**MINISTERUL SĂNĂTĂŢII AL REPUBLICII MOLDOVA**

**UNIVERSITATEA DE STAT DE MEDICINĂ ŞI FARMACIE**

**“NICOLAE TESTEMIŢANU”**

**Facultatea Stomatologie**

#### *CATEDRA DE PROPEDEUTICĂ STOMATOLOGICĂ „PAVEL GODOROJA”*

ENDODONȚIE PRECLINICĂ

## ***E L A B O R Ă R I M E T O D I C E***

*LA LUCRĂRILE PRACTICE PENTRU STUDENŢII*

*ANULUI III SEMESTRUL V*

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Şef catedră

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**Practical lesson nr. 1**

**Subject** : **Endodontics. General notions. Purpose and tasks of endodontics. The structure of the endodontic space.**

 **Control questions :**

1. Endodontics. General notions.
2. The purpose of endodontics.
3. The tasks of endodontics.
4. Diagnostic methods in endodontics.
5. Criteria favoring the success of endodontic therapy.
6. Pulp chamber. Topographic data of the coronary cavity of the tooth (bottom, ceiling, and walls).
7. Topographic data of root canals (main channel, ramifications).
8. Topographic data of the apical area: radiological apex, anatomical apex, apical constriction (minor apical diameter), foramen apical (major apical diameter), cement-dentinal junction.
9. Types of apical constrictions after Петрикас și Овсепян (1997).
10. Classification of canal morphotypes after Ingle (1976), Vertucci (1984), Weine (1989).
11. Factors generating changes in tooth cavity structure, including those of the age.

**Practical lesson nr. 2**

**Subject**: **Topographic anatomy of cavities of permanent teeth. Group and individual features.**

**Control questions :**

1. The peculiarities of the pulp cavity topography of the maxillary and mandibular central incisors, maxillary and mandibular lateral incisors.
2. The peculiarities of the topography of the cavity pulp and mandibular canine.
3. The peculiarities of the topography of the pulp chamber at the first maxillary and mandibular premolars.
4. The peculiarities of topography of the pulp chamber in the maxillary and mandibular premolars II.
5. The peculiarities of the topography of the pulp chamber in the maxillary and mandibular molars I, II and III.
6. Election points for trepanation and the shape of the access cavity for the upper and lower incisors.
7. Election points for trepanation and the shape of the access cavity in upper and lower canines.
8. Election points for trepanation and the shape of the access cavity in upper and lower premolars.
9. Election points for trepanation and the shape of the access cavity in the upper molars.
10. Election points for trepanation and the shape of the access cavity of the lower molars.
11. Instrument used for endodontic access.
12. Differences in the topography of the pulp chamber at the maxillary and mandibular incisors.
13. Differences in topography of the pulp chamber in maxillary canines and mandibular canines.
14. Differences in topography of the pulp chamber at the maxillary premolars and mandibular premolars.
15. Differences in topography of the pulp chamber at the maxillary molars and mandibular molars.

**Practical lesson nr. 3**

**Subject**: **Classification of anatomical and clinical forms of pulpary inflammation. Microbial factor in endodontic pathology. Necrosis and pulp gangrene. Techniques, materials and substances used to maintain pulp vitality. Local anesthesia in endodontics. Direct and indirect pulp capping.**

**Control questions:**

1. Classification of anatomical and clinical forms of pulpary inflammation.
2. Classification of pulp pathology by Baume.
3. Classification of pulp pathology by Seltzer and Bender.
4. Classification of pulp pathology by Ingle.
5. Classification of pulp pathology by Grossman.
6. Microbial factor in endodontic pathology.
7. Necrosis and pulp gangrene.
8. Techniques, materials and substances used to maintain pulp vitality.
9. Local anesthesia in endodontics.
10. Indirect pulp capping. Objectives.
11. Indirect pulp capping materials.
12. Indirect pulp capping technique.
13. Direct pulp capping. Indications and contraindications.
14. Conditions of application and direct pulp capping technique.

**Practical lesson nr. 4**

**Subject**: **Amputation methods and vital pulp extirpation. Devital treatment methods of the pulp. Totalization.**

**Control questions:**

1. Essence of amputation and vital extirpation, notion of pulpotomy.
2. Indications and contraindications of vital pulpotomy.
3. Advantages and disadvantages of vital pulpotomy.
4. The technique of vital pulpotomy.
5. Methods of vital pulpary extirpation.
6. The notion of devitalization of the pulp.
7. The remedies used for pulp devitalization.
8. Mechanism of action of arsenic acid and formaldehyde based pastes.
9. The stages of applying the devitalizing paste.
10. Methods of devital extirpation of the pulp. Essence.
11. Stages of devital pulp extirpation.

**Practical lesson nr. 5**

**Subject**: **Manual endodontic instruments. Methods of sterilization and disinfection. Aseptics in endodontics.**

**Control questions:**

1. Classification of endodontic instruments by ISO-FDI.
2. Endodontic Instrument Classification by Grossman.
3. Classification of endodontic instruments according to the method of use (Nisha Garg, 2014).
4. Classification of endodontic instruments by: instrument designation, method of making, the material from which it is made, instrument flexibility, tool length, coding of endodontic instruments according to size, the shape of the active part and the tip of the instrument, the conicity, the way of acting the instruments.
5. The dimensions of endodontic instruments according to ISO. Color coding of the endodontic instruments.
6. Standardization of endodontic instruments by ISO. Symbols by ISO.
7. Methods of sterilization and disinfection in endodontics.
8. Aseptics in endodontics.

**Practical lesson nr. 6**

**Subject**: **The rotor endodontic instrument. Endodontic handpieces.**

**Control questions:**

1. Stainless-steel rotating instruments.
2. Ni-Ti Rotary Instrument: Continuous Speed,
3. Protaper System.
4. Profile System.
5. Protaper Next Mover.
6. WaveOne System.
7. SAF (Self Adjusting File) System.
8. Endodontic handpieces.

**Practical lesson nr. 7**

**Subject**: **Determination of working length in root canals.**

**Control questions:**

1. The definition of the working length in the root canal, the length of the tooth.
2. Methods of determination of the working length of the root canal.
3. Classification: radiological and non-radiological methods.
4. Calculated length of tooth and root.
5. Tactile method.
6. Radiological method.
7. Clinical-radiological method for determining the length of the root canal. Technique. Instruments.
8. The Dieck process.
9. Electronic methods. Advantages, disadvantages. Indications. Instruments. Devices.

**Practical lesson nr. 8**

**Subject**: **The use of manual endodontic instruments in the permeability, enlargement and chemomechanical processing of the root canal. Totalization.**

**Control questions:**

1. Handling endodontic intruments.
2. Manual enlargement of the root canal.
3. Rules for instrumental processing of the root canal.
4. Reaming. Filling. Recap.
5. Method of chemical expansion of root canals.
6. Preparations for chemical widening of root canals.
7. Manual widening techniques: step-back technique, passive step-back technique, step-down technique (progressive telescopes), the double flare technique, the apical cylinder technique.
8. Ultrasonic root canal preparation.
9. Types of vibratory endodontic handpieces.

**Practical lesson nr. 9**

**Subject**: **The use of rotary endodontic instruments in the chemomechanical processing of the root canal.**

**Control questions:**

1. Rules of rotary widening.
2. Ni-Ti Rotary Systems.
3. Types of rotary movements: continuous rotation.
4. Universal ProTaper system, Profile system, ProTaper Next system, Wave One system.
5. Hybrid technique of widening of root canals.
6. Mutual Movement.

**Practical lesson nr. 10**

**Subject**: **Methods of disinfection and irrigation of root canals.**

**Control questions:**

1. Irrigation solutions: sodium hypochlorite, EDTA, iodurate solutions, chlorhexidine digluconate, MTAD, citric acid.
2. Irrigation techniques and protocols.
3. Requirements and functions of irrigants.
4. Choice of irrigation solutions.
5. Ultrasonic irrigation.
6. Modern irrigation solutions.
7. Irrigation methods.
8. Endovac.
9. Intracanalar drugs.

**Practical lesson nr. 11**

**Subject**: **Root canal filling materials. Classifications. Physical-chemical properties.**

**Control questions:**

1. Materials for filling.
2. Classification and requirements for radicular obturation materials.
3. Solid materials: gutta-percha.
4. Sealers: zinc oxide eugenol sealers, mineral trioxide aggregate.
5. Epoxy resins sealers for root canal filling.

**Practical lesson nr. 12**

**Subject**: **Filling root canals with different materials. Totalization.**

**Control questions:**

1. Radicular filling. The importance of canal filling.
2. The momentum of the canal filling.
3. The apical limit of the canal filling.
4. Radicular filling techniques. Classification.
5. Techniques of filling with single cone. Operating stages. Instruments, materials.
6. Lateral compactation technology. Tools, materials.
7. Vertical compactation technology. Operator stages. Instrument, materials.
8. Obturation of root canals with Thermafil technique, Gutta Core. Operating stages. Instruments.

**Practical lesson nr. 13**

**Subject**: **Endodontic retreatment**

 **Control questions:**

1. Endodontic retreatment.Decision factors. Stages.
2. Trepanation or removal of coronary obstruction or crowns.
3. Removal of corono-root posts.
4. Removal of existing coronary materials from canals.
5. Removal of coronal reconstruction materials from the pulp chamber.
6. Removal of endodontic obturation material.
7. Solvents for sealants.

**Practical lesson nr. 14**

**Subject**: **Imagistic examination in endodontic treatment.**

**Control questions:**

1. Retroalveolar radiography. Techniques.
2. Radiological highlights on the maxilla and mandible.
3. Radiological pathological dental calculi in dental caries, coronary fractures, radicular, external and internal resorbtions.
4. Digital radiography.
5. Cone beam computer tomography (CBCT).
6. The cone beam computer tomography exam value.
7. Indications of cone beam computer tomography in endodontics.

**Practical lesson nr. 15**

**Subject**: **Errors and complications in endodontics.**

**Control questions:**

1. Classification of errors and complications in endodontic treatment.
2. Accidents in root canal enlargement.
3. Ledges
4. Fenestration.
5. Apical transport.
6. Fracture of instruments into channels.
7. Treatment of accidents.
8. Incomplete anesthesia. Causes. Conduct.
9. Incorrect endodontic access. Causes. Conduct.
10. Possible errors (the perforation of the floor and the wall of the pulp chamber, the fracture of the wall).
11. Perforation of root canal walls. Causes. Consequences. Conduct.
12. Overfilling the root canal. Causes. Consequences. Conduct.
13. Root fracture. Causes. Conduct.
14. Inhalation of foreign bodies. Conduct.
15. Swallowing instruments. Causes. Conduct.
16. Emphysema of the soft tissues. Causes. Conduct.
17. Intracanal haemorrhage. Causes. Conduct.
18. Methods of preventing accidents in endodontic therapy.

**Practical lesson nr. 16**

**Subject**: **Modern methods restoration of endodontically treated teeth.**

**Control questions:**

1. Methods of direct restoration.
2. Simple coronary obturation.
3. Restoring anterior teeth.
4. Restoration of posterior teeth. Objectives. Indications. Contraindications.
5. Armed coronary obturation.
6. Preparing the root space.
7. Restoration of devital teeth with glass fiber posts.
8. Methods of indirect restoration (prosthetic).

**Practical lesson nr. 17**

**Subject**: **Clinical examination in endodontics. Totalization.**

**Control questions:**

1. Anamnesis.
2. Medical and dental anamnesis.
3. General clinical examination.
4. Clinical loco-regional examination.
5. Exooral and endooral examination.
6. Examining soft tissues.
7. Examination of dental arches.
8. Complementary examinations.
9. Thermal vitality tests. Hot test. The cold test.
10. Electrical vitality tests.
11. Mastication test.
12. The exploratory drilling test.
13. Selective anesthesia test.
14. Transillumination.
15. Radiological examination.

RECOMMENDED LITERATURE:

A. Compulsory:

* 1. Lecture materials.
	2. Iliescu A. Tratat de endodonție. București, 2015, 959 p.
	3. Garg N., Garg A. Textbook of Endodontics. New Delhi, London, Philadelphia, Panama, 2014, 603 p.
	4. Nicolau Gh., Terehov A., Năstase C., Nicolaiciuc V. Odontologie practică modernă. Iași, 2010, 448 p.
	5. Hargreaves K., Berman L.H. Cohen's Pathways of the Pulp. Missouri, 2016, 907 p.
	6. Nelson St. Wheeler's Dental Anatomy, Physiology and Occlusion, Ninth Edition. Missouri, 2010, 346 p.

B. Additional:

1. Burlacu V., Fala V. Secretele endodonției clinice. Ghid practic. Chișinău, 2007, 132 p.