

**Л. А. КАЗЕКО, Е. Л. КОЛЬ**

**РУКОВОДСТВО ДЛЯ ПРАКТИЧЕСКИХ ЗАНЯТИЙ  
ПО ТЕРАПЕВТИЧЕСКОЙ СТОМАТОЛОГИИ.  
МАТЕРИАЛЫ В СТОМАТОЛОГИИ.  
ЭНДОДОНТИЯ**

**GUIDE FOR PRACTICAL CLASSES  
IN DENTAL THERAPY.  
MATERIALS IN DENTISTRY.  
ENDODONTICS**

Минск БГМУ 2015

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ  
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ  
1-я КАФЕДРА ТЕРАПЕВТИЧЕСКОЙ СТОМАТОЛОГИИ

Л. А. КАЗЕКО, Е. Л. КОЛЬ

**РУКОВОДСТВО ДЛЯ ПРАКТИЧЕСКИХ ЗАНЯТИЙ  
ПО ТЕРАПЕВТИЧЕСКОЙ СТОМАТОЛОГИИ.  
МАТЕРИАЛЫ В СТОМАТОЛОГИИ.  
ЭНДОДОНТИЯ**

**GUIDE FOR PRACTICAL CLASSES  
IN DENTAL THERAPY.  
MATERIALS IN DENTISTRY.  
ENDODONTICS**

Учебно-методическое пособие



Минск БГМУ 2015

УДК 616.31-085.242 (811.111)-054.6 (075.8)  
ББК 56.6 (81.2 Англ-923)  
К14

Рекомендовано Научно-методическим советом университета в качестве  
учебно-методического пособия 20.05.2015., протокол № 9

Рецензенты: канд. мед. наук., доц. Н. М. Полонейчик; канд. мед. наук., доц.  
А. Г. Третьякович; ст. преп. Т. А. Проволоцкая

**Казеко, Л. А.**

К14 Руководство для практических занятий по терапевтической стоматологии.  
Материалы в стоматологии. Эндодонтия = Guide for practical classes in dental  
therapy. Materials in dentistry. Endodontics : учеб.-метод. пособие / Л. А. Казеко,  
Е. Л. Колб. – Минск : БГМУ, 2015. – 38 с.

ISBN 978-985-567-260-0.

Изложены контрольные вопросы и клинические задачи к практическим занятиям по терапевтической стоматологии. Также предложены вопросы для подготовки к курсовому экзамену по терапевтической стоматологии и критерии оценки знаний студентов.

Предназначено для студентов 3-го курса медицинского факультета иностранных учащихся, обучающихся на английском языке.

УДК 616.31-085.242 (811.111)-054.6 (075.8)  
ББК 56.6 (81.2 Англ-923)

ISBN 978-985-567-260-0

© Казеко Л. А., Колб Е. Л., 2015  
© УО «Белорусский государственный  
медицинский университет», 2015

## INTRODUCTION

The Guide for Practical Classes in Therapeutic Dentistry, Part 2, is composed according to the themes of Therapeutic Dentistry which students study in the 6th semester. Each class guide includes: subject of the class, goal of the class, tasks of the class, control questions of the material studied, as well as clinical challenges based on the subject of the class.

The content of the guide is defined by principles and:

- is based on international levels of proficiency;
- matches national qualification levels of achievement;
- has clearly and flexibly formulated objectives and outcomes;
- is based on professional and academic skills;
- covers professional and academic content (areas of subject knowledge); situational content and pragmatic content / necessary practical and useful skills;
- takes into account the student's backgrounds and their studies and target needs;
- is modular in its organization.

The teaching material of the 6th semester is divided into 2 thematic groups: «The use of materials in dentistry» and «Endodontics».

«The use of materials in dentistry» envisages the learning of modern methods of dental caries treatment with contemporary dental materials, theory and practical skills in carrying out modern restoration techniques.

The teaching objectives of the «Endodontics» thematic group envisage the learning of causes of occurrence and developmental mechanisms of pulp pathology of different origin. The dental students learn to classify pulp and periodontal diseases, clinical manifestations and their course, indications and contraindications to applying different methods of endodontic treatment, basic principles of mechanical root canal treatment, determination of root canal length in the clinic, medicaments for intracanal therapy in the clinic, techniques of root canals obturation, as well as possible mistakes and complications when diagnosing and treating pulpitis and apical periodontitis.

It also proposes questions for the exam in Dental Therapy for the 3rd year students and evaluation criteria of the students' knowledge at the course exam. Literary sources are also offered to prepare for practical classes.

Material of the Guide for Practical Classes will be useful for foreign students studying in English.

**THERAPEUTIC DENTISTRY 3rd YEAR 6th SEMESTER  
PRACTICAL LESSONS MODUL**

Number of the class	Subject of the class	Individual work
<b>The use of materials in dentistry</b>		Review of scientific and professional literature, preparation of the written paper and carrying on scientific investigation
<b>1</b>	Minimal invasive methods of tooth operative treatment	
<b>2</b>	Materials for pulp capping. Clinical usage peculiarities	
<b>3</b>	Clinical usage peculiarities of amalgam in the tooth restoration	
<b>4</b>	Clinical peculiarities of dental composites usage in tooth restoration	
<b>5</b>	Methods of adhesive preparation for tooth restoration.	
<b>Endodontics</b>		
<b>6</b>	Acute pulpitis. Clinical picture, diagnostic aids.	
<b>7</b>	Chronic pulpitis. Clinical picture, diagnostic aids.	
<b>8</b>	Treatment of pulpitis under local anesthesia. Indications. Contraindications. Stages of treatment.	
<b>9</b>	Treatment of pulpitis with devitalising agents. Indications. Contraindications. Stages of treatment.	
<b>10</b>	Acute apical periodontitis. Clinical picture, diagnostic aids. Emergency aid.	
<b>11</b>	Chronic apical periodontitis. Clinical picture, diagnostic aids.	
<b>12</b>	Mechanical root canals treatment. Instructions on how to work with endodontic instruments in the clinic.	
<b>13</b>	Techniques of root canal preparation. Determination of root canals length in the clinic.	
<b>14</b>	Root canal treatment with medications. Medicaments for intracanal therapy in the clinic.	
<b>15</b>	Techniques of root canals obturation. Medications for filling root canals.	
<b>16</b>	Mistakes and complications when diagnosing and treating pulpitis and apical periodontitis, preventive measures.	

## STUDY GUIDE FOR PRACTICAL CLASS № 1

**Subject of the class:** Minimal invasive methods of tooth operative treatment.

Total term time — 245 minutes.

**Goal of the class:** to know minimal invasive methods of tooth operative treatment.

**Tasks of the class:**

1. To study indications of tooth operative treatment use.
2. To study the dental caries ART – method.
3. To study the tunnel preparation method in dental caries treatment.
4. To study the invasive fissure sealing technique.
5. To study the prophylactic filling method.
6. To be able to determine indications for minimal invasive dental caries treatment and practise it.

**Test questions on the class subject:**

1. Minimal invasive dentistry as a priority direction of the contemporary medicine.
2. Give a definition of the term «dental caries minimal invasive treatment».
3. Invasive fissure sealing. Indications, procedure, instruments, sealing materials.
4. Advantages and disadvantages of minimal invasive preparation for dental caries treatment.
5. Prophylactic filling. Indications. Procedure. Instruments, filling materials.
6. ART – method. Indications. Procedure. Instruments, filling materials.
7. Tunnel preparation. Procedure. Instruments, filling materials.

**Clinical challenges:**

**Challenge 1.** A 25 year old patient complains of pain in tooth 15 after eating sweets. Objectively: on the distal surface of tooth 15 there is a grey shadow (tooth tissues are grey). Vertical tooth percussion is painless. On the dental X-ray: caries cavity is situated on the proximal surface within the outer layer of dentine. Determine a provisional diagnosis. Choose access to the cavity, preparation method and filling material.

**Challenge 2.** Patient K., 52 years old, refers to the dentist for the oral cavity hygiene. In the past medical history: recently suffered a stroke. Diagnosis: Dentin caries of teeth 46, 47. What are the most reasonable methods of treatment in this clinical situation? What instruments and materials are necessary to carry out this method?

**Challenge 3.** Patient A., 20 years old. The dentist is planning to carry out invasive sealing of tooth 28 and prophylactic filling of tooth 37. What in-

struments and filling materials are needed to carry out these treatment methods? What is necessary to advise the patient after treatment?

**Challenge 4.** Patient, 19 years old. During the dentin caries treatment of tooth 14 on proximal surface, the dentist uses the tunnel preparation method. Caries intensity in this patient is 18 (DMF = 18). Oral hygiene is insufficient. The patient has frequent snacks and a carb-dominant diet; he doesn't pay attention to fluoride content when choosing toothpaste. What can long-term results of restoration be in this situation?

## STUDY GUIDE FOR PRACTICAL CLASS № 2

**Subject of the class:** Materials for pulp capping. Clinical usage peculiarities.

Total term time — 245 minutes.

**Goal of the class:** To improve knowledge and skills of dental filling materials clinical usage as a lining material.

**Tasks of the class:**

1. To deepen knowledge of composition and properties of liners.
2. To study advantages and disadvantages of dental lining materials.
3. To improve skills of dental linings preparation and application into the carious cavity.
4. To study the skill of dental lining materials usage.
5. To study different ways of pulp capping during the carious cavity restoration.
6. Clinical profile of GIC as a liner.
7. Primary function of luting and lining GIC.

**Test questions on the class subject:**

1. Function of dental lining.
2. Dental lining materials requirements.
3. Indications for lining dental material use. Rules of application.
4. Classification of liners.
5. Composition, features and peculiarities of zinc-oxyphosphate cement clinical usage.
6. Composition, features and peculiarities of polycarboxylate cement clinical usage.
7. Composition and features of lining GIC.
8. Peculiarities of lining GIC clinical usage.

**Clinical challenges:**

**Challenge 1.** Patient T. Diagnosis: dentin caries of tooth 25, Class II (Black). Treatment: the carious cavity is prepared, lining is applied, and the ca-

rious cavity is filled with composite. Edge of the carious lesion is lower, than gingival margin. Choose a lining material.

**Challenge 2.** Patient M. is diagnosed with dentin caries of tooth 47. In the dental office only adhesive-to-enamel system is available. To what extent should the lining be applied? Term lining materials which can be used in this situation.

**Challenge 3.** On examination, the dentist diagnoses caries of dentin of tooth 16. The carious cavity is prepared (Class I (Black)) during the first visit and filled with GIC (Aqua Ionobond). The dentist appoints time of next visit on the following day in order to fill the cavity with a composite. Evaluate the dentist's action. Is the treatment plan correct?

### STUDY GUIDE FOR PRACTICAL CLASS № 3

**Subject of the class:** Clinical usage peculiarities of amalgam in the tooth restoration.

Total term time — 245 minutes.

**Goal of the class:** To know indications and working procedure with contemporary amalgam in the dental therapy.

**Tasks of the class:**

1. To study composition and properties of amalgam.
2. To study features of contemporary amalgam.
3. To study carious cavity preparation method for amalgam restoration.
4. To study the modeling of amalgam filling.

**Test questions on the class subject:**

1. Terminology when using amalgam.
2. Principles of amalgam classification.
3. Composition and features of different types of amalgam.
4. Advantages and objectionable features of amalgam.
5. Indications and contraindications for amalgam use.
6. Procedure of classical amalgam use.
7. Procedure of adhesive amalgam use.
8. Amalgam utilization. Human health effects of amalgam. Environmental effect.
9. Failures and complications when using amalgam. Ways of control.

**Clinical challenges:**

**Challenge 1.** After the preparation of tooth 36, a mesioocclusal-distal carious cavity is detected; the hard tooth tissue decrease is 1/2 of intercusp distance. Choose the optimal filling material. Justify the choice.

**Challenge 2.** A patient reports the filling falling out. Tooth 27 is half-destroyed, the distal surface is absent. The dental X-ray: three root canals are



obtured a depth to physiological narrowing. The patient has neglected an artificial crown setting. As an alternative there was suggested an amalgam filling with adhesive technique using. What is the point of this technique? What materials are used in this technique? Term the working stages of adhesive technique?

**Challenge 3.** A patient reports multiple tooth crown defects. OHI-S = 2,1; CPI = 2,5. The patient is unmotivated. Professional oral hygiene wasn't carried out. St. Localis: In teeth 16, 17, 25, 26, 36, 46, 47 there are vast carious cavities with implication of several surfaces. What filling material is indicated in this case? Justify the choice of filling material and term its advantages.

## STUDY GUIDE FOR PRACTICAL CLASS № 4

**Subject of the class:** Clinical peculiarities of dental composites usage in tooth restoration.

Total term time — 245 minutes.

**Goal of the class:** To improve knowledge and skills of choice and work with dental composites.

**Tasks of the class:**

1. To study composition, features and indications for dental composite use.
2. To work out working technique with dental composites and compomers.
3. To study possible failures and complications of dental composite usage.
4. To study ways of control and correction of possible complications.

**Test questions on the class subject:**

1. Classification of dental composites. Concept of flow and packable composites.
2. Benefits and harm of dental composites. Advantages and disadvantages of dental composites over other groups of filling materials.
3. Compomers. Composition, features, indications for use.
4. Definition of indications for dental composites and compomers use.
5. Common rules and stages of working with dental composites and compomers.
6. Different techniques of dental composites usage (closed and open sandwich technique, the Bertholotti method).
7. Quality standards of dental composite fillings.
8. Failures and complications when working with dental composites.
9. Prevention of complications when working with dental composites.

**Clinical challenges:**

**Challenge 1.** Patient, 34 years old, complains about having of carious cavity on the proximal-distal tooth 26 surface. OHI-S = 2,7; CPI = 4,0;

DMF = 24. Basing on objective and subjective results, dentin caries of tooth 26 (Class II (Black)) is diagnosed. Compose a treatment plan. What methods of preparation and technique will you use?

**Challenge 2.** Patient, 21 years old, complains about having a carious cavity in the neck area of tooth 15. OHI-S = 1,8; CPI = 3; DMF = 17. Basing on objective and subjective results, caries of dentin of tooth 15 (Class V (Black)) is diagnosed. Compose a treatment plan. What filling materials are most optimal for restoration of this carious cavity?

**Challenge 3.** During the restoration of tooth 36 (caries of dentin, Class V (Black)) the dentist uses a total-etching technique; next he applies the 5th generation adhesive system. But after the polymerization of bond, saliva gets into the cavity. What should the further actions of the dentist be?

## STUDY GUIDE FOR PRACTICAL CLASS № 5

**Subject of the class:** Methods of adhesive preparation for tooth restoration.

Total term time — 245 minutes.

**Goal of the class:** To master skills when working with contemporary adhesive systems in dental therapy.

**Tasks of the class:**

1. To study the terminology in the field of adhesive dentistry.
2. To study principles of contemporary adhesive systems classification.
3. To know advantages and disadvantages of contemporary adhesive systems.
4. To be able to work with different types of adhesive systems.

**Test questions on the class subject:**

1. Terminology in the adhesive dentistry.
2. Principles of classification of contemporary adhesive systems, requirements to adhesive systems.
3. Composition of contemporary adhesive systems.
4. Properties of adhesive systems and the influence of adhesion on the tooth hard tissues.
5. Positive and negative properties of adhesive systems.
6. Indications and contraindications for adhesive systems usage during tooth restoration.
7. Formation of hybrid layer at the dentine and enamel junction.
8. Stages of work with the 4th and 5th generation adhesive systems.
9. Stages of work with the 6th and 7th generation self-etch adhesive systems.

10. Failures and complications when working with adhesive systems.

11. Prevention of complications after adhesive system use.

**Clinical challenges:**

**Challenge 1.** The patient complains of a sharp and transitory pain when exposed to cold and when cleaning anterior mandibular teeth. St. Localis: OHI-S = 0,4; all the teeth of the 5th sextant are intact. Gingival recession is 1/2–1/3 of root length. The gingiva has no inflammation signs. The probing of teeth root surfaces is painless. EPT = 6 mcA. The dentist suggested covering the exposed root with an adhesive system. What adhesive systems are used for this? Term the working stages.

**Challenge 2.** The patient complains of a sharp and transitory pain in tooth 46 when biting; the pain appeared just after the caries treatment of this tooth. Anamnesis: carious cavity in tooth 46 is within the mantle dentin; there is no pulp pathology. For tooth restoration, hybrid composite and the 5th generation adhesive system are used. St. Localis: OHI-S = 0,5; There is a qualitative filling in tooth 46. Sharp transitory pain to cold, probing of the filling margin and percussion are painful. Come up with a decision of the problem.

**Challenge 3.** The patient complains of a sharp and transitory pain when cleaning the teeth. St. Localis: there are wedge-shaped defects of enamel and dentin at the cervical areas of teeth 34, 35, 36; the tooth hard tissues are tight and shining; probing is painless. The dentist is going to restore the defects with dental curing light composite using the self-etching adhesive system. Term the features of adhesive preparation and adhesive system working stages.

**Challenge 4.** On the stage of adhesive system application the carious cavity is contaminated with saliva. Come up with a decision of the problem.

**Challenge 5.** During the carious cavity restoration, after the adhesive system polymerization, the carious cavity is contaminated with blood. Come up with a decision of the problem.

## STUDY GUIDE FOR PRACTICAL CLASS № 6

**Subject of the class:** Acute pulpitis. Clinical picture, diagnostic aids.

Total term time — 245 minutes.

**Goal of the class:** To know clinical picture, diagnostics and differential diagnostics of acute types of pulpitis.

**Tasks of the class:**

1. To study clinical signs of acute forms of pulpitis.
2. To study basic and additional diagnostic aids of acute forms of pulpitis.
3. To learn to examine a patient with acute pulpitis.
4. To learn to carry out differential diagnostics of acute pulpitis with other medical emergencies.

**Test questions on the class subject:**

1. Advantages and disadvantages of classifications sections of acute forms of pulpitis (ICD-10 — the 10th revision of the International Statistical Classification of Diseases and Related Health Problems, 1997; Gofung E. M., 1927). Options of implementation in the clinical picture, correlation.

2. Give the definition of acute pulpitis, enumerate external and internal causative factors aiding to its progression.

3. Clinical picture of acute pulpitis (ICD-10).

4. Clinical picture of suppurative pulpitis (ICD-10).

5. Diagnostics of acute forms of pulpitis. Basic and additional diagnostic aids of a patient.

6. Differential diagnostics of acute forms of pulpitis (ICD-10).

**Clinical challenges:**

**Challenge 1.** Patient K., 25 years old, complains of spontaneous, attack-like pain in the area of tooth 34. The pain develops without influence of exogenous irritants with extensive bright intervals. The tooth has been afflicting for 24 hours. There is also a long-lasting pain to temperature stimuli that doesn't stop after the stimuli are removed; the patient feels pain at night. During examination of tooth 34, there is a perceptible deep cavity with softened pigmented dentin that doesn't reach dental cavity. Probing is painful in one place, at the bottom of decay cavity, closer to the pulp horn. Suggest additional examination methods (if necessary). Determine a probable diagnosis. Carry out differential diagnostics.

**Challenge 2.** Patient B., 40 years old, complains of continuous, spontaneous pain of a tearing, throbbing character in the area of the upper jaw teeth to the right. There is pain at night. Pain irradiates to the temporal region and ear. The patient is tortured by pain episodes and is unable to describe his condition and identify the aching tooth. Pain becomes more severe when affected by something hot. Cold stimulus stops a pain episode to some extent. Objectively: surfaces of all upper jaw teeth to the right are macroscopically intact. Nevertheless, under intact dental enamel of marginal ridge in the area of tooth 16 and tooth 17, a gray shadow is observed. Suggest additional examination methods (if necessary). Determine a probable diagnosis. Carry out differential diagnostics.

**Challenge 3.** Patient A., 28 years old, is undergoing necrectomy with dental drill in tooth 26 because of deep dentin caries. During this process, the doctor does not use water cooling. Next day, the patient complains of attack-like, spontaneous pain in the area of tooth 26 with irradiation to temporal region. There is also pain to temperature stimuli that does not stop for long after having been removed. Evaluate the doctor's actions. What complication can be relevant in this case? What disturbing factor was the reason for the development of the pathological process?

**Challenge 4.** Person H. 18 years old, complains of acute spontaneous paroxysmal pain in the tooth that irradiates to the right eye and temporomandibular area. Objectively: there is a deep carious cavity near parapulpal dentin in tooth 27; the dentin is bright and soft. Probing of bottom is sharp and painful; positive reaction to cold. Determine the diagnosis according to ICD-10.

**Challenge 5.** The patient complains of temporary pain in the teeth of the lower jaw on the left side lasting for twenty-four hours. Pain is radiating to the ear, back of head, and also increases when eating cold and hot food. Objectively: there is a deep carious cavity on the medial surface in tooth 36. Probing at the bottom is sharp and painful. Determine the diagnosis according to ICD-10.

**Challenge 6.** A woman, 40 years old, complains of short lasting, spontaneous pain, as well as pain after taking hot and cold food in the area of tooth 46. On the occlusal surface of tooth 46 there is a carious cavity filled with softened dentin. Probing of the bottom of the carious cavity is painful. Reaction to thermal irritants is positive and does not disappear after they are removed. EPT is 25 mcA. Determine the diagnosis according to ICD-10.

**Challenge 7.** Throbbing pain in case of acute pulpitis is caused by:

- a) increase in hydrostatical pressure inside the pulp chamber;
- b) irritation of the nerve endings by the product of anaerobic glycolysis;
- c) periodical shunting of blood flow through arteriovenular anastomosis.

**Challenge 8.** A patient (43 years old) complains of spontaneous, paroxysmal night time pain with a long painless period in the upper jaw on the right side. These complains arise in case of:

- a) k04.00 Initial (hyperaemia) pulpitis;
- b) k04.01 Acute pulpitis;
- c) k04.02 Suppurative (pulpal abscess) pulpitis;
- d) k04.03 Chronic pulpitis;
- e) k04.04 Chronic, ulcerative pulpitis;
- f) k04.05 Chronic, hyperplastic (pulpal polyp) pulpitis.

**Challenge 9.** Male (24 years old) complains of spontaneous, paroxysmal night time pain in the upper jaw on the right side with irradiation to the branches of n.trigeminus with short painless periods. These complains arise in case of:

- a) k04.00 Initial (hyperaemia) pulpitis;
- b) k04.01 Acute pulpitis;
- c) k04.02 Suppurative (pulpal abscess) pulpitis;
- d) k04.03 Chronic pulpitis;
- e) k04.04 Chronic, ulcerative pulpitis;
- f) k04.05 Chronic, hyperplastic (pulpal polyp) pulpitis.

**Challenge 10.** The patient, 23 years old, complains of long term pain (10–20 min) in tooth 11 which arises after exposure to thermal and chemical irritants, and the retention of food in the interdental spaces of upper incisors. Periodic acute night time pain. He first felt the pronounced pain in tooth 11 three days ago. Objectively: on the medial surface of tooth 11 there is a carious cavity within the circumpulpal dentin. The dentin of the walls and bottom is softened. The color of dentin is pale yellow. The probing of the bottom is very painful. Percussion of tooth 11 is painless. During thermal diagnostics of tooth 11 pronounced long-term pain was observed. EPT (the pulp electroexcitability test) is 18 mcA. These complaints and the result of objective examination are typical of:

- a) k04.00 Initial (hyperaemia) pulpitis;
- b) k04.01 Acute pulpitis;
- c) k04.02 Suppurative (pulpal abscess) pulpitis;
- d) k04.03 Chronic pulpitis;
- e) k04.04 Chronic, ulcerative pulpitis;
- f) k04.05 Chronic, hyperplastic (pulpal polyp) pulpitis.

**Challenge 11.** The patient, 43 years old, complains of transient pain in the upper right premolars which suddenly occurred twice during the past day. The patient first felt short term pain in tooth 15 after exposure to thermal irritants 8 months ago. Objectively: on the medial surface of tooth 15 there is a carious cavity within the circumpulpal dentin. The dentin of the walls and bottom is softened. The color of dentin is pale yellow. The probing of bottom is very painful. Percussion of tooth 15 is painless. During thermal diagnostics of tooth 15 there was observed pronounced pain which lasted more than 10 minutes. EPT (the pulp electroexcitability test) is 17 mcA. These complaints and the result of objective examination are typical of:

- a) k04.00 Initial (hyperaemia) pulpitis;
- b) k04.01 Acute pulpitis;
- c) k04.02 Suppurative (pulpal abscess) pulpitis;
- d) k04.03 Chronic pulpitis;
- e) k04.04 Chronic, ulcerative pulpitis;
- f) k04.05 Chronic, hyperplastic (pulpal polyp) pulpitis.

## **STUDY GUIDE FOR PRACTICAL CLASS № 7**

**Subject of the class:** Chronic pulpitis. Clinical picture, diagnostic aids.  
Total term time — 245 minutes.

**Goal of the class:** To know clinical picture, differential diagnostics of chronic forms of pulpitis.

**Tasks of the class:**

1. To study clinical signs of chronic forms of pulpitis.
2. To learn to carry out diagnostics of chronic forms of pulpitis according to subjective and objective data.
3. To learn to carry out differential diagnostics of chronic forms of pulpitis.
4. To learn to examine a patient with chronic pulpitis.

**Test questions on the class subject:**

1. Classifications of chronic forms of pulpitis (ICD-10 — the 10th revision of the International Statistical Classification of Diseases and Related Health Problems, 1997; Gofung E. M, 1927). Comparison of classifications.
2. Plan of examining a patient with chronic pulpitis.
3. Clinical picture and diagnostics of chronic pulpitis.
4. Clinical picture and diagnostics of chronic ulcerative pulpitis.
5. Clinical picture and diagnostics of chronic hyperplastic pulpitis.
6. Differential diagnostics of chronic forms of pulpitis.
7. Pulp necrosis. Clinical picture, diagnostics, differential diagnostics.
8. Pulp degeneration. Causes, forms, clinical picture.

**Clinical challenges:**

**Challenge 1.** Patient N., 28 years old, complains of pain and bleeding in the area of tooth 26 that arises while eating hard food. Objectively: there is a deep decay cavity on the distal surface of tooth 26. It is formed by a proliferous granulating tissue that bleeds with a light touch of dental probe. During deep probing, pain arises. Percussion is painless.

Determine a probable diagnosis. Indicate possible additional examination methods that are necessary to determine the final diagnosis.

**Challenge 2.** Patient P. complains of periodically arising pain in the area of tooth 22 that lasts 15–20 minutes while eating hot food. Pain goes off with cold water. Objectively: on the distal surface of tooth 22 there is a deep decay cavity that reaches dental pulp cavity. Probing is clinically observed. The color of the tooth has changed. Percussion is only slightly sensitive.

Conduct necessary examination to determine a diagnosis. Determine a diagnosis.

**Challenge 3.** Patient K., 65 years old, complains of pain that arises when the patient changes position of the body. Pain has been afflicting for around a month.

Objectively: tooth 46 is intact, gingiva recession is 2 mm. In tooth 46 there is attrition of the enamel and dentin to the 1/3 level of the tooth crown. From the lingual side, sharp edges of the tooth are observed. There is no reaction of the tooth to thermal irritants, percussion is negative. On the X-ray there is a visible homogeneous shadow in the dental pulp cavity. There are no changes in the periapical area of the root. Determine a diagnosis.

## STUDY GUIDE FOR PRACTICAL CLASS № 8

**Subject of the class:** Treatment of pulpitis under local anesthesia. Indications. Contraindications. Stages of treatment.

Total term time — 245 minutes.

**Goal of the class:** To learn treatment methods of pulpitis under local anesthesia.

**Tasks of the class:**

1. To study indications and contraindications for vital treatment method.
2. To study stages of vital treatment method (dental pulpectomy).
3. To study mistakes and complications due to treatment of pulpitis by vital method.
4. To learn to carry out vital pulpectomy.

**Test questions on the class subject:**

1. Vital method of pulpitis treatment (vital pulpectomy). Definition, characteristics of the method.
2. Indications for vital pulpectomy.
3. Contraindications for vital methods of pulpitis treatment.
4. Stages of pulpotomy.
5. Stages of vital pulpectomy.
6. Pharmacological agents and appliances used for vital method of pulpitis treatment.
7. Evaluation criteria of results of pulpitis treatment by vital method.
8. Complications due to vital methods of pulpitis treatment.

**Clinical challenges:**

**Challenge 1.** Patient M., 20 years old, complains of acute, sudden pain in teeth 11, 12 that becomes worse when exposed to thermal and mechanical stimuli. From anamnesis: 5 hours ago the patient fell down and, as a result, chipped parts of dental crown of teeth 11, 12. St. localis: in teeth 11, 12 cutting edges and one third of clinical crowns are missing. During examination, punctate pulp exposure in both teeth is revealed, probing is painful. What treatment method is indicated in this case? Justify the choice, specify the stages.

**Challenge 2.** Patient A., 53 years old, complains of dull pain in tooth 23 that has been afflicting for one week. The pain becomes worse when exposed to thermal stimuli. The patient's condition is satisfactory, the patient doesn't have somatic diseases or any allergy. In tooth 23 on the distal surface there is filling material, changed in color. Marginal adaptation is imperfect. Percussion is pain-free. Specify a probable diagnosis, treatment plan, method and amount of help to render.

**Challenge 3.** Patient K., 38 years old, refers for first aid complaining of severe, spontaneous, intermittent pain lasting for 5–10 minutes in tooth 24. The tooth started aching 24 hours ago. The patient is on a short-term business



trip. From anamnesis: the tooth has not been treated before; allergic anamnesis is not aggravated; the last visit to dentist was 3 years ago. St. localis: OHI-S = 0,7, GI = 0,4, CPI = 1,0. During examination, on the distal surface of tooth 24 an extensive carious cavity is revealed, dental tissue is softened, not pigmented. Probing is very painful in one place. Determine a diagnosis, make up a treatment plan, specify an optimal method of root canal treatment, Justify the choice, and enumerate the stages of treatment.

**Challenge 4.** The patient, 33 years old, reports the presence of a large cavity in tooth 46. From anamnesis: 10 months ago tooth 46 was treated for dental caries, but the filling fell out in a month. There was no pain. Allergic anamnesis is not aggravated. St. localis: OHI-S = 1,7, GI = 0,7, CPI = 3,2. During examination, on the distal and occlusal surfaces of tooth 46 a large carious cavity is revealed, enamel edges are sapped, dentin is softened, pigmented and removed in layers; connection with the cavity of the tooth is revealed. Probing causes mild pain. Specify a probable diagnosis, treatment plan, method and amount of help to render. Enumerate the stages to treat tooth 26.

**Challenge 5.** Patient S., 25 years old, reports change of color of tooth 21. From anamnesis: 2 years ago there was an injury in the area of tooth 21 but due to the absence of pain, the patient did not go to the doctor. The patient has allergy to penicillin antibiotics. St. localis: OHI-S = 0,7, GI = 0,3, CPI = 0,7. Tooth 21 is intact, dental crown is brown in color, percussion is pain-free. EOD 60 mcA. No changes are observed on dental radiography examination. Make up a treatment plan, specify an optimal method of root canal treatment, Justify the choice, and enumerate the stages of treatment.

**Challenge 6.** A 20 year old patient complains of idiopathic, short-lasting, localized pain in the area of tooth 26, lasting one day. Objectively: in tooth 26 there is deep carious cavity of Class I (Black); the dentin on the walls and bottom is non-pigmented, soft; a carious cavity is not connected with the tooth cavity. Probing is very painful at the bottom; reaction to cold irritants is very positive. What is the most rational method of treatment in this case:

- a) biological method;
- b) congratulatory amputation;
- c) congratulatory extirpation;
- d) devitalized amputation;
- e) devitalized extirpation?

**Challenge 7.** The method of pulp vital extirpation is recommended to:

- a) patients with acute pulp inflammation types;
- b) patients with allergic reactions to anesthesia;
- c) patients with serious somatic pathology;
- d) pregnant women from 1st to 3rd month.

**Challenge 8.** What is the method of chronic pulp gangrene treatment:

- a) vital amputation;
- b) vital extirpation;
- c) devital amputation;
- d) devital extirpation;
- e) biological;
- f) the root apex resection?

**Challenge 9.** A 46 year old patient complains of pain and bleeding from the carious cavity of tooth 27 when eating. Previously, she has had spontaneous pain. Examination of tooth 27 reveals a deep carious cavity on the masticatory surface consisting of red tissue, probing induced pain and haemorrhage. What treatment method should be chosen:

- a) vital amputation;
- b) vital extirpation;
- c) devital amputation;
- d) devital extirpation;
- e) biological;
- f) the root apex resection?

## STUDY GUIDE FOR PRACTICAL CLASS № 9

**Subject of the class:** Treatment for pulpitis with devitalising agents. Indications. Contraindications. Stages of treatment.

Total term time — 245 minutes.

**Goal of the class:** To learn the method of pulpitis treatment with devitalising agents.

**Tasks of the class:**

1. To study indications for devital method of pulpitis treatment.
2. To study agents for pulp devitalisation.
3. To study methods of devital pulp extirpation.
4. To get to know possible complications while implementing devital method of teeth treatment.
5. To get to know iatrogenic factors that cause complications while implementing devital method of pulpitis treatment.
6. To learn to carry out stages of devital method of pulpitis treatment.

**Test questions on the class subject:**

1. Devital methods of pulpitis treatment. Indications and contraindications.
2. Formula and characteristics of devitalising agents. Instructions for usage. Antidotes.

3. Mechanisms of action of devitalising agents based on paraformaldehyde and arsenous acid.

4. Stages of the method of devital pulp extirpation.

5. Possible mistakes and complications that appear while treating pulpitis with devitalising method. Preventive measures.

6. Deontological aspects of devital method of pulpitis treatment.

**Clinical challenges:**

**Challenge 1.** Having examined patient K., 30 years old, the dentist diagnosed acute pulpitis of tooth 21. From anamnesis: the patient K. has anaesthetics intolerance. Speak on the treatment method of tooth 21. What stages does the suggested method include?

**Challenge 2.** Patient K., 21 years old, comes to the dentist complaining of intermittent dull pain of tooth 36 and bleeding while eating solid food. Objectively: on the occlusal surface of tooth 36 there is a deep carious cavity with overgrowth of granulating tissue. Probing is very painful. What medical tests should be conducted to confirm a diagnosis? Determine a diagnosis. What treatment method will you choose?

**Challenge 3.** Patient A., 63 years old, comes to the dentist complaining of dull pain of tooth 27 that becomes worse while eating cold food. The pain has been afflicting for a week. From anamnesis: 3 months ago the patient had myocardial infarction. Objectively: General condition is satisfactory. On the distal surface of tooth 27 there is a deep decay cavity represented by softened dentin and food debris. Probing of the decay cavity bottom is very painful in one place. Percussion of the tooth is pain-free. Determine a diagnosis. What treatment method is indicated in this case? Enumerate the stages of tooth 27 treatment.

**Challenge 4.** A dentist was called to a patient who was being treated in the cardiological department after myocardial infarction. The patient was diagnosed with acute condition of chronic fibrous pulpitis of tooth 36. What method of pulpitis treatment should be chosen taking into account a grave condition of the patient:

- a) devital amputation;
- b) vital extirpation;
- c) vital amputation;
- d) devital extirpation;
- e) conservative method?

## STUDY GUIDE FOR PRACTICAL CLASS № 10

**Subject of the class:** Acute apical periodontitis. Clinical picture, diagnostic aids. Emergency aid.

Total term time — 245 minutes.

**Goal of the class:** To know clinical picture, diagnostics of acute apical periodontitis according to both national and international classifications. To be able to render emergency aid.

**Tasks of the class:**

1. To study the role of causative factors setting up inflammation in the tissues of periapical region.

2. To study the ICD-10 (1997) international classification of apical periodontitis and classification of Lukomskiy (1936).

3. To study pathogenetic aspect of apical periodontitis illnesses.

4. To study clinical picture of acute forms of apical periodontitis.

5. To be able to carry out differential diagnostics of acute forms of apical periodontitis with other emergencies.

**Test questions on the class subject:**

1. Definition of apical periodontitis.

2. Classifications of apical periodontitis (international ICD-10 (1997) and classification of Lukomskiy dated 1994).

3. Methods of acute apical periodontitis diagnostics.

4. Clinical signs of acute apical periodontitis.

5. Differential diagnostics of acute apical periodontitis.

6. Indications for rendering emergency aid.

7. Sequence of actions while rendering emergency aid to patients with acute apical periodontitis.

**Clinical challenges:**

**Challenge 1.** Patient A. complains of constant dull pain of tooth 15 that arose 24 hours ago. The pain becomes stronger when biting on this tooth. Lymph nodes are not palpated. Mucogingival junction is not changed. Objectively: on the mesioproximal surface of tooth 15 there is a deep carious cavity; probing is pain-free. There is no response to temperature stimuli. EOD = 120 mcA. On the dental X-ray: periodontal gap is clearly visible; bone tissue has no abnormal changes. Determine a diagnosis and prove it.

**Challenge 2.** Patient D. complains of constant dull pain of tooth 35 and it develops when biting on the tooth. According to the patient, four days ago devitalising arsenic paste was applied. The patient did not come to the doctor for the next appointment. Objectively: on the distal surface of tooth 35 there is a temporary filling; vertical percussion is very painful. Determine a diagnosis and prove it.

**Challenge 3.** Patient K. comes to the dental clinic to get help and is diagnosed with acute apical periodontitis of tooth 16. What should the dentist's tactics be?

**Challenge 4.** A 35 year old patient complains of constant dull pain in tooth 25 that gets worse when biting down on food. Objectively: masticatory surface of tooth 25 has a carious cavity communicating with the dental cavity. A purulent discharge from the canal follows the probing. What method of diagnostics should be applied to confirm the diagnosis:

- a) X-ray examination;
- b) electric pulp test;
- c) thermal test;
- d) bacteriological examination;
- e) deep probing?

### STUDY GUIDE FOR PRACTICAL CLASS № 11

**Subject of the class:** Chronic apical periodontitis. Clinical picture, diagnostic aids.

Total term time — 245 minutes.

**Goal of the class:** To know clinical picture, diagnostics and differential diagnostics of various forms of apical periodontitis.

**Tasks of the class:**

1. To learn to a dental patient questioning with apical periodontitis.
2. To study basic methods of examination of patients with chronic forms of apical periodontitis.
3. To know additional methods of examination of patients having chronic forms of apical periodontitis.
4. To study clinical picture of different forms of apical periodontitis.
5. To be able to carry out differential diagnostics of various forms of apical periodontitis.

**Test questions on the class subject:**

1. Structure of apical periodontium. Notion of «pulp-periodontal complex».
2. Diagnostics of chronic apical periodontitis.
3. Clinical implications of chronic apical periodontitis according to the ICD-10 (1997) and classification of Ilya Lukomskiy (1994).
4. Clinical picture, diagnostics, differential diagnostics of radicular cyst (ICD-10, 1997).
5. Differential diagnostics of chronic apical periodontitis.
6. Aggravated chronic apical periodontitis, diagnostics, doctor's tactics.
7. Differential diagnostics of aggravated chronic apical periodontitis.

**Clinical challenges:**

**Challenge 1.** Patient L. comes to the dental clinic for periodic health examination. Objectively: On the distal surface of tooth 15 there is a filling. On the mesial surface there is a carious cavity. Probing and percussion are pain-free. During palpation of mucogingival junction in the projection of the root apex of tooth 15, defect of bone tissue is observed.

What examination methods are necessary to determine a final diagnosis? Determine a diagnosis.

**Challenge 2.** Patient D., 22 years old, reports dental fistula in the area of tooth 36. Objectively: tooth 36 is changed in color; on the occlusal surface there is a filling of chemical composite resin cement, and marginal gap is imperfect. Percussion and probing are pain-free. During palpation of mucogingival junction, there is no purulent discharge. Determine a provisional diagnosis. What examination methods are necessary to determine a final diagnosis?

**Challenge 3.** Patient B., 30 years old, reports a decay cavity in tooth 17. Objectively: on the occlusal surface there is a deep carious cavity; the tooth cavity is open, root canal orifices are visible, and their probing is pain-free. On the X-ray: at the apex of palatal root, there is a focus of bone tissue lesion with clear straight contour of 0,5–0,7 mm. The canals are not filled.

Determine a diagnosis. Are any other examination methods necessary to determine a diagnosis?

**Challenge 4.** A 51 year old female patient reports food sticking in a right inferior tooth. Objectively: distal masticatory surface of tooth 45 has a deep carious cavity filled with dense pigmented dentin that doesn't communicate with the tooth cavity. The patient is diagnosed with chronic deep caries. What method of examination will allow the dentist to eliminate chronic periodontitis:

- a) electric pulp test;
- b) probing;
- c) palpation of projection of root apex;
- d) percussion;
- e) cold test?

**STUDY GUIDE FOR PRACTICAL CLASS № 12**

**Subject of the class:** Mechanical root canals treatment. Instructions on how to work with endodontic instruments in the clinic.

Total term time — 245 minutes.

**Goal of the class:** To know the principles of mechanical root canal treatment.

**Tasks of the class:**

1. To study endodontic teeth preparation.
2. To explain dental X-rays of teeth of the upper and lower jaws.
3. To know modern endodontic instruments.
4. To be able to carry out mechanical root canal treatment.

**Test questions on the class subject:**

1. Notion of modern endodontic treatment. Indications, goals, tasks.
2. The basic instructions on how to carry out endodontic preparing technique.
3. Principles of endodontic preparation of tooth crown; goals and tasks.
4. The basic anatomic features of every tooth in three views, age-related changes to be taken into consideration.
5. Significance of anatomic information while carrying out endodontic preparation of tooth crown.
6. Technique of endodontic preparation of tooth crown and tooth root; quality standards of performance.
7. Standards and classification of endodontic instruments. The ISO international standard.
8. Instruments for opening dental cavity and finding canal orifices.
9. Diagnostic instruments.
10. Instruments for extracting soft tissue from the root canal.
11. Instruments for root canals widening and straightening. Endodontic handpieces. Nickel-titanium instruments for root canals widening. Instruments for root canals penetrating, widening and forming:
  - a) K-type instruments;
  - b) modification of the K-type instruments;
  - c) H-type instruments;
  - d) modifications of the H-files;
  - e) instruments of other types;
  - f) handpieces for root canal treatment.

**Clinical challenges:**

**Challenge 1.** Enumerate endodontic instruments.

**Challenge 2.** On the basis of diagnostic findings and X-ray, patient I., 35 years old, is diagnosed with chronic apical periodontitis. Enumerate the treatment stages and methods of endodontic preparation of root canal.

**Challenge 3.** Patient L., 27 years old, is diagnosed with pulp necrosis. Mention the stages and instruments for endodontic preparation of root canal.

**Subject of the class:** Techniques of root canal preparation. Determination of root canal length in the clinic.

Total term time — 245 minutes.

**Goal of the class:** To know techniques of instrumental root canal treatment.

**Tasks of the class:**

1. To study principles of endodontic teeth preparation.
2. To explain dental X-rays of teeth of the upper and lower jaws.
3. To know modern endodontic instruments.
4. To be able to carry out mechanical treatment of root canals.
5. To be able to carry out instrumental treatment of root canals by the Step Back and Crown-Down methods.
6. To be able to determine working length of root canals. To know different ways of its determination.
7. To know possible mistakes and complications at the stages of endodontic preparation of tooth crown and roots, to know the causes.

**Test questions on the class subject:**

1. Principles of endodontic preparing of tooth roots; goals and tasks.
2. Indications for choosing techniques of instrumental root canal treatment (apical-coronal and coronal-apical).
3. Clinical evaluation of diagnostic X-rays.
4. Techniques of instrumental treatment of root canals:
  - apical-coronal («Step back»);
  - coronal-apical («Step Down» = «Crown Down»).
5. Working length of root canal and ways of its determination (effective length of tooth and root, X-ray method, apex locator, etc.).
6. Notion of anatomical, physiological and X-ray apex of root canal, «Master File».
7. The basic anatomic features of every tooth in three views; age-related changes to be taken into consideration.

**Clinical challenges:**

**Challenge 1.** Having been examined, patient V., 26 years old, is diagnosed with acute pulpitis of tooth 23. Justify the treatment method, sequence of the dentist's actions, technique of root canal treatment. Enumerate endodontic instruments.

**Challenge 2.** Specify the order of instruments to be applied for the root canal treatment by the Step-Back method.

**Challenge 3.** Specify the order of instruments to be applied for the root canal treatment by the Crown-Down method.



## STUDY GUIDE FOR PRACTICAL CLASS № 14

**Subject of the class:** Root canal treatment with medications. Medicaments for intracanal therapy in the clinic.

Total term time — 245 minutes.

**Goal of the class:** To know medications and principles of root canals treatment with medicaments.

**Tasks of the class:**

1. To learn to choose medicaments for root canal treatment with medications.
2. To learn to determine indications for intracanal therapy.
3. To learn to fill in dental medical record of a patient with apical periodontitis.

**Test questions on the class subject:**

1. Classification of medicaments used in endodontia.
2. Medicaments for antiseptic treatment of root canals:
  - for irrigation;
  - for temporary filling (specify the period of exposure);
  - for temporary filling of teeth root canals: with corticosteroids and antibiotics, metronidazole, mixture of antiseptics, calcium hydroxide (specify the period of exposure, advantages/disadvantages).
3. Irrigation technique of teeth root canals.
4. Medications for chemical widening of teeth root canals.
5. Alternative methods of root canals disinfection:
  - laser irradiation;
  - photo radiation;
  - ultrasonic disinfection;
  - disinfection with medical ozone;
  - disinfection with depopohoresis of copper and calcium hydroxide.

**Clinical challenges:**

**Challenge 1.** Patient L., 35 years old, comes to the dentist complaining of acute pain in tooth 46. Objectively: tooth 46 is changed in color, with pink shade. On the mesial, occlusal and distal surfaces of the tooth, there is a filling with imperfect marginal gap. Vertical percussion of tooth 46 is very painful. There is hyperaemia and infiltration at the mucogingival junction in the area of this tooth. Determine a diagnosis. Decide on the plan of the tooth treatment and Justify the necessity of intracanal therapy with medications.

**Challenge 2.** Patient A, 19 years old, comes to the dentist complaining of pain in tooth 16 when biting. Objectively: on the occlusal surface of tooth 16, there is a deep decay cavity; percussion is pain-free. There is no reaction to cold test. Enumerate the sequence of actions during treatment with medications. Determine a diagnosis. Enumerate the stages of tooth 16 treatment.

## STUDY GUIDE FOR PRACTICAL CLASS № 15

**Subject of the class:** Techniques of root canal obturation. Medications for filling root canals.

Total term time — 245 minutes.

**Goal of the class:** To master techniques of root canal obturation. Indications and contraindications for using medications for filling root canals.

**Tasks of the class:**

1. To master technique of endodontic treatment of pulpitis and apical periodontitis.

2. To learn to evaluate quality of endodontic treatment of pulpitis and apical periodontitis.

3. To learn to fill in a dental medical record of a patient with pulpitis and apical periodontitis.

**Test questions on the class subject:**

1. Classification of materials for root canal obturation.

2. Characteristics of the main groups of sealers.

3. Composition and qualities of gutta-percha.

4. Technique of lateral condensation (criteria of correct fitting of the main post, selection of spreader and additional posts, techniques of filling root canals with sealer).

5. Mistakes during root canals filling.

6. Complications during root canals filling.

**Clinical challenges:**

**Challenge 1.** Basing on examination (subjective and objective) of patient L., 20 years old, the dentist has got the following data: dental X-ray of tooth 12 shows that in the root canal, there are traces of inhomogeneous dental filling material in the orifice and middle third, at a distance of 2 mm from apex. At the apex of tooth 12, there is an integrity violation of compact plate of alveolus. Aggressive lesion is round-shaped with sharp contours, 3–4 mm in diameter. Determine a diagnosis. Decide on the treatment tactics.

**Challenge 2.** Patient L., 35 years old, comes to the dentist complaining of acute pain in tooth 46. Objectively: tooth 46 is changed in color, with pink shade. On the mesial, occlusal and distal surfaces of the tooth, there is a filling with imperfect marginal gap. Vertical percussion of tooth 46 is very painful. There is hyperaemia and infiltration at the mucogingival junction in the area of this tooth. Determine a diagnosis. Decide on the plan of the tooth treatment.

**Challenge 3.** Patient A., 19 years old, comes to the dentist complaining of pain, in tooth 16 when biting. Objectively: on the occlusal surface of tooth 16, there is a deep decay cavity. Probing of caries and percussion are pain-free. There is no reaction to cold test.

Enumerate necessary additional examination methods. Determine a diagnosis. Enumerate the stages of the tooth 16 treatment.

**Challenge 4.** While preparing patient V., 56 years old, for dental prosthetics, on the dental panoramic X-ray there have been revealed aggressive lesions of bone tissue, 3–4 mm in diameter, with sharp contours in the area of root apices of teeth 17, 28 and 41. A year ago, the patient suffered infective endocarditis. Enumerate the necessary examination methods. Make up a treatment plan of the patient.

## STUDY GUIDE FOR PRACTICAL CLASS № 16

**Subject of the class:** Mistakes and complications during diagnostic and treatment of pulpitis and apical periodontitis, preventive measures.

Total term time — 245 minutes.

**Goal of the class:** To know possible mistakes and complications during treatment of pulpitis and apical periodontitis, to know preventive measures.

**Tasks of the class:**

1. To study possible mistakes and complications during pulpitis treatment.
2. To study possible mistakes and complications during apical periodontitis treatment.
3. To know preventive measures of possible complications during pulpitis and apical periodontitis treatment.
4. To study methods to eliminate complications during pulpitis treatment.

**Test questions on the class subject:**

1. Mistakes in diagnosing pulpitis.
2. Mistakes in diagnosing apical periodontitis.
3. Mistakes while choosing pulpitis treatment technique.
4. Mistakes while applying technique of saving tooth pulp.
5. Mistakes while treating pulpitis with vital extirpation.
6. Mistakes while treating pulpitis with devital method.
7. Mistakes while choosing apical periodontitis treatment technique.
8. Significance of the rubber dam (Germ. Kofferdam) system and rules of aseptic in endodontic treatment.
9. Deontological problems in diagnostics and treatment of pulpitis and apical periodontitis. Necessity of documentation in endodontic treatment.

**Clinical challenges:**

**Challenge 1.** Patient A. complains of pain in tooth 26 when affected by hot food. From anamnesis: a week ago, the tooth was treated for acute pulpitis. Clinically observed: tooth 26 is under filling. On the dental X-ray: palatine canal is 1/4 filled, buccal canals are not filled. Describe your actions. Make up the treatment plan. Determine a diagnosis.

**Challenge 2.** Patient K. comes to the dentist complaining of colicky pains from thermal stimuli and night pains of tooth 46 within two days. With anesthesia, the dentist performed cavity preparation, opened and exposed the tooth cavity. In the trifurcation area, the doctor carried out perforation of the cavity floor. Determine a diagnosis. Make up the treatment plan and describe your actions in this situation.

**Challenge 3.** Patient P. is being treated for chronic apical periodontitis of tooth 11. During mechanical root canal treatment, N-file breaks off in the root canal of tooth 11. What will your following steps be in this situation?

РЕПОЗИТОРИЙ БГМУ

## **QUESTIONS FOR THE EXAM IN DENTAL THERAPY FOR THE 3rd YEAR STUDENTS**

1. Sterilization of dental tools. Preparation before sterilization.
2. Diagnostic techniques in dental therapy.
3. Plan of the patient's initial examination.
4. Dental records. Dental paperwork: registration and report.
5. Index assessment of dental status.
6. Personal oral hygiene. Hygiene products. Qualifying standards.
7. Professional oral hygiene. Stages.
8. Methods of dental deposits display. Oral hygiene indexes. Methods of dental deposits removal.
9. Risk factors of gingival inflammation genesis.
10. Clinical signs of gingivitis. Diagnostic techniques. Gingival Index (GI, Loe-Silness), methods of display. Interpretation.
11. Preventive and curative measures of gingival inflammation elimination.
12. Clinical signs of destruction in tissues of marginal periodontium.
13. Clinical methods of testing that characterize destruction in periodontal tissues. Complex Periodontal Index (CPI). Methods of identification. Interpretation.
14. Dental caries. Mechanism of tooth decay, epidemiology, classification.
15. Definition of dental caries. Caries classification: international (ICD-10), clinical and topographical (G.V. Black classification), etc.
16. Tooth decay risk factors. Resistance to caries and susceptibility to caries.
17. Current concept of tooth decay.
18. Caries limited to enamel (White spot lesions). Clinical picture. Differential diagnostics.
19. Caries limited to enamel (superficial caries). Clinical picture. Differential diagnostics.
20. Caries limited to enamel. Differential diagnostics.
21. Caries limited to enamel. Treatment.
22. Caries of dentine. Clinical picture. Diagnostic techniques.
23. Caries of dentine. Differential diagnostics.
24. Caries of dentine. Treatment modes.
25. Diagnostics of masticatory teeth occlusal surface caries.
26. Treatment of masticatory teeth occlusal surface caries. Selection of filling material.
27. Diagnostics of masticatory teeth proximal surface caries.
28. Treatment of masticatory teeth proximal surface caries. Selection of filling material.
29. Contact points. Methods of restoration.

30. Diagnostics of precervical caries.
31. Treatment of precervical caries. Selection of filling material.
32. Indication for selection of filling material during the carious cavity restoration of different localization.
33. Probable mistakes and complications during dental caries diagnostics.
34. Probable mistakes and complications during dental caries treatment.
35. Theoretics of dental caries prevention.
36. Prevention of dental caries in adults.
37. Fluoride in prevention of caries. Methods of fluoridation.
38. Toothpaste. Composition. Requirements. Recommendations for selection.
39. Methods of forecasting tooth decay.
40. Hypoplasia of the tooth hard tissues. Etiology. Clinical picture. Differential diagnostics. Treatment modes. Prevention.
41. Ecdemic mottled teeth. Etiology. Clinical picture. Differential diagnostics. Treatment modes. Prevention.
42. Endemic mottled teeth (dental fluorosis). Etiology. Clinical picture. Differential diagnostics. Treatment modes. Prevention.
43. Erosion of the tooth hard tissues. Etiology. Clinical picture. Differential diagnostics. Treatment modes. Prevention.
44. Wedge-shaped tooth defect. Etiology. Clinical picture. Differential diagnostics. Treatment modes. Prevention.
45. Treatment modes of pre-eruptive tooth pathology. Selection of filling material for dental restoration.
46. Treatment modes of post-eruptive tooth pathology. Selection of filling material for dental restoration.
47. Methods of anesthesia. Anesthetics used in dental therapy.
48. Local anesthesia indications and contraindications during dental therapy treatment.
49. Local anesthesia complications. Prevention of complications.
50. Minimally invasive methods of dental caries operative treatment. Indications and contraindications. Techniques.
51. Types of insulating pads. Composition. Properties. Indications for use. Methods of usage.
52. Types of pulp caps. Composition. Properties. Indications for use. Methods of usage.
53. Clinical peculiarities of amalgam usage during dental restoration.
54. Clinical peculiarities of composites usage during dental restoration.
55. Dental composites. Classification.
56. Methods of adhesive preparation for tooth restoration.
57. Adhesive systems. Classifications. Composition. Properties. Indications for use.

58. Main stages in working with adhesive systems.
59. Self-curing dental composites. Composition. Properties. Indications and contraindications. Procedure.
60. Main stages in working with self-curing dental composites.
61. Light-curing dental composites. Composition. Properties. Indications and contraindications. Procedure.
62. Main stages in working with light-curing composites.
63. Criteria of the filling quality evaluation.
64. Pulpitis. Etiology. Pathogenesis. Classifications (WHO, 1997; Gofung).
65. Acute pulpitis. Clinical picture. Diagnostic techniques. Treatment.
66. Acute pulpitis treatment modes.
67. Suppurative acute pulpitis. Clinical picture. Diagnostics. Differential diagnostics. Treatment.
68. Suppurative acute pulpitis treatment modes.
69. Chronic pulpitis. Clinical picture. Diagnostics. Differential diagnostics. Treatment.
70. Chronic pulpitis treatment modes.
71. Chronic hyperplastic pulpitis. Clinical picture. Diagnostics. Differential diagnostics. Treatment.
72. Chronic hyperplastic pulpitis treatment modes.
73. Chronic ulcerative pulpitis. Clinical picture. Diagnostics. Differential diagnostics. Treatment.
74. Chronic ulcerative pulpitis treatment modes.
75. Pulp necrosis. Etiology. Pathogenesis. Clinical picture. Diagnostics. Differential diagnostics. Treatment.
76. Pulp necrosis treatment modes.
77. Differential diagnostics of different forms of pulpitis.
78. Diagnostic errors and complications during pulpitis treatment.
79. Pulpitis treatment modes.
80. Pulpitis treatment under local anesthesia. Indications and contraindications. Treatment stages.
81. Pulpitis treatment using devitalizing pastes. Indications. Contraindications. Treatment stages.
82. Errors and complications during pulpitis treatment.
83. Apical periodontitis. Etiology. Pathogenesis. Classifications (WHO, 1997; Lukomskiy, 1936).
84. Acute apical periodontitis. Clinical picture. Diagnostic techniques. Emergency care.
85. Chronic apical periodontitis. Clinical picture. Diagnostic techniques.
86. Errors and complications in diagnosing apical periodontitis.

87. Root canal preparation. Rules to follow when working with dental tools in clinic.
88. Root canal preparation techniques.
89. Clinical methods of the root canal length determination.
90. Endodontic tools. Classification. Rules to follow.
91. Root canal preparation using the Step-back technique.
92. Root canal preparation using the Crown-down technique.
93. Root canal irrigation.
94. Medicines for clinical root canal therapy.
95. Methods of root canal obturation.
96. Root canal filling materials. Classification. Indications and contraindications. Methods of usage.
97. Quality evaluation of endodontic treatment.

### **EVALUATION CRITERIA OF STUDENT'S KNOWLEDGE AT THE COURSE EXAM**

#### **10 (ten) points:**

- to have systemised, profound and full knowledge of all the sections of the educational program on dental therapy (3rd year), as well as to know the main questions of related subjects;
- to be able to use scientific terminology (in foreign language, as well), to answer questions in a stylistically correct and logical manner;
- to perfectly handle instruments for diagnostics and treatment of hard dental tissues, tissues of periodontium, oral mucous membrane, to be able to use it efficiently and as necessary;
- to be able to individually and creatively solve challenging tasks in non-typical clinical situations in the framework of the educational program on dental therapy (3rd year);
- to have full and profound knowledge of materials from the main and additional sources, recommended by the educational program on dental therapy (3rd year);
- to be competent in theories and aspects of the dental therapy sections and evaluate them critically;
- to be able to work individually and creatively in practical classes, participate in group discussions and have a high level of performance of tasks;
- to attend scientific students group on dental therapy, be involved in research work, to take part in academic competitions on dental therapy;
- to get a final score not less than 7 for the 5th and 6th semesters;
- to accomplish the practical minimum for the 5th, 6th semesters.



**9 (nine) points:**

- to have systemised, profound and full knowledge of all the sections of the educational program on dental therapy (3rd year), as well as to know the main questions of related subjects;
- to be able to use scientific terminology (in foreign language, as well), to answer questions in a stylistically correct and logical manner;
- to perfectly handle instruments for diagnostics and treatment of hard dental tissues, tissues of periodontium, oral mucous membrane, to be able to use it efficiently and as necessary;
- to be able to individually and creatively solve challenging tasks in non-typical clinical situations in the framework of the educational program on dental therapy (3rd year);
- to fully acquire material from the main and additional literature, recommended by the educational program on dental therapy (3rd year);
- to be competent in theories and aspects of the dental therapy sections and evaluate them critically;
- to be able to work individually and actively in practical classes, systematically participate in group discussions of subjects and have a high level of performance of tasks;
- to get a final score not less than 7 for the 5th and 6th semesters;
- to accomplish the practical minimum for the 5th, 6th semesters.

**8 (eight) points:**

- to have systemised, profound and full knowledge of all the questions of the educational program on dental therapy (3rd year);
- to be able to use correctly scientific terminology (in foreign language, as well), to answer questions in a stylistically correct manner and make reasonable conclusions;
- to handle instruments for diagnostics and treatment of hard dental tissues, tissues of periodontium, oral mucous membrane, to be able to use it efficiently and as necessary;
- to be able to individually solve challenging tasks in typical clinical situations in the framework of the educational program on dental therapy (3rd year);
- to acquire material from the main and additional literature, recommended by the educational program on dental therapy (3rd year);
- to be competent in the main theories and aspects of the dental therapy sections (3rd year) and evaluate them critically;
- to work individually and actively in practical classes, participate in group discussions of subjects and have a high level of performance of tasks;
- to get a final score not less than 7 for the 5th and 6th semesters;
- to accomplish the practical minimum for the 5th, 6th semesters.

**7 (seven) points:**

- to have systemised, profound and full knowledge of all the sections of the educational program on dental therapy (3rd year);
- to be able to use scientific terminology (in foreign language, as well), to answer questions in a logically correct manner and make reasonable conclusions;
- to handle instruments for diagnostics and treatment of hard dental tissues, tissues of periodontium, oral mucous membrane, to be able to use it efficiently and as necessary;
- to acquire material from the main and additional literature, recommended by the educational program on dental therapy (3rd year);
- to be competent in the main theories and aspects of the dental therapy sections (3rd year) and evaluate them critically;
- to work individually in practical classes and have a high level of performance of tasks;
- to accomplish the practical minimum for the 5th, 6th semesters.

**6 (six) points:**

- to have quite full and systemised knowledge of all the sections of the educational program on dental therapy (3rd year);
- to be able to use necessary scientific terminology, to answer questions in a logically correct and stylistically correct manner and make reasonable conclusions;
- to individually make typical decisions in typical clinical situations in the framework of the educational program on dental therapy (3rd year);
- to handle dental instruments for diagnostics and treatment of hard dental tissues, tissues of periodontium, oral mucous membrane;
- to acquire material from the main literature, recommended by the educational program on dental therapy (3rd year);
- to be competent in the basic theories and aspects of dental therapy according to the educational program (3rd year);
- to work individually in practical classes, sometimes participate in group discussions of subjects and have a high level of performance of tasks;
- to accomplish the practical minimum for the 5th, 6th semesters.

**5 (five) points:**

- to have sufficient amount of knowledge of all the sections of the educational program on dental therapy (3rd year);
- to use scientific terminology, to answer questions in a logically correct manner and make conclusions;
- to handle dental instruments for diagnostics and treatment of patients having problems with hard dental tissues, tissues of periodontium, oral mucous membrane;

- to individually make typical decisions in typical clinical situations in the framework of the educational program on dental therapy (3rd year);
- to acquire material from the main literature, recommended by the educational program on dental therapy (3rd year);
- to be competent in the basic theories and aspects of dental therapy according to the educational program (3rd year), to evaluate them comparatively;
- to work individually in practical classes, participate in group discussions of subjects and have a high level of performance of tasks;
- to accomplish the practical minimum for the 5th, 6th semesters.

**4 (four) points PASS:**

- to have sufficient level of knowledge of dental therapy according to the educational program (3rd year);
- to acquire material from the main literature, recommended by the educational program on dental therapy (3rd year);
- to use scientific terminology and make conclusions without serious mistakes;
- to partially handle instruments for diagnostics and treatment of patients having problems with hard dental tissues, tissues of periodontium, oral mucous membrane;
- to solve typical situational challenges under the teacher`s guidance;
- to be competent in the main theories and aspects of dental therapy according to the educational program (3rd year), to evaluate them;
- to work under the teacher`s guidance in practical classes and have an acceptable level of performance of tasks;
- to accomplish the practical minimum for the 5th, 6th semesters.

**3 (three) points NON-PASS:**

- to have insufficient amount of knowledge of dental therapy in the framework of the educational program (3rd year);
- to have insufficient knowledge of material from the main literature, recommended by the educational program on dental therapy (3rd year);
- to be unable to use scientific terminology or use it incorrectly; to answer questions with serious logical and linguistic mistakes;
- absence of skills to use dental instruments for diagnostics and treatment of patients having problems with hard dental tissues, tissues of periodontium, oral mucous membrane;
- to make incompetent decisions in typical clinical situations according to the educational program on dental therapy (3rd year);
- to be incompetent in the main theories and aspects of dental therapy according to the educational program (3rd year);
- to be inactive in practical classes and to have a low level of performance of tasks.

**2 (two) points NON-PASS:**

- to have fragmentary knowledge of dental therapy according to the educational program (3rd year);
- absence of knowledge of the main literature, recommended by the educational program on dental therapy (3rd year);
- to be unable to use scientific terminology and to answer questions with serious stylistic and logical mistakes;
- to be inactive in practical classes and have a low level of performance of tasks.

**1 (one) score NON-PASS:**

- absence of competence and knowledge of materials under study about dental therapy according to the educational program (3rd year); or refusal to answer.

## LITERARY SOURCES

1. *Apical periodontitis : etiology, pathogenesis, classification : teaching aids* / L. A. Kazeko [et al.]. Minsk : BSMU, 2015. 28 p.
2. *Garg, N. Textbook of Endodontics* / N. Garg, A. Garg. 2nd ed. Jaypee Brothers Medical Publishers (P) Ltd, 2010. 540 p.
3. *Garg, N. Textbook of operative dentistry* / N. Garg, A. Garg. 2nd ed. Jaypee Brothers Medical Publishers (P) Ltd, 2013. 605 p.
4. *Kazeko L. A. Root canal irrigants and medications : teaching aids* / L. A. Kazeko, E. L. Kolb. Minsk : BSMU, 2015. 28 p.
5. *Kazeko, L. A. Dental caries : clinical picture, diagnosis, prediction, treatment : teaching aids* / L. A. Kazeko, Y. V. Modrinskaya, K. V. Sevrucovich. Minsk : BSMU, 2014. 30 p.
6. *Kazeko, L. A. Dental caries : etiology, pathogenesis, prevention : teaching aids* / L. A. Kazeko, K. V. Sevrucovich. Minsk : BSMU, 2014. 19 p.
7. *Kazeko, L. A. Pulpitis : diagnostics, clinical manifestations, treatment : teaching aids* / L. A. Kazeko, Y. V. Modrinskaya, K. V. Sevrucovich. Minsk : BSMU, 2015. 28 p.
8. *Kazeko, L. A. Pulpitis : etiology, pathogenesis, classification : teaching aids* / L. A. Kazeko, Y. V. Modrinskaya, K. V. Sevrucovich. Minsk : BSMU, 2014. 19 p.

## CONTENTS

Introduction.....	3
Practical lessons module.....	7
Study guide for practical class 1.....	8
Study guide for practical class 2.....	9
Study guide for practical class 3.....	10
Study guide for practical class 4.....	11
Study guide for practical class 5.....	12
Study guide for practical class 6.....	13
Study guide for practical class 7.....	16
Study guide for practical class 8.....	18
Study guide for practical class 9.....	20
Study guide for practical class 10.....	22
Study guide for practical class 11.....	23
Study guide for practical class 12.....	24
Study guide for practical class 13.....	25
Study guide for practical class 14.....	27
Study guide for practical class 15.....	28
Study guide for practical class 16.....	29
Questions for the exam in dental therapy for the 3rd year students.....	31
Evaluation criteria of student`s knowledge at the course exam.....	34
Literary sources.....	39

Учебное издание

**Казеко Людмила Анатольевна**

**Колб Екатерина Леонидовна**

**РУКОВОДСТВО ДЛЯ ПРАКТИЧЕСКИХ ЗАНЯТИЙ  
ПО ТЕРАПЕВТИЧЕСКОЙ СТОМАТОЛОГИИ.  
МАТЕРИАЛЫ В СТОМАТОЛОГИИ.  
ЭНДОДОНТИЯ**

**GUIDE FOR PRACTICAL CLASSES  
IN DENTAL THERAPY.  
MATERIALS IN DENTISTRY.  
ENDODONTICS**

Учебно-методическое пособие

На английском языке

Ответственная за выпуск Л. А. Казеко

Переводчик Е. Л. Колб

Компьютерная верстка С. Г. Михейчик

Подписано в печать 21.05.15. Формат 60×84/16. Бумага писчая «Снегурочка».

Ризография. Гарнитура «Times».

Усл. печ. л. 2,32. Уч.-изд. л. 1,8. Тираж 40 экз. Заказ 388.

Издатель и полиграфическое исполнение: учреждение образования  
«Белорусский государственный медицинский университет».

Свидетельство о государственной регистрации издателя, изготовителя,  
распространителя печатных изданий № 1/187 от 18.02.2014.

Ул. Ленинградская, 6, 220006, Минск.