Guidelines for independent work of students for preparation for a practical lesson and during the practical studies

<table>
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<tr>
<th>Academic discipline</th>
<th>Therapeutic dentistry</th>
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<td>Module number 3</td>
<td>Diseases of the periodontium</td>
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<tr>
<td><strong>Topic of the lesson 24</strong></td>
<td>Professional hygiene of oral cavity, its components, professional oral hygiene products, and methods for elimination of dental plaque.</td>
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<tr>
<td><strong>Course</strong></td>
<td>IV</td>
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<tr>
<td><strong>Faculty</strong></td>
<td>Foreign students training faculty (dentistry)</td>
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1. **Theme Actuality:**
At the present time, few specialists are able to properly maintain professional oral hygiene. In fact, it is a powerful and main stage in the fight against all modern dental diseases. It needs to know clearly and utilise modern methods of treatment aimed at elimination of local factors.

2. **Concrete aim:**
1. Explain the concept of «Professional oral hygiene».
2. Classify of the main methods of periodontal scaling.
3. Interpret the stages underpinning the manual techniques of dental plaque removal.
4. Analyze the main methods of dental plaque elimination.
5. Explain the effectiveness of various methods of periodontal scaling.
6. Propose a differentiated approach to the removal of dental deposits in a particular case.
7. Make a plan for treatment using professional oral hygiene.
8. Analyze the efficiency of cleaning the hard tissues of tooth surface using modern methods of periodontal scaling.

3. **Basic knowledge, abilities, skills necessary for studying the subject. (interdisciplinary integration).**

<table>
<thead>
<tr>
<th>The name of the previous disciplines</th>
<th>Skills learned</th>
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<tr>
<td>1 Anatomy, histology</td>
<td>To know the anatomical, histological structure of periodontal tissues.</td>
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<tr>
<td>2 Pathophysiology</td>
<td>Explain the pathophysiological processes during periodontal inflammation.</td>
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<td>3 Infectious diseases</td>
<td>To determine the microorganisms in the oral cavity.</td>
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<td>4 Propedeutics of therapeutic dentistry</td>
<td>Conduct a clinical examination of the patient.</td>
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<td>5 Propedeutics of surgical dentistry</td>
<td>To know the types of anesthesia, innervation of the maxillofacial area.</td>
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<tr>
<td>6 Therapeutic dentistry</td>
<td>To master the methods of elimination of dental deposits in patients with periodontal pathology.</td>
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4. **Tasks for independent work during preparation for the lesson.**
4.1. The list of main terms, parameters, characteristics, which should be taken by the student while preparing for the lesson:

<table>
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<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>1. Anesthesia at local interventions</td>
<td>Give the name of anesthesia methods at local interventions.</td>
</tr>
<tr>
<td>2. The methods for dental deposits removal</td>
<td>Indications for application. Give the name and characteristics of each method of dental deposits removal.</td>
</tr>
<tr>
<td>3. The final stage of local interventions</td>
<td>The methods of final processing of dental hard tissues at local interventions.</td>
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</table>
4.2. Theoretical questions of the lesson:
1. What local factors lead to periodontal inflammation?
2. The purpose of local interventions in the development of periodontal pathology.
3. The methods of soft dental deposits removal.
4. Give the name of methods of periodontal scaling.
5. What is the difference between application and instillation?
6. What is the polishing of dental hard tissues conducted by?
7. What are the advantages of hardware removal of dental calculus in comparison with mechanical?
8. Which preparation should be performed in hyperesthesia?
9. What is the dental floss used for?
10. What are the precautionary measures to be taken by a physician in the elimination of dental plaques?

4.3. Practical work (tasks) that are performed in the lesson:
1. Identify the local irritants in patients with periodontal pathology during clinical examination.
2. Conduct an index assessment of the hygienic state of the oral cavity, the presence of hard and soft deposits on teeth and condition of periodontal tissues.
3. To master the technique of application, instillation and injection anesthesia.
4. To master the technique of mechanical, chemical, hardware and combined methods of soft and mineralized dental deposits removal.
5. To learn the method of emergency care provision in the case of accidental injury during the elimination of dental deposits.

5. Content of the theme:
Almost all middle-aged people suffer from inflammation of the gums. Currently, the number of dentists, who consider professional hygiene as a powerful stage in the fight against modern dental diseases is significantly increasing. In the corresponding literature there is no single terminology that objectively characterizes the dental deposits. Under the same name, often mean different structural formations. Nowadays, the most popular term is "plaque" and it's translated in the Russian language as «бляшка» або «зубной налет».

All dental deposits can be grouped as follows:
Non-mineralized (soft) dental deposits.
- Cuticle;
- Película;
- Dense dental deposits (dental plaque);
- Soft dental deposits.
Mineralized dental deposits.
- Supragingival calculus;
- Subgingival calculus.

CUTICLE or reduced epithelium of the enamel organ, shortly after the tooth eruption is lost, therefore, does not play a significant role in the physiology of the tooth.

PELICULA (acquired cuticle) is formed on the surface of the tooth shortly
after its eruption, is a derivative of glycoproteins of the oral cavity. When removing the pelicula by abrasive method it is quickly restored if the tooth is in contact with saliva (20-30 minutes). The pelicula is an unstructured formation, which is tightly fixed to the surface of the tooth. Bacteria in the pelicle are not found. The diffusion and permeability of the surface layer of the enamel depends on the state of the pelicule, the change in the composition and properties of the pelicule may contribute to the development of caries.

DENTAL PLAQUE is located above the tooth pelicula, it is colorless, therefore, coloring solutions are used for its detection. The dental plaque is formed by adsorption of microorganisms on the surface of the enamel, tightly attached to it and grows due to the permanent layering of new bacteria. In addition, it contains epithelial cells, leukocytes and macrophages. In dental plaque formation, carbohydrates play a major role, which contribute to the adhesion of the plaque to the tooth surface.

SOFT DENTAL PLAQUE clearly visible without coloring with special solutions. It accumulates at night, during the rest of the speech and chewing apparatus, in persons who do not take regular care of the oral cavity. Soft plaque, unlike dense (mineralized), does not have a permanent structure. It consists of organic and inorganic substances that settled on the surface of the enamel as a result of the destruction of the cell congregation of envelope epithelium, which are rejected, the oral mucous membrane, leukocytes, microorganisms, residues of food, dust. Soft plaque is the cause of the smell of the mouth, changes in taste, as well as the main center of mineralization and the formation of solid dental deposits.

MINERALIZED DENTAL DEPOSITS (dental calculus) is a hardened mass that forms on the surface of natural and artificial teeth, as well as dentures. Depending on the ratio with the gums edge, supragingival and subgingival dental calculus are marked out.

Supragingival dental calculus is located above the crest of the gingival margin, it is easy to detect on the teeth surface. It is usually white or whitish-yellow, solid or clay-like consistency, easily detached from the tooth surface by scratching. Its color often depends on the action of tobacco or food pigments. Most commonly, supragingival dental calculus is localized on the cheek surfaces of the upper molars, on the tongue surfaces of the anterior teeth of the mandible. Supragingival dental calculus refers to the salivary type (formed from salivary mineral substances).

Subgingival dental calculus is located under marginal gums and usually in periodontal pockets. Subgingival calculus is not visible at the visual inspection of the oral cavity. Careful periodontal probe is required to determine the location and length of subgingival calculus. It is usually dense and solid, dark brown or greenish-black color and tightly attached to the tooth surface. Frequently, supragingival and subgingival calculus are found in patients. Subgingival calculus refers to a serum type (since it has been proven that the source of minerals for it is gums liquid that resembles serum).

Professional oral hygiene - a system of therapeutic and prophylactic
measures performed in a dental clinic, aimed at prevention of the onset and progression of oral cavity diseases.

There are four stages of professional hygiene of the oral cavity:

• Controlled tooth brushing;
• Removing tooth patches;
• Grinding and polishing;
• Fluorination.
• Controlled cleaning

Thoroughly examination of the patient with compulsory calculation of caries intensity indices, hygienic index (IG), assessment of the condition of the oral mucous membrane of the cavity and periodontal tissues. It is necessary to determine the type of bite teeth, the presence of active risk factors for dental diseases.

Then it is necessary to form a positive motivation for the patient to comply with the rules of hygiene of the oral cavity. It is important to inform the patient that the success of the treatment of periodontal diseases, the maintenance of healthy teeth, fillings and restorations depends on the quality of oral health care. It is advisable to conduct a controlled toothbrush cleaning. The patient brushes the teeth with an individual toothbrush, and then is carried out staining of the remaining plaque. (Plaviso (Voco), a tablet «Dent» (Japan), «Dinal» (Russia), etc. are used as a liquid plaque indicator.).

Simultaneously with controlled toothbrush cleaning procedure, the sequence of movements of the toothbrush, gum massage are memorized.

The selection of personal hygiene products is carried out, recommendations for selecting a toothbrush, toothpaste, tools for cleaning interdental gaps and rinses are given. In addition, recommendations for proper nutrition and possible use of chewing gum are given.

Removal of tooth patches. First of all, it is mandtory to carry out irrigation of the oral cavity with solutions of antiseptics (chlorhexidine, furacilin, metragyl, propolis, etc.) or infusions of medicinal herbs (St. John's wort, chamomile, sage, calendula, eucalyptus).

Methods of removing dental deposits:

• mechanical (instrumental)
• chemical
• hardware
• combined.

Tooth patch must be removed from all dental surfaces until they become smooth. After removal - polish the hard tissues of tooth. Polished surface of the crown, the cervix, the root of the tooth must be covered with fluoride-containing varnish or applications of remineralizing solutions. Depending on the condition of the parodont, a treatment band (self-hardening, not hardening, on a glutinous basis) to the area of the gum are applied.

When removing tooth patches, safety precautions should be followed (safety glasses, gauze mask, rubber gloves).

6. Materials for control:
A. Tests for self-control:
1. To assess the stability of capillaries is used:
   A. Schiller-Pisarev test;
   B. Kulazhenko test;
   C. Washed by Yasinovsky;
   D. Kotzschke test;
   E. Kavetsky test.

2. A patient N., 29 years old, complaints of the presence of dental deposits and a yellow tinge of teeth. Objectively: gums are hyperemic, swollen, bleeding during probe, periodontal pockets are absent. After the examination the dentist established the diagnosis and performed professional oral hygiene. Which remedies of professional hygiene are needed for effective treatment?
   A. Dental brush and polishing paste;
   B. Periodontological tool kit;
   C. Gel 20% Carbamide Peroxide;
   D. Gel 10% Carbamide Peroxide;
   E. Enzymes.

3. A patient K., 50 years old, suffers from gums pain and bleeding during teeth brushing. Objectively: gums are swollen, hyperemic, bleeding on probing. What test should be done to determine the degree of inflammation?
   A. Rotter test;
   B. Shiller-Pisarev test;
   C. Kavetsky test;
   D. Formalin test;
   E. Benzidine test.

4. A patient T., 44 years old, complaints of the mobility of the lower anterior teeth, bleeding gums, bad breath. In the patient’s history of life epilepsy is noted. Objectively: gums are hyperemic, swollen, there is a significant amount of subgingival dental calculus and movement of the front teeth of the second degree. As a result of the survey, the diagnosis was made: exacerbation of the chronic generalized parodontosis of the third degree. Which method of removing of dental plaque has a contraindication?
   A. Instrumental;
   B. Medicinal;
   C. Mechanical;
   D. Manual;
   E. Ultrasound.

5. A patient Y, 34 years old, suffers from bleeding gums during teeth brushing. Objectively: gums are swelling, bluish tint, bleeding on probing, periodontal pockets are absent. The Schiller-Pisarev test is positive. What is the previous diagnosis?
   A. Generalized periodontitis;
   B. Chronic hypertrophic gingivitis;
   C. Chronic catarrhal gingivitis;
   D. Acute catarrhal gingivitis;
E. Exacerbation of chronic catarrhal gingivitis.

6. The following indices belongs to hygienical:
   A. PI, PMA, CPITN;
   B. Schiller – Pisarev index;
   C. Fedorova – Volodkina’s index, Green – Vermillion’s index;
   D. PI;
   E. CPITN.

7. The PI index is used to:
   A. Determination of degree of inflammatory changes of parodontium;
   B. Determination of the depth of periodontal pockets;
   C. Determination of the state of oral hygiene;
   D. Determination of the capillary permeability;
   E. Estimation of the oral hygiene state and the detection of the dental plaque.

8. The clinical signs of catarrhal gingivitis are:
   A. Bleeding gums;
   B. The presence of dental plaque, bleeding gums;
   C. Edema and hyperemia of the gingival margin and interdermal papillae, bleeding gums, absence of periodontal pockets;
   D. Bleeding gums, cervical dentin hypersensitivity;
   E. Cervical dentin hypersensitivity.

9. A patient S., 63 years old suffers from bleeding of gums when brushing teeth. Complaints are appeared month ago. He did not immediately consult with a doctor. Exacerbation of chronic generalized peridontitis of the second degree is diagnosed by a dentist. What tools should be used to determine the quality of dental plaque removal.
   A. Dyes;
   B. Antiseptics;
   C. Inorganic acids;
   D. Organic acids;
   E. Enzymes.

10. A patient I., 32 years old, suffers from bleeding of gums during tooth brushing. Complaints are appeared month ago. Objectively: interdental papillae swollen, bluish tint, significant dental calculus are noted. Personal hygiene index constitutes 3.7 points. What is the plan for patient treatment in the first dental appointment?
    A. Professional oral hygiene;
    B. Anti-inflammatory therapy;
    C. Gingivectomy;
    D. Physiotherapy;
    E. Sclerotherapy.

B. Self-control tasks:

Task № 1.
Patient B., aged 18, complains of pain and bleeding gums while brushing teeth and eating. Complaints occurred a long time, the patient was periodically treated at the
dentist’s. Objectively: in the area of upper and lower front teeth, there is a marked bite pathology, hyperemia and proliferation of gingival papillae up to 1/3 of the height of crowns, dental plaque. Gums are easily bleeding on probing, no periodontal pockets. Which medicinal means is it appropriate to apply during the removal of dental plaque?

A. 3% hydrogen peroxide
B. Proteolytic enzyme;
C. Antibiotic
D. Keratoplastic
E. Keratolytic

Task № 2. Patient P., aged 22, complains of pain and bleeding gums when brushing teeth and eating solid food. Objectively: in areas of molars of the upper and lower jaws, there is non-mineralized supragingival dental plaque. Gums are easily bleeding on probing, no periodontal pockets. Which method of dental plaque removal is appropriate at the final stage of its mechanical removal?

A. Combined
B. Mechanical
C. Ultrasound
D. Air abrasive
E. Instrumental

Task № 3. Patient T., aged 33, appealed to the dentist for the purpose of routine medical examination. After examination, the following was diagnosed: exacerbation of chronic generalized periodontitis of I degree. What kind of toothpaste should be recommended to the patient at this stage of comprehensive treatment of periodontitis conducted after the instrumental removal of dental debris?

A. Salt
B. Fluorinated
C. Therapeutic
D. Hygienic
E. Mineralizing

Task № 4. Patient S., aged 25, complains of bleeding gums when brushing teeth. Objective findings: gums are hyperemic, swollen, bleeding on probing. There are soft dental deposits on all teeth. No periodontal pockets. After the diagnosis and subsequent removal of soft dental deposits, the patient was given recommendations on oral hygiene. Which index should be used by dentist to control oral hygiene of the patient during next visit?

A. CPI index
B. PMA (Parma)
C. Fedorov-Volodkina index
D. PI (Russel)
E. CPITN index

Task № 5. A 19-year-old patient complains about gingival haemorrhage during tooth brushing. Objectively: gums around all the teeth are hyperemic and
edematic, PMA index (papillary marginal alveolary index) is 46%, Greene-Vermillion hygiene index is 2.5. Provisional diagnosis: chronic generalized catarrhal gingivitis. This patient should be recommended to use a toothpaste with the following active component:

A. Calcium glycerophosphate  
B. Chlorhexidine  
C. Monofluorophosphate  
D. Vitamins A, D, E  
E. Microelement complex 

Task № 6. A 23-year-old patient complains about gingival haemorrhage during tooth brushing, intensive formation of dental plaque despite thorough dental care. Objectively: gingival papillae are slightly edematic, congestively hyperemic, bleed when touched. Hygiene index according to Fedorov and Volodkina is 3.5. What toothpaste would you recommend this patient as a part of complex therapy?

A. Gel toothpaste with microelements  
B. Toothpaste containing mineralizing components  
C. Fluorine-containing toothpaste  
D. Salt-containing toothpaste  
E. Toothpaste with antifungal agents 

Task № 7. Patient K., 32 years old, complains of bleeding gums. After the examination, the diagnosis was made: chronic generalized periodontitis of the II degree. At the final stage of professional oral hygiene in order to control the quality of removal of dental plaque, use:

A) Inorganic acids  
B) Organic acids  
C) Dyes  
D) Enzymes  
E) Antiseptics 

Task №8. A gravida (36 weeks) complains of gingival haemorrhages and excessive plaque despite a thorough hygienic care of oral cavity. Objectively: gingival papilla and marginal gingival edge are spongiose, bleeding when touched. Fedorov-Volodkina’s hygiene index is 3.7 points. What kind of toothpaste should be recommended to this patient after the professional oral hygiene?

A Fluorine-containing toothpaste  
B. Toothpaste with mineralizing agents  
C. Calcium-containing toothpaste  
D. Herbal toothpaste  
E. Gel toothpaste 

Task №9. Patient K., 22 years old, complains of gingival haemorrhages during tooth brushing. Objectively: gingival mucosa is hyperemic, pastous, bleeds when touched. Schiller-Pisarev test is positive. PMA index - 70%. Hygienic index - 3.0. X-ray picture of the frontal area depicts no evident changes. What is the most likely diagnosis?

A. Chronic catarrhal gingivitis  
B. Chronic periodontitis
C. Acute catarrhal gingivitis
D. Chronic hypertrophic gingivitis
E. Exacerbation of chronic periodontitis

Task №10. Patient M., 40 years old, complains of bleeding gums while eating and brushing teeth. She has a history of epilepsy. Objectively: the gums are swollen, hyperemic, a significant amount of dental plaque is determined. Which professional hygiene method is indicated?
A. Instrumental
B. Combined
C. Mechanical
D. Manual
E. Chemical

7. Basic sources

Additional sources

Electronic resources:

Guidelines compiled assistant of the department therapeutic dentistry, PhD O.P. Kostyrenko