. Methodological recommendations for student research work.

The purpose of research is to develop students' intellectual abilities by studying the algorithm of scientific research and acquiring initial experience in carrying out a research project using the educational material of their chosen specialty.

The main objectives and results of the research work are:

- mastering scientific methods of cognition and deepening the theoretical knowledge of students in their specialty;
- mastery of modern methods of scientific research;
- development of students' practical skills in independently searching for scientific and technical information, conducting theoretical and/or experimental work;
- students acquire the ability to analyze the results of conducted research, formulate conclusions and recommendations;
- developing in students the ability for independent, creative, active work to continuously update and enrich their scientific knowledge.

When completing research work, a student must master the following basic steps:

- independent search for information on a given topic;
- selection of essential information necessary for full coverage of the problem being studied, separation of this information from secondary information (within the framework of a given topic);
- analysis and synthesis of knowledge and research on the problem;
- generalization and classification of information on research problems;
- logical and consistent disclosure of the topic;
- generalization of psychological knowledge on the problem and formulation of conclusions from a literature review of the material;
- stylistically correct presentation of scientific thought of the abstract type;
- competent design of scientific abstract text;
- correct presentation of scientific work;
- creation of a glossary of terminology;
- role-playing games and trainings on a given topic, discussions, situational tasks.

For research work, a senior student must do the following:

- write an abstract using general scientific and special methods,
- participate in scientific projects;
- prepare and deliver a report or presentation on a given topic at conferences and round tables;
- study and analyze general concepts, programs, clinical protocols on a given topic;



- write a medical history or birth history of the patient, including laboratory and instrumental examination.

In order to conduct research work, it is recommended for 10th semester students:

- participate in a scientific project, scientific conference;
- manage a planned or standardized patient under the guidance of a teacher;
- write a birth history, prepare a partogram or a protocol for a cesarean section;
- present a prepared report at a conference;
- study and analyze programs and clinical protocols on a given topic.

4. Glossary

- An abutment is an element that connects a dental implant to a crown or other prosthesis.
- An abscess is a limited purulent inflammation accompanied by the formation of a cavity filled with pus.
- Agalia is a decreased or complete absence of salivation.
- Adaptation to treatment is the process of getting a child used to dental procedures, often using behavioral techniques.
- Adaptation of a prosthesis is the process of a patient getting used to wearing a prosthesis, including functional and psychological aspects.
- Adhesion is the ability of materials to firmly adhere to dental tissue.
- Actinic cheilitis is a chronic inflammation of the lips caused by prolonged sun exposure; it is common in older people.
- Alveolitis is an inflammation of the tooth socket after its extraction (often called "dry socket").
- Anatomy of a baby tooth - structural features of a temporary tooth: thin enamel, large pulp chamber, short roots.
- Anesthesia is pain relief. In surgical dentistry, the most commonly used anesthesia is conduction, infiltration, topical, and intraligamentary anesthesia.
- A malocclusion is a deviation from physiological occlusion; it can develop from an early age.
- Tooth apathy—the absence of a tooth's response to thermal or electrical stimuli—often indicates pulp necrosis.
- Atypical extraction is a complex tooth extraction that requires root cutting, flap cutting, trepanation, etc.
- Alveolar ridge atrophy is a decrease in jaw bone volume following tooth loss; a common problem in the elderly.
- Gum atrophy is a decrease in gum volume, often accompanied by exposure of tooth roots.



- A beam prosthesis is a prosthesis that is fixed on implants or teeth using a beam system.
- A biopsy is the taking of a tissue sample for histological examination.
- A biopsy is the removal of a tissue sample for histological examination (for example, suspicious formations on the mucous membrane).
- Biocompatibility of prostheses is the ability of materials not to cause allergies, toxic or irritating effects in weakened patients.
- Paget's disease is a chronic bone disorder that can affect the jaws and complicate dental treatment.
- Bruxism is the involuntary grinding or clenching of teeth, often during sleep.
- Bruxism in children—grinding of teeth during sleep—can be associated with emotional stress or the development of a malocclusion.
- Tubercular anesthesia is a type of infiltration anesthesia used in the upper jaw.
- Baby bottle caries is early childhood caries that occurs due to prolonged contact of teeth with formula, juices, or breast milk at night.
- A clasp denture is a removable denture with a metal arch base that evenly distributes the chewing load.
- Vestibuloplasty is a surgical correction of the vestibule of the oral cavity (often performed during prosthetics).
- Vestibuloplasty is a surgical deepening of the oral vestibule, often necessary before prosthetics in cases of severe tissue atrophy.
- The temporomandibular joint (TMJ) is the joint between the lower jaw and the skull, often involved in trauma or inflammation.
- Vital pulpotomy is a partial removal of the pulp while preserving its viability.
- Susceptibility to infections - decreased local immunity of the oral mucosa in the elderly.
- Tooth restoration is the process of restoring the shape, function and aesthetics of a damaged tooth (e.g. with inlays, crowns).
- A temporary crown is a temporary covering for a prepared tooth, protecting it until a permanent structure is installed.
- A temporary filling is a material that temporarily fills a tooth cavity until a permanent filling is placed.
- A temporary filling is a filling material placed for a short period of time, often in anticipation of permanent treatment.
- Temporary (baby) bite – a complete set of baby teeth, usually formed by 2.5–3 years.
- A hematoma is a collection of blood in soft tissue following injury or surgery.
- Hemisection is the removal of one of the roots of a multi-rooted tooth along with part of the crown.
- Fissure sealing is a preventative procedure: filling the fissures (grooves) on chewing teeth to protect against caries.



- A sleeve crown is a one-piece cast metal crown that covers the entire tooth.
- Gingivitis is an inflammation of the gums without disruption of the gingival attachment.
- Enamel hypoplasia is a congenital or acquired disorder of enamel formation, often manifested as spots, grooves or chips.
- Hyposalivation is a decrease in salivation, especially when taking medications (antidepressants, antihypertensive drugs, etc.).
- Glossalgia is a burning pain or discomfort in the tongue, often without apparent cause, often associated with psychosomatics or vitamin deficiency.
- Gnathology is the science of the function of the masticatory apparatus, especially the temporomandibular joint (TMJ).
- Granuloma is a chronic inflammatory focus at the apex of the tooth root, surrounded by connective tissue.
- Cyst decompression is a surgical method of reducing the size of a cyst while preserving teeth.
- Dementia is a cognitive impairment that makes oral hygiene and treatment difficult.
- Dental implants are artificial roots implanted into the jawbone to secure dentures.
- Dentin is the hard tissue of the tooth under the enamel, the main mass of the crown and root.
- Depophoresis is a method of root canal treatment using electric current and medications.
- The gums in children are the mucous membrane covering the alveolar process; in children, they are looser and prone to swelling and inflammation.
- A dental defect is the absence of one or more teeth, which requires orthopedic treatment.
- Dissection is the cutting of tissues.
- Dysphagia is difficulty swallowing and often requires a special approach when fitting prosthetics.
- Dysfunction of the masticatory muscles - a disorder of the muscles involved in chewing, which can manifest itself as clicking, pain, and asymmetry.
- Chewing trauma is a chronic injury to the mucous membrane caused by biting, nibbling, or an uncomfortable denture.
- Chewing efficiency is the patient's ability to fully chew food with a denture.
- Burning mouth syndrome is a burning or tingling sensation, more common in older women, in the absence of any apparent underlying pathology.
- A dystopic tooth is a tooth that has erupted in an incorrect position (for example, outside the dental arch).
- An erupting tooth is a tooth that is going through the eruption stage, which often causes discomfort, drooling, and moodiness.



- An impacted tooth is a tooth that has not fully erupted due to anatomical or pathological reasons (often wisdom teeth).
- Children's dental formula: children have 20 milk teeth (temporary bite).
- Tartar is mineralized dental plaque.
- Tartar - often forms more quickly due to changes in the composition of saliva and poor hygiene.
- A dental bridge is a fixed structure that replaces missing teeth by supporting them on adjacent teeth.
- Dental plaque is a soft film on the teeth containing bacteria and food debris, a precursor to tartar.
- A dental prosthesis is an orthopedic structure that restores partially or completely lost teeth.
- A denture is the primary means of restoring dental health in the elderly; it can be complete or partial, removable or fixed.
- Play adaptation is a method of psychologically preparing a child for treatment through games, stories, and demonstrations.
- An immediate denture is a temporary denture installed immediately after tooth extraction.
- Immunosenescence is an age-related decline in immune defense that increases the risk of inflammation in the oral cavity.
- Dental implantation is the installation of an artificial titanium root (implant) into the jaw for subsequent prosthetics.
- Caries indexation is a quantitative assessment of the prevalence and intensity of caries in a child (for example, the KPU index).
- Individual hygiene is the adaptation of dental cleaning methods to the patient's physical and cognitive capabilities.
- A custom tray is a device for taking precise impressions of the teeth and mucous membrane.
- Incision is the dissection of soft tissues (for example, when opening an abscess).
- Irrigation of the canal is washing the root canal with antiseptic solutions for disinfection.
- Oral candidiasis is a fungal infection that is often observed in cases of xerostomia, wearing dentures, or taking antibiotics.
- A children's mouthguard is a silicone or plastic protective pad for teeth (for example, during bruxism or sports).
- Caries is the destruction of hard dental tissues under the influence of acids produced by bacteria.
- Deciduous tooth decay is the destruction of the hard tissues of a temporary tooth; it develops more rapidly than in adults due to anatomical features.



- A ceramic crown is an aesthetic crown made of zirconium dioxide, porcelain or glass ceramics.
- Cystectomy is the removal of a dental cyst along with the root apex.
- A clasp is a metal element of a clasp or partial removable denture that holds it on the supporting teeth.
- A wedge-shaped defect is a non-carious lesion of a tooth in the neck area, in the form of a wedge-shaped notch.
- Moller's ring is a ring-shaped hyperemia of the gum around an erupting tooth.
- Comprehensive rehabilitation – restoration of the entire dental system (in cases of complete edentia or severe bite deformations).
- Corticotomy is the removal of the cortical (outer) bone plate to access the lesion.
- Xerostomia is a feeling of dry mouth; a common complaint in the elderly, especially when treating chronic diseases.
- Curettage is the scraping of pathological tissues (for example, granulomas from a socket or periodontal pocket).
- Mucosal lability is increased sensitivity of the mucous membrane, leading to irritation upon contact with dentures.
- Lacunae and fissures are natural depressions on the surface of teeth that often require sealing in childhood.
- Sedation therapy - treatment under drug-induced sleep/sedation in anxious or young children.
- A ligature is a thread or wire used to tie off blood vessels or secure tissues.
- Lignin, a natural component used in some dental materials, is well tolerated by elderly patients.
- A cast inlay is a microprosthesis made of metal or ceramic that replaces the damaged part of a tooth.
- Flap surgery is a surgical procedure involving the removal of a mucoperiosteal flap (for example, during root apex resection).
- Prosthesis play is an undesirable mobility of the orthopedic structure.
- Masticatory dysfunction is a disorder of chewing function due to tooth loss, muscle weakness, or malocclusion.
- Medication-assisted root canal treatment involves injecting medication into the root canal to kill the infection.
- Mesial bite is a form of malocclusion in which the lower incisors overlap the upper ones.
- Modeling is the creation of a wax or digital model of the future prosthesis.
- A baby tooth is a temporary tooth that erupts during childhood and is replaced by a permanent tooth.
- A bridge prosthesis is a structure made of several crowns that forms a “bridge” over a defect in the dental row.



- Mucocele is a cyst of the minor salivary glands, most often on the lower lip, which may require removal.
- Malocclusion is an age-related change in the bite due to tooth loss, wear and tear, and atrophy of the jaws.
- Malocclusion is an incorrect closure of the teeth of the upper and lower jaws.
- Disruption of teething is a deviation from the normal timing or order of teeth emergence.
- Hereditary dental anomalies are genetic disorders of the number, shape or structure of teeth (e.g. adentia, microdontia).
- Neurinoma is a benign tumor that originates from the nerve sheaths.
- Neurolysis is the surgical release of a nerve from compressing tissue.
- A nylon denture is a flexible, removable denture made of soft polymer, more comfortable but less durable.
- Trigeminal neuropathy may present with facial pain, including oral pain, and requires careful dental intervention.
- Pulp necrosis is the death of pulp tissue (nerve) of the tooth.
- A fixed prosthesis is a structure that is permanently fixed in the oral cavity (for example, crowns, bridges, implants).
- Reverse bite is a pathological position of the incisors: the lower ones overlap the upper ones (analogous to mesial bite).
- Obturation of the root canal is the filling of the root canal with filling material after its treatment.
- Odontogenic infection is an infection that arises from dental tissues or adjacent structures.
- Odontogenic infection is an infection originating from a tooth or its periodontal tissues, often leading to abscesses and phlegmons.
- An occlusal pad is an orthopedic device for correcting bite or protecting teeth from bruxism.
- Occlusion is the contact between the teeth of the upper and lower jaws when they close.
- Orthodontic monitoring is a regular assessment of the development of a child's bite, starting at 5–6 years of age.
- Orthopedic bite correction is the restoration of a correct bite using prosthetics.
- Orthopedic treatment is the restoration of teeth with prostheses, taking into account the individual characteristics of tissue aging.
- Osteoporosis is a decrease in bone density that affects the condition of the jaws and the stability of dentures.
- Osteotomy is a dissection of bone tissue.
- Periodontosis/periodontitis is a chronic inflammatory disease of the gums and surrounding tooth tissues, a common problem among the elderly.
- Periodontitis is an inflammation of the tissues surrounding the tooth root.



- Perioprosthesis is the condition of the tissues around orthopedic structures (for example, gums and bone around implants).
- Periostotomy is an incision of the periosteum.
- Frenuloplasty is the correction of a frenulum of the lip or tongue that interferes with normal function or prosthetics.
- A complete removable denture is the main treatment for complete edentulism and requires regular monitoring and correction.
- A complete removable denture is a denture that replaces all the teeth on one jaw.
- Permanent dentition – formed after 12–13 years, includes 28 permanent teeth (excluding wisdom teeth).
- Preparation - grinding of a tooth for a crown or inlay.
- Pulpitis is an inflammation of the pulp (nerve) of the tooth.
- Pulpitis of a baby tooth is an inflammation of the pulp; it is treated taking into account the anatomy and the need to preserve the tooth until it is replaced.
- Early caries is caries that develops in children under 3 years of age, often on the front teeth.
- Root apex resection is the removal of the apex of the tooth root containing the site of inflammation.
- Alveolar bone resorption is a loss of bone after tooth extraction, which is especially pronounced in the elderly.
- Prosthesis repair is the restoration of a damaged orthopedic structure.
- Tooth restoration is the restoration of the shape and function of a damaged tooth (for example, with a photopolymer or glass ionomer cement).
- Retention elements are parts of the prosthesis that improve its fixation (clasps, buttons, beams, etc.).
- Retention is the ability of a prosthesis to remain in the oral cavity.
- Tooth retention is a delay in the eruption of a tooth.
- Gum retraction is the movement of the gums to allow for accurate impression taking.
- Gum retraction is the movement of the gum edge away from the tooth for better visualization and work.
- Gum recession is a lowering of the gum level, exposing the root of the tooth.
- Sedation is the process of putting a child into a controlled, relaxed state to reduce fear and discomfort.
- Sedation is the medicinal calming of a patient during surgical interventions.
- Senile gingivitis is an inflammation of the gums associated with age-related tissue changes and poor hygiene.
- Dentin sensitization is increased sensitivity of a tooth to irritation.
- Sensory impairments – decreased taste, smell, tactile sensitivity, affecting the patient's quality of life.




- Sinus lift is a surgical lifting of the maxillary sinus floor to create bone volume for an implant.
- Scanning (intraoral) - obtaining a digital impression using a scanner, without traditional masses.
- A mucosal-supporting prosthesis is a structure that rests on the gum and alveolar process.
- Tooth change is a physiological process of replacing baby teeth with permanent ones, which begins at 5–7 years of age.
- Thumb/pacifier sucking is a bad habit that can cause malocclusion.
- Stomatitis is an inflammatory disease of the oral mucosa.
- Denture stomatitis is an inflammation of the mucous membrane under a removable denture, often caused by prolonged wearing without a break.
- A dental infection is an infection that originates in the mouth and spreads to other areas.
- A removable denture is a denture that the patient can remove and put on independently.
- Packing is the insertion of gauze or material into a wound to stop bleeding or promote drainage.
- Taylor denture is a type of clasp denture with a minimal base and maximum metal construction.
- Thermoplastic is a material for flexible dentures (e.g. acrylic, nylon, polyurethane).
- Topical fluoridation is the local application of fluoride-containing preparations to strengthen enamel and prevent caries.
- Total adentia is the complete absence of teeth.
- Tooth trauma in children – bruise, fracture, dislocation of a tooth – is a common problem in childhood.
- Hand tremors can interfere with independent oral hygiene and require special hygiene devices.
- Bone trepanation is the creation of an opening in the bone to access the site of inflammation or a cyst.
- Trophic disorders are a deterioration in tissue nutrition (for example, gums) due to vascular diseases and aging.
- A shortened lingual/labial frenulum is an anatomical condition that affects speech, eating, and bite. It may require plastic surgery.
- Installing a crown is the final stage of prosthetics, which includes fixing the structure to the tooth.
- Establishing contact with the child is an important stage of the appointment: building trust and reducing anxiety.
- Prosthesis stability is the ability of the structure to remain stable during chewing; it deteriorates with jaw atrophy.



- Loss of retention is a weakening of the fixation of the prosthesis, requiring correction or relining.
- Oral care is an important part of geriatric care and can be performed by relatives or staff.
- Fixation of a prosthesis is a method of attaching a prosthesis to teeth or implants (mechanical, cement, screw).
- Denture fixation – improving the retention of a removable denture using creams, gels or structural elements.
- A fissure is a natural groove on the surface of chewing teeth that is often prone to caries.
- Fissure caries is caries in the natural grooves of chewing teeth, often developing in children after the eruption of molars.
- Phlegmon is a diffuse purulent inflammation of soft tissues without clear boundaries (a dangerous complication).
- Flux (periostitis) is an inflammation of the periosteum, often with swelling of the face.
- Flux (periostitis) is a purulent inflammation of the periosteum, often with swelling of the cheek.
- A milled framework is a precisely manufactured prosthetic framework (usually made of zirconium or titanium) created using CAD/CAM.
- Fluorosis is a chronic excess of fluoride, which manifests itself as spots and defects in the enamel.
- Functional restoration – the goal of treatment is to restore chewing, speech and aesthetics with minimal stress on the body.
- Angular cheilitis (cheilitis in the corners of the mouth) is cracking and inflammation in the corners of the mouth, often associated with a deficiency of B vitamins or a yeast infection.
- Cheilitis in children is an inflammation of the red border of the lips, which can be caused by irritation, allergies, or infection.
- An all-ceramic crown is an aesthetic crown without a metal frame.
- Cementation is the process of gluing a crown or inlay to a tooth using special dental cement.
- Circulatory disorders are circulatory disorders that affect healing after dental procedures.
- Maxillofacial surgery is a branch of surgery that deals with the treatment of diseases and injuries of the jaws, face, and soft tissues.
- Splinting is the fixation of loose teeth or jaw fractures using splints.
- Extracoronary fixation is the attachment of a prosthesis outside the crown of the tooth (for example, using clasps).
- Electroodontometry is a method of diagnosing the condition of the pulp using electric current.



- Emotional states such as anxiety, depression, and fear are common reactions of elderly patients to dental treatment.
- Endodontics is a branch of dentistry that deals with the treatment of root canals.
- Enamel erosion is the destruction of enamel due to exposure to acids (in the diet or from gastroesophageal reflux).
- Smile aesthetics are important not only for young people: older patients also value restoring the appearance of their teeth.
- Aesthetic restoration is the restoration of teeth taking into account their appearance, especially relevant for the front teeth of children.
- Aesthetic prosthetics is the restoration of teeth with an emphasis on the natural appearance and harmony of the smile.
- Iatrogenesis is damage caused by medical intervention (for example, improper grinding of teeth during prosthetics)

	Educational institution RoyalMetropolitan University
	Quality management system Educational and methodological complex of the discipline "Propaedeutics of surgical dentistry" Department of Dental Disciplines of the Educational Institution "RMU" 560004 "Dentistry"

Application 1

Change Registration Sheet Form

p/p	Document (order, order, etc. (indicating the number and date) which reflects the changes	Signature	Full name
1			
2			
3			

5. Reference materials and appendices –are indicated as necessary.