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DEPARTMENT OF THE GENERAL AND OPERATIONAL SURGERY
WITH TOPOGRAPHICAL ANATOMY AND COURSE OF STOMATOLOGY

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METHODICAL INSTRUCTIONS FOR ORGANIZATION PRACTICAL EXERCISE ON THE DISCIPLINE Stomatology FOR SPECIALTY 05.31.01 «MEDICAL BUSINESS»

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Guidelines are prepared in accordance with the PRACTICAL program of the discipline " Stomatology ", according to the current curriculum. The structure includes guidelines for each topic studied according to the plan of classroom practical work. The guidelines are intended for training students in practical classes of the faculty of medicine, studying in the specialty 31.05.01-Medical business and 31.05.02. –Pediatrics.

LESSONS 1

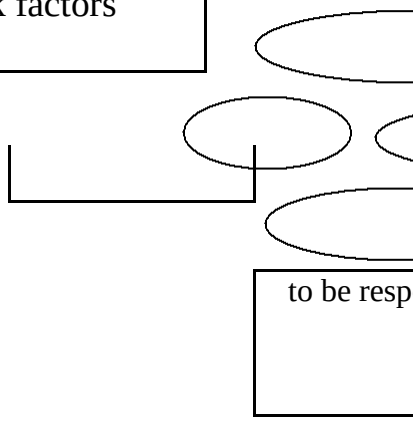
EXERCISE I. *Read the following words paying attention to their pronunciation.*

Heterogeneous	[ˌhetə'rɔʤɪnəs]	Chemokine	['kemәuki:n]
Subsequent	['sʌbsɪkwənt]	Interleukine	[ˌɪntə'ljuki:n]
Anaerobic	[ˌæneɪ'rəubɪk]	Carboxylic	[ka':bəuksılık]
Spirochaete	['spaɪərəukɪ:t]	Keratinocyte	[ke'rætınəusaıt]
Quiescence	[kwɪ'esns]	Microbiota	[ˌmaıkrəubaı'əutə]
Exacerbation	[ɪqˌzæsə'beɪʃn]	Susceptibility	[səˌseptə'bılətı]
Neutrophil	['nju:trəfıl]	Lipopolysaccharide	[ˈlıpəu'pɔlı'sækəraıd]
Macrophage	['mækrəufeɪʤ]	Environmental	[ınˌvaırən'mentl]
Cytokine	['saıtəuki:n]	Putative	['pju:tətıv]
Subgingival	[səb'ʤınʤıvəl]	Plaque	[pla:k]
Leukotoxin	[ˌlu:kəu'tɔksın]	Butyric	[bju:'tırık]

EXERCISE II. *Translate the following word combinations into Russian.*

Heterogenous group of disease	Tumour necrosis factor
Subgingival bacterial plaque	Crevicular fluid
Anaerobic bacteria	Tissue degeneration

The host's immune response	In the apical direction
Subsequent development of the disease	To affect susceptibility
Bone resorption	Accurate indicator
Inflammatory infiltration	Genetic makeup
Subtypes of cytokines	To alter the balance
Immunocompetent cells	Environmental risk factors



EXERCISE III. *Find the groups of synonyms.*

to induce

to give rise

to trigger

to develop

to account for

to implicate

to alter

to break down

to occur

to lead to

to take part

to progress

to take place

to cause

to result in

to participate

to bring about

to involve

EXERCISE IV. *Match the words with their definitions.*

Plaque	A white blood cell formed in lymphatic tissue throughout the body
Epithelium	Mechanism resulting in the development of a disease or morbid process
Lymphocyte	Any mononuclear, actively phagocytic cell arising from mono-cytic stem cells in the bone marrow
Pathogenesis	A film of mucus that harbours bacteria on a tooth
Aetiology	Cell deletion by fragmentation into membrane-bound particles which are phagocytosed by other cells
Macrophage	A microorganism that can live and grow in the absence of oxygen
Apoptosis	A membranous cellular tissue that covers a free surface or lines a tube or cavity and serves to enclose and protect the other parts of the body
Anaerobe	The science and study of the causes of disease and their mode of operation

EXERCISE V. *Complete the sentences using the derivatives of the words in bold type.*

1	It is useful to classify the types of disease both clinically	**aetiology**

. and ____.	
2 . An ____ reaction occurring in the pulp tissue may result in necrosis.	**to inflame**
3 . The peritoneum can ____ by gram-negative anaerobic bacteria localized in the subgingival region.	**destruction**
4 . Dental cement, which is a calcified tissue, is similar to the bone, both ____ and ____.	**histology** **chemistry**
5 . The ____of periodontal diseases increases with age.	**to occur**
6 . There was no ____ to palpation ____ to the first molar.	**tender; apex**
7 . ____ torn periodontal fibres can lead to _____ damage.	**severe; to repair**
8 . Before starting treatment the dentist must have accurate information regarding antibiotic ____.	**susceptible**

EXERCISE VI. *Read and translate the following text.*

NEW KNOWLEDGE OF THE PATHOGENISIS

OF PERIODONTAL DISEASE

Periodontal diseases are a heterogeneous group of diseases characterized by inflammation and the subsequent destruction of the tooth-supporting tissue. To-

day it is quite clear that periodontal diseases are of an infectious nature and that the microorganisms present in the subgingival plaque are the primary aetiologic agents. The destruction of the periodontium is associated with the presence of gram- negative anaerobic bacteria localized in the subgingival region, and include typically *Porphyromonas gingivalis* (Pg), *Prevotella intermedia* (Pi), *Actinobacillus actinomycetemcomitans* (Aa), and *Bacteroides forsythus* (Bf). These bacteria are considered to play a significant role in the pathogenesis of periodontitis and the formation of the periodontal pocket, destruction of the connective tissue, and resorption of the alveolar bone. While it is the bacterial infection that triggers the destructive process, it is the host's immune response to the bacterial challenge that is responsible for the molecular processes leading to periodontal tissue destruction.

The bacteria colonizing the subgingival region multiply and extend in an apical direction and, in the process, bring about loss of epithelial and connective tissue attachment. The bacteria may give rise to destruction processes caused by both direct and indirect mechanisms due to the activation of the host's immunologic and inflammatory reactions.

Although it is not possible to attribute the aetiology of periodontal diseases to a specific bacterial agent, there are a number of studies pointing to a group of bacteria which are believed to play a special role in the triggering and subsequent development of the disease. There are over 500 bacterial species capable of colonizing the subgingival region, but the number of these commonly implicated in the disease process is around 10 or 15 gram-negative anaerobes and spirochaetes. The designation of periodontal pathogen applies to these bacteria that possess specific mechanisms to break down the host's defence systems and cause destruction of the periodontal tissues.

Gingivitis does not always progress to periodontitis although the latter is always preceded by gingivitis. Yet, the proportion of gingivitis cases progressing to periodontitis and the factors involved in this process are unknown.

The disease progression model points to a periodic or episodic phenomenon, with periods of quiescence, when neither periodontal destruction occurs nor periods of exacerbation of the periodontal structures. These are characterized histologically by acute inflammation, with a significant increase in the number of neutrophils.

The interaction between the pathogenic bacteria and a host's defence systems could lead to the development of a periodontal pocket, loss of connective tissue, and bone resorption. Once periodontitis is established, the inflammatory

infiltration present is composed of different cell types, such as neutrophils, T and B lymphocytes, and macrophages migrating to the perivascular connective tissue, as demonstrated by immunologic studies. These cells produce various specific subtypes of cytokines that take part in the destruction of periodontal connective tissue attachment. The immune response is also regular by the selection and death of the immunocompetent cells brought about by a programmed

cell death mechanism, referred to as apoptosis, and which is supposed to play a significant role in the pathogenesis of periodontitis. The presence of proinflammatory cytokines and chemokines, such as interleukin-1β (IL-1β), tumour necrosis factor α (TNFα), interleukin-10 (IL-10), interleukin-8 (IL-8), and chemokine RANTES (Regulated upon Activation Normal T-cell Expressed and Secreted) S, in the gingival fluid appears to be more marked in sites with progressive loss of connective tissue attachment. Following treatment, there is a significant reduction in the levels of IL-1 β, TNF α, IL-10, IL- 8, and RANTES in the gingival crevicular fluid, thus suggesting a relationship between cytokine production and the occurrence of disease.

The cytotoxicity of various bacterial cell components, such as short-chain carboxylic acid present in *Porphyromonas gingivalis, Prevotella loescheii,* and *Fusobacterium nucleatum* give rise to apoptosis in T cells and keratinocytes. On the other hand, lipopolysaccharides (LPS) are common components of the cell wall of the gram-negative bacteria that will stimulate butyric acid to induce apoptosis in the mononuclear cells. In addition, *A actinomycetemcomitrans* leukotoxin can cause apoptosis in the periodontal tissue B lymphocytes.

There are many bacteria able to induce tissue degeneration, but it is likely that it is the host's mechanisms that are responsible for damaging the connective tissue. In this setting, loss of connective tissue may be the result of the host's mechanism of self-defence to prevent the progression of the lesion, by promot-ing the proliferation of the junctional epithelium in an apical direction in order to avoid contact with a "toxic" root surface.

It has been shown that there is a significant relationship between the severity of the disease and the total amount of antibodies. Thus, antibody titres could be a more accurate indicator of disease severity than the number of microorganisms present.

In view of the complexity of the host's immunologic response phenomena, the progression from gingivitis to periodontitis and its rate of development cannot be explained merely by the presence of a microbiota. The latter, though necessary, cannot account for the connective tissue loss. Clinical studies have shown the individual's inherent susceptibility to be of great importance in determining the initiation and progression of the disease. Understanding the factors that affect this susceptibility may be crucial in the elucidation of the initiation and progression of periodontitis. These factors include the genetic makeup of the individual determining different cell responses. Environmental risk factors, bac-teria, smoking, and stress, as well as diseases (e.g. diabetes),

are supposed to al-ter the balance between the host and the putative microbiota and lead to different clinical forms of periodontitis.

EXERCISE VII. *Find in the text equivalents for the following.*

bsequent tissue destruction Periods of exacerbation Etiological factors Acute inflammation Infectious nature of Immunological research Formation of periodontal Immune response of the pocket Actuating the Gingival fluid process Towards the top, the occurrence of the disease Loss of tissue attachment To stimulate the action of acid Inflammatory reaction is a self-defense mechanism Involve the connective epithelium in the disease process To destroy the protective mechanisms of the degree of development of the host disease Periods of rest Hereditary predisposition

EXERCISE VIII. *Find in the text 5 sentences which contain Complex Subject and translate them into Russian.*

EXERCISE IX. *Agree or disagree with the following statements.*

1. Microorganisms present in the environment play a significant role in the pathogenesis of periodontitis.
2. The host's immune response to the bacterial challenge is responsible for the destruction of the periodontal tissue.
3. Periodontal diseases are trigged by a specific type of bacterial agent.
4. Periodontal pathogens are not able to break down the host's defence systems.
5. Gingivitis is sure to progress to periodontitis.
6. The severity of periodontitis is associated with the amount of antibodies.
7. Hereditary factors are responsible for the progression of periodontitis.

EXERCISE X. *Answer the following questions.*

1. What are the primary aetiologic agents of periodontal disease?
2. What causes loss of epithelial and connective tissue attachment?
3. What specific bacterial agent is responsible for the development of periodontitis?
4. Does gingivitis always progress to periodontitis? Why?
5. What contributes to the destruction of the periodontal tissue attachment?
6. Can microbiota account for the connective tissue loss? Why?
7. What factors play a very important role in determining the initiation and progression of periodontitis?

EXERCISE XI. *Complete the following questions and answer them.*

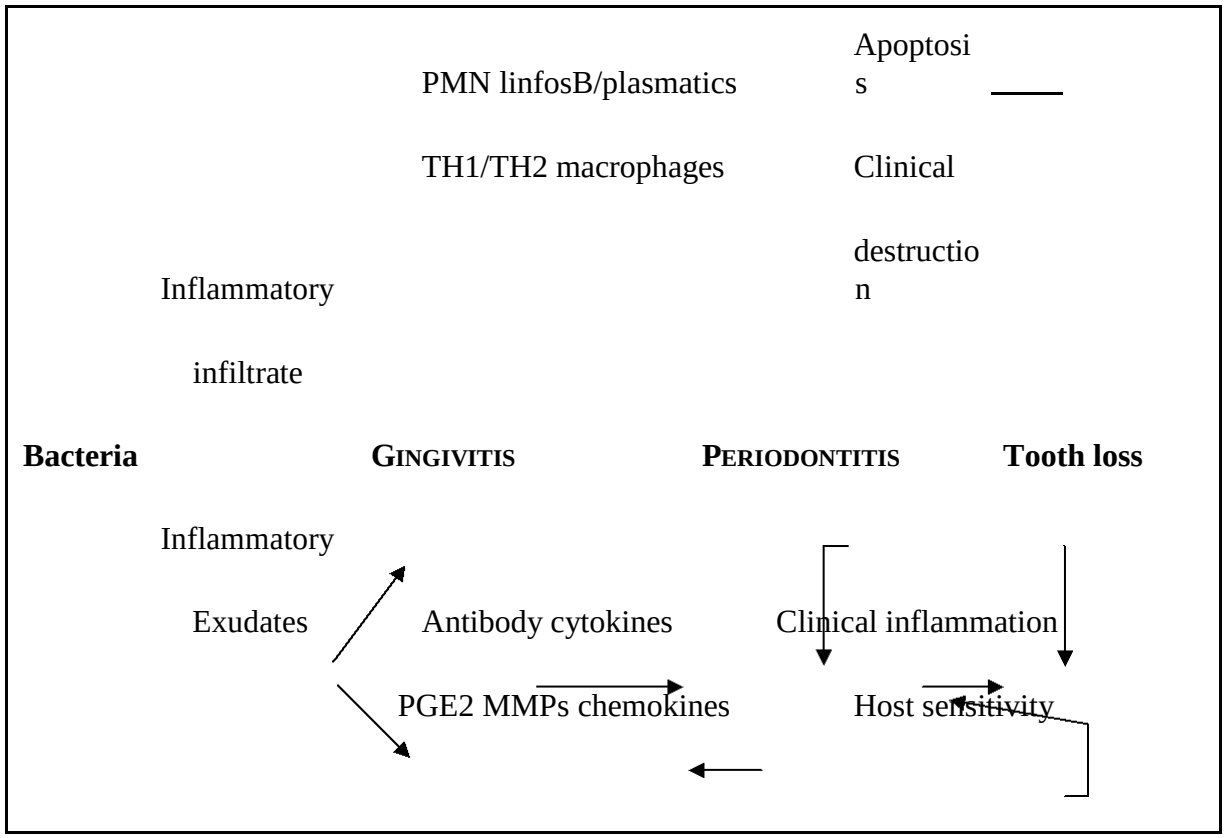
1. What ____ periodontal diseases ____ by? (*to characterize*)

2. What bacteria ____ a significant role in the pathogenesis of periodontitis? (*to play*)

3. There ____ over 500 bacterial species implicated in periodontal disease process, ____?
4. What ____ in the periodontal tissue degeneration ? (*to involve*)
5. What ____ the severity of periodontitis ____ with? (*to connect*)
6. The presence of a microbiota ____ responsible for the connective tissue loss, ____?

7. What ____ to different clinical forms of periodontitis? (*to lead*)

EXERCISE XII. *Look at the diagram which represents the pathogenesis of periodontal disease and describe it.*



LESSONS 2

EXERCISE I. *Read the following words paying attention to their pronunciation.*

Cocci	['kɔksaɪ]	Lymphadenitis	[ˌlɪmfədə'naɪtɪs]
Autogenous	[ˌɔː'tɔʤɪnəs]	Hypotension	[ˌhaɪpəu'tenʃən]
Transient	['trænzɪənt]	Stimuli	['stɪmjulaɪ]
Erythema	[ˌerɪ'θiːmə]	Hyperemia	[ˌhaɪpə'riːmɪə]
Oedema	[ə'diːmə]	Furcation	[fəː'keɪʃn]
Chewing	['tʃuːɪŋ]	Exquisite	[ɪk'skwɪzɪt]

EXERCISE II. *Translate the following word combinations into Russian.*

Facultative anaerobes	Irreversible pulpitis
Isolated strains	Inadequate restoration
Strict anaerobes	Furcation canals
Acid environment	Advancing periodontitis
Autogenous infection	Lingering quality
Cross infection	Acute apical periodontitis
Reversible pulpitis	Periradicular tissue
Stimulus-induced fluid	Acute apical abscess

EXERCISE III. *Match the words with their definitions.*

Infection	A chemical, thermal, electrical, or mechanical influence that changes the normal environment of irritable tissue and creates an impulse.
Oedema	A firm closing of the jaw due to tonic spasm of the muscles of mastication.
Stimulus	A collection of pus appearing in an acute or chronic localized infection, and associated with tissue destruction, and, frequently, swelling.
Abscess	A piece of necrotic tissue, usually bone, that has become separated from the surrounding healthy tissue.
Sinus	Multiplication of parasitic organisms within the body.
Debris	An accumulation of an excessive amount of watery fluid in cells, tissues, or serous cavities.
Trismus	A channel for the passage of blood or lymph, without the coats of an ordinary vessel.
Sequestrum	Foreign material or particles loosely attached to a surface

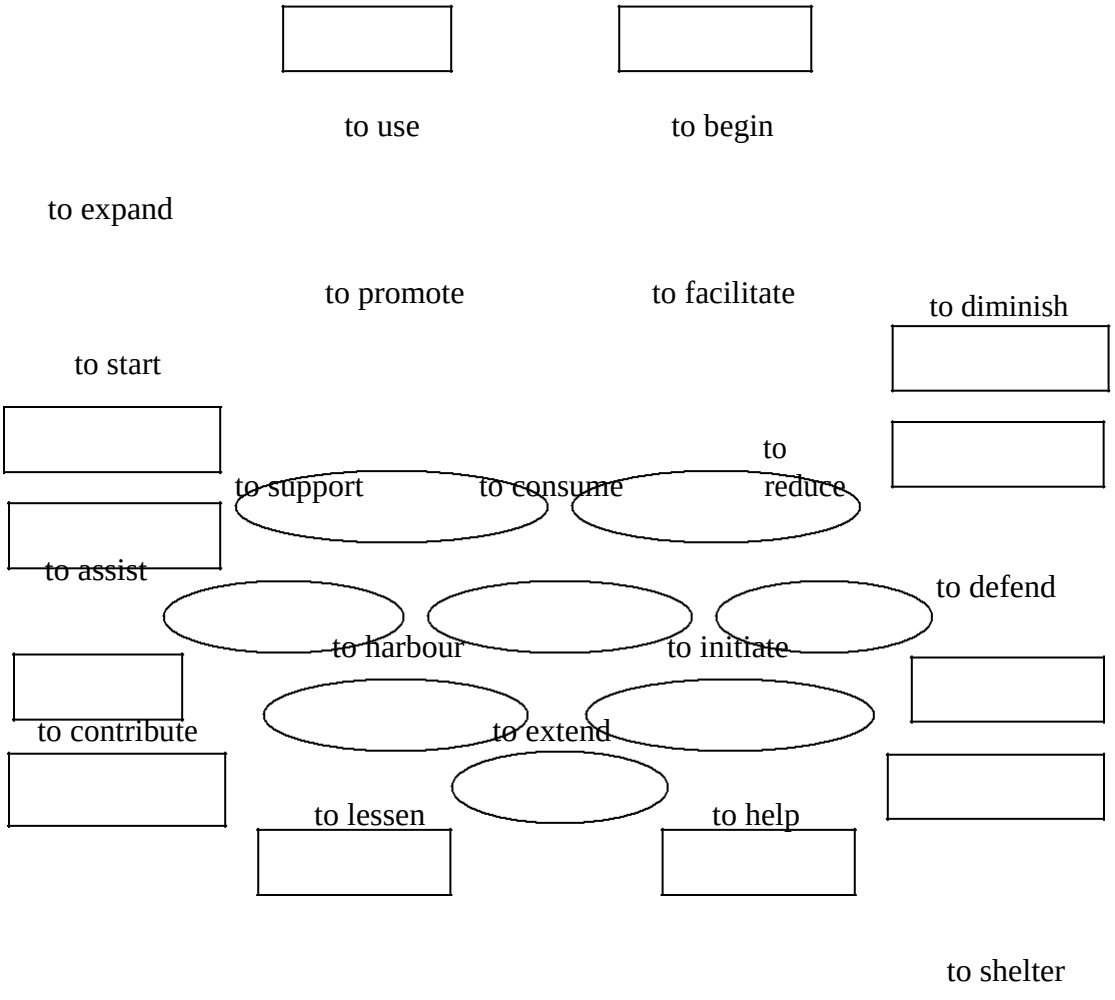
EXERCISE IV. *Translate the families of words.*

1. Response, responsible, responsibility, responsive, irresponsive, irresponsible.

2. Favour, favourable, unfavourable, favoured, unfavoured.
3. Infect, infection, infectious, infective, disinfection, disinfectant.
4. Inflame, inflamed, inflammation, inflammatory, inflammable, inflammability.

5. Sense, sensation, sensitive, sensitivity, senseless.
6. Access, accessible, accessibility, inaccessible, inaccessibility.
7. Irritate, irritation, irritant, irritable, irritability.
8. Erupt, eruption, supraeruption.

EXERCISE V. *Find the groups of synonyms.*



to launch

EXERCISE VI. *Read and translate the text.*

ODONTOGENIC INFECTION

Aetiology and epidemiology

The oral environment of an average adult harbours more than 300 bacterial species. These include both Gram-positive and Gram-negative organisms, which may be aerobic, anaerobic, or facultative. In a recent study, a total of 664 strains of bacteria were isolated from test cases. Most odontogenic infections are po-lymicrobial. The number of isolated strains ranges from one to ten with an aver-age number of approximately four isolates per infection. The most common or-ganisms responsible for odontogenic infections are viridans streptococci (*S or-alis*,

S sanguis, and S mitis), Peptostreptococcus, Eusobacterium, pigmented and nonpigmented Prevotella, Gemella, Porphoronomas, and Bacteroides. Facultative anaerobes, particularly viridans streptococci, accompanied by strict anaerobes, appear to predominate in all types of odontogenic infections. In mixed in-

fections, the predominant flora creates an ecosystem of synergism that promotes the growth and proliferation of its members. This is achieved by elaborating a more favourable acidic environment, by consuming oxygen to support the growth of anaerobes, and by producing metabolites that facilitate bacterial survival.

Clinical manifestations of odontogenic infections

Odontogenic infections are usually autogenous, caused by the body's normal flora, which has become pathogenic. Rarely, they are cross infections, related to the proliferation of transient microorganisms obtained from other humans, animals, or the environment. These infections manifest primarily as dental caries and pulpal, periodontal, or pericoronal infections. A patient may present with pain, erythema, oedema, and report difficulty chewing; however, other clinical signs and symptoms of infection such as lymphadenitis, trismus, problems swallowing or breathing, hypotension, and an elevated body temperature or white blood cell count are rare.

Reversible pulpitis.

Patients with reversible pulpitis usually report severe sensitivity or pain in response to hot, cold, sweets, and mechanical stimuli. Caries in proximity to the pulp and exposed dentinal tubules and traumatic occlusion appear to be common aetiologies. Provoked pain, described as sharp or intense, primarily reflects hyperemia or mild inflammation of the pulp and stimulus-induced fluid movement in dentinal tubules.

Irreversible pulpitis.

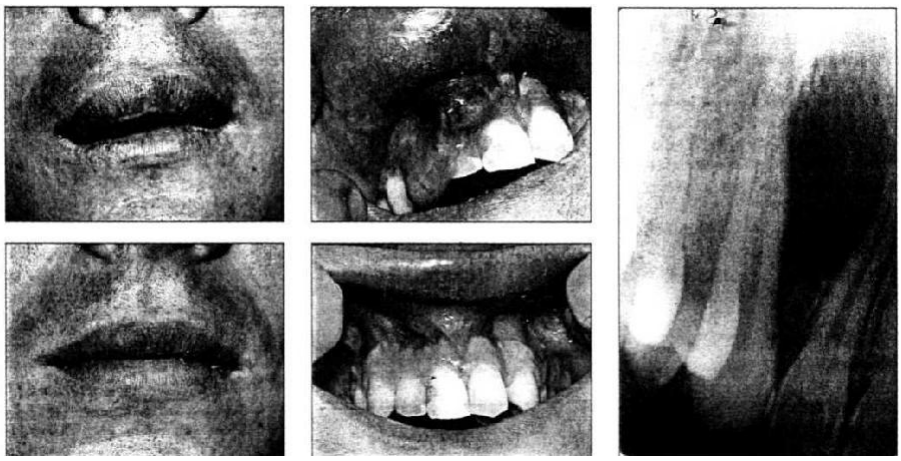
Microorganisms from the oral environment may gain access to the pulpal system through caries, inadequate restorations, exposed dentinal tubules or pulp, and apical, lateral, or furcation canals associated with advancing periodontal disease or its treatment. Bacteria in the root canal system may further contribute to inflammation and cause infection. Patients report severe sensitivity or pain in response to hot, cold, sweets and mechanical stimuli, and they often relate a history of past or present spontaneous pain. In advanced cases, the patient may have to keep ice (ice water) on the tooth to reduce symptoms. The pain has a lingering quality and reflects hyperemia or inflammation of the pulp in response to infection, fluid movement in dentinal tubules, and increased intrapulpal pressure.

Acute apical periodontitis.

Irreversible pulpitis and pulpal necrosis (an asymptomatic complication of irreversible pulpitis), if left untreated, lead to the spread of irritants and bacteria into periradicular tissues and results in acute apical periodontitis. The patient is known to complain of tenderness or mild to moderate pain associated with the apex of the offending tooth. The pain may be intermittent, secondary to manipulation of the tooth, or unprovoked and continuous.

Acute apical abscess.

Occasionally, the infectious process associated with acute apical periodontitis may extend into alveolar bone and soft tissues initiating apical abscess for-



Acute apical abscess with drainage before and after endodontic treatment.

mation. As the inflammation proceeds, most lesions become acute. The pain appears to be severe, unprovoked, and constant. Manipulation of the tooth causes exquisite sensitivity, and mastication is difficult if not impossible. Fluid accumulation in the periodontal ligament space may cause supraeruption of the tooth, resulting in acute malocclusion. The tooth is excessively mobile. Swelling is common but may be absent in the early stages. The patient may report malaise and present with fever.

EXERCISE VII. *Find in the text equivalents for the following.*

Виды бактерий	Получить доступ
Смешанный тип инфекции	Способствовать развитию воспаления
Благоприятная среда	Запущенный случай
Потреблять кислород	Умеренная боль
Способствовать росту	Перемежающаяся боль
Облегчить выживание	Постоянная боль
Затрудненное жевание	Мягкие ткани
Клинические признаки и симптомы	Накопление жидкости
Высокая чувствительность	Подвижный зуб
Обнаженные зубные канальцы	На ранней стадии
Острая боль	

EXERCISE VIII. *Find in the text 4 sentences with Complex Subject and translate them into Russian.*

EXERCISE IX. *Look through the text carefully to fill in the table below.*

Disorder	**Complaints**	**Signs & symptoms**	**Quality of pain**	**Possible complications**

EXERCISE X. *Speak about odontogenic infections according to the plan.*

- Causes;

- Types of infection;
- Clinical manifestations;
- Possible complications.

EXERCISE XI. *Complete the questions and answer them.*

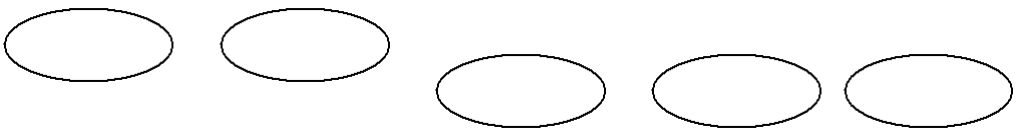
1. How many bacterial species ____ the oral environment ____? (*to harbour*)

2. What ____ odontogenic infections ____ by? *(to cause)*
3. What ____ patients with odontogenic infections ____ of? (*to complain*)
4. What ____ patients with reversible pulpitis usually ____? (*to report*)
5. What ____ bacteria in the root canal system ____ to? *(to contribute)*
6. What ____ patients ____ do in advanced cases of irreversible pulpitis? (*to have to*)
7. What ____ irreversible pulpitis ____ in if not treated? (*to result*)
8. ____ swellings common in case of acute apical abscess? (*to be*)

EXERCISE XII. *Read the following article on dental management of irreversible pulpitis. Fill in the blanks with the words given below:*

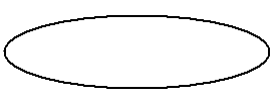
anti-inflammatory

pulp chamber canal system



reduce

teeth pulp agent to kill



improve

inflammation eliminated debridement

penicillin

temporary response

Irreversible pulpitis

In deep, carious, vital, painful ____, before bacteria had an opportunity to invade the ____, irreversible pulpitis is characterized by ____. It reflects an immunologic ____ to antigenic substances produced by the caries process. Endodontic ____ (pulpotomy or pulpectomy) is the most predictable method of treatment. If the ____ is not obturated at the initial appointment, calcium hydroxide may be placed into the ____ and root canal system to ____ any residual bacteria. The medication should be covered with a sterile cotton pellet and sealed with a ____ restoration at least 3 mm in thickness. Unless contraindicated, the clinician should also prescribe a nonsteroidal ____ agent to shorten recovery time. The administration of ____ in association with untreated irre-

versible pulpitis does not ____ spontaneous pain, percussion-induced pain, or

the number of analgesic medications taken by patients. The patient's condition should ____ rapidly once the source of inflammation/infection is ____ without

the concurrent, routine administration of an antibacterial ____.

EXERCISE XIII. *Read the following article on dental management of acute apical periodontitis. Fill in the blanks with the derivatives of the words in bold type.*

Acute apical periodontitis.

The **(to remove)** of bacteria and their byproducts by **(to debride)** of the root canal system **(effective)** eliminates infection, curtails **(to inflame)**, and promotes **(heal)**. If the canal system is not obturated at the initial **(to appoint)**, calcium hydroxide may be placed into the pulp chamber and root canal system to kill any residual bacteria. The medication should be **(to cover)** with a sterile cotton pellet and sealed with a temporary **(to restore)** at least 3 mm in **(thick)**. **(Success)** healing depends on optimal **(to debride)** and **(to obturate)** followed by the **(to place)** of an appropriate final **(to restore)**. Unless contraindicated, the clinician should also prescribe a nonsteroidal anti-inflammatory agent to **(short)** recovery time. It has been shown that patients with acute apical periodontitis re-covered **(rapid)** once the source of infection was eliminated, and the **(to admin-ister)** of penicillin provided no statistically significant added benefit.

LESSONS 3

EXERCISE I. *Read the following words paying attention to their pronunciation.*

Mylohyoid	[ˌmaɪləu'haɪɔɪd]	Lymphadenopathy	[ˌlɪmfədə'nɔpəθɪ]
Buccinator	[ˌbəksɪ'neɪtə]	Trismus	['trɪzməs]
Fusospirochetal	['fjuzəuˌspɪrəu'kɪ:təl]	Parapharyngeal	['pærəfə'rɪndʒɪəl]
Putrid	['pju:trɪd]	Mediastinum	[ˌmi:dɪəs'taɪnəm]
Foul	[faul]	Medullary	[mə'dʌlərɪ]
Lysis	['laɪsɪs]	Paresthesia	[ˌpærəs'θi:zɪə]
Debris	['debri:]	Osteomyelitis	['ɔstɪəuˌmaɪə'laɪtɪs]

EXERCISE II. *Translate the following word combinations into Russian.*

Draining sinus tract	Marginal gingiva
Antibacterial chemotherapy	Alveolar osteitis
Cancellous alveolar bone	Foul taste
Subperiostal abscess	Pericoronitis
The area of mentalis	Necrotic debris
Chronic sinus tract	Offending teeth
Long-term therapy	Cellulitis
Gingival abscess	Space infection

Gingival crevice	Osteomyelitis
Periodontal abscess	Cancellous medullary bone
Mucogingival junction	Formation of sequestrum
Necrotizing ulcerative gingivitis	Loose teeth
Interdental papillae	

EXERCISE III. *Match the words with their definitions.*

Periosteum	Coagulated blood, plasma, or fibrine
Apex	A narrow opening due to a fissure or a crack
Crevice	The removal of a tissue specimen or other material from the living body for microscopic examination
Biopsy	Growth by reproduction of similar cells
Papilla	The layer of connective tissue that varies considerably in thickness in the different areas of bone
Clot	Any small nipple-shaped elevation
Proliferation	The end of the root

EXERCISE IV. *Form adjectives from the following nouns.*

Pulp, periodontium, inflammation, oedema, infection, fascia, mastication, tongue, pharynx, medulla, alveolus, tooth, ulcer, upper jaw, cheek, lower jaw, crown, trauma, apex, radius, cortex, bone, mouth, skin, face.

EXERCISE V. *Divide the following words into three groups:*

a) pathologic conditions;

b) signs and symptoms;
c) anatomical structures

Osteomyelitis, erythema, cancellous medullary bone, canine, lymphadenopathy, paresthesia, cellulitis, jaw, trismus, putrid odour, pericoronitis, oral mucosa, fascial planes, alveolus, alveolar osteitis, interdental papillae, necrotizing ulcerative gingivitis, loss of attachment, desquamation, ulceration, periodontal abscess, periodontal pocket, gingival crevice, toothache, draining sinus tract, fever, mal-aise, tenderness, mentalis, buccinator muscle, inflammation, hyperemia, acute apical abscess, mylohyoid muscle, cortical plate, pulpal necrosis, sensitivity, dif-ficulty swallowing, periodontal ligament, alveolar bone, acute apical periodonti-tis, lymphadenitis, periradicular tissue, difficulty chewing, caries, apical canals, irreversible pulpitis, oedema, pulp, dental tubules, reversible pulpitis.

EXERCISE VI. *Read and translate the text.*

ODONTOGENIC INFECTION

Draining sinus tract.

Inflammatory degeneration of the pulp and periradicular tissues precipitated by bacteria, in some instances, follows a chronic subclinical course. The

process progresses slowly through cancellous alveolar bone along the path of least resistance. It perforates the thin cortical plate and forms a subperiosteal abscess. Once through the periosteum, this asymptomatic locus of infection spreads into surrounding soft tissues and leads to the formation of a draining sinus tract. The relationship of posterior tooth apices to the mandibular attachments of the mylohyoid and buccinator muscles and the maxillary attachment of the buccinator will determine whether a sinus tract will erupt intraorally or cutaneously. The attachments for the muscles of facial expression serve a similar function anteriorly, especially in the area of the mentalis. If the apices of teeth are superior to maxillary muscle attachments or inferior to mandibular muscle attachments, the spread of infection may be extraoral. In association with chronic sinus tracts, extraoral or intraoral swelling and pain are usually absent. Typically, patients are unaware of any dental problems, and only about 50 % of them can recall having had a toothache. Diagnostic errors may result in multiple surgical excisions and biopsies, radiotherapy, electrodessication, and long-term antibacterial chemotherapy without resolution of the problem.

Gingival abscess.

Gingival abscess is a localized, rapidly evolving, painful swelling of the marginal or interdental gingiva. It is an infection secondary to the impaction of foreign bodies such as popcorn shells, peanut husks, seeds, fish bones, toothbrush bristles, or toothpick splinters into the gingival crevice. The abscess may drain through the crevice or establish a draining sinus tract through the gingiva, but there is no associated ulceration, desquamation, surface necrosis, or loss of gingival attachment. Affected teeth may be tender to percussion and extruded.

Periodontal abscess.

Periodontal abscess is an infection that may be secondary to the impaction of foreign objects into the orifice of a periodontal pocket, to the closure or narrowing of the pocket orifice, or to the improper use of an oral irrigating device. Microorganisms most often implicated are Gram-negative anaerobes. The mild to moderate pain may be acute or chronic. The swelling rarely spreads beyond the mucogingival junction and may be associated with a draining sinus tract located in the gingival crevice or at the mucogingival junction. A positive response to pulp vitality tests and bone loss lateral to the tooth, suggest periodontal disease.

Necrotizing ulcerative gingivitis.

Necrotizing ulcerative gingivitis (NUG) is characterized by localized necrosis and ulceration usually of the interdental papillae. The marginal gingiva may be involved by extension, and rarely, the whole mouth may be affected. The condition has been suggested to be a fusospirochetal infection, but it is unclear if this infection is causative or opportunistic. The patient reports a foul or metallic taste, a putrid odor, and a constant radiating pain, which is intensified by spicy or hot foods or gentle probing.

Alveolar osteitis.

Alveolar osteitis, or dry socket, is a relatively common complication following the surgical extraction of mandibular molars. It is known to be rarely seen in the maxilla. The suspected aetiology is lysis or loss of the blood clot. The incidence appears to increase in smokers and in patients taking oral contraceptives. Typically, the patient does well for the first few days following the extraction. A deep, radiating pain of increasing intensity is noted in 3 to 4 days associated with a foul taste and a putrid odor. The surrounding soft tissues appear normal, but the alveolus is empty or contains necrotic debris.

Pericoronitis.

Pericoronitis is an acute inflammatory condition associated most commonly with partially erupted mandibular third molars. The soft tissue overlying the tooth provides a hospitable environment that promotes microbial proliferation. The condition may be further aggravated by trauma from opposing maxillary teeth during function. Signs and symptoms include pain, malaise, fever, lymphadenopathy, trismus, and difficulty swallowing. Abscess formation may be evident buccally or lingually to the offending tooth. If appropriate treatment

is not initiated, pericoronitis is likely to progress to cellulitis, osteomyelitis, or spread through the fascial planes of the head and neck.

Cellulitis.

When pulpal, periodontal, or pericoronal infections become overwhelming in nature and host resistance is compromised, the infection may extend into the surrounding tissues and cause cellulitis. The affected area becomes oedematous and feels hard when palpated, suggesting diffuse inflammation. Patients frequently present with pain, malaise, regional lymphadenopathy, trismus, and an elevated body temperature. The oral mucosa or skin overlying the infected area may appear bluish.

Space infections.

The inflammatory process associated with cellulitis is usually restricted to the jaws. If appropriate treatment is not initiated, cellulitis is likely to spread through the fascial planes of the head and neck into the canine, buccal, masticatory, sublingual, submandibular, vestibular, parotid, parapharyngeal, retropharyngeal, and deep spaces of the head and neck and mediastinum, creating life-threatening situations. Clinicians should be aware of this possibility and be prepared to diagnose such conditions.

Osteomyelitis.

Osteomyelitis is another potential complication of odontogenic infections that most often affects the mandible. It is an inflammatory reaction involving cancellous medullary bone. As purulence accumulates, it restricts blood flow to the area, which causes necrosis and the formation of sequestrum. Signs and symptoms include deep, persistent pain, paresthesia, malaise, fever, lymphadenopathy, loose teeth, and in the later stages, alveolar radiolucencies.

EXERCISE VII. *Find in the text equivalents for the following.*

Наименьшее сопротивление	Распространенное осложнение
Очаг инфекции	Хирургическое удаление

Прикрепление мышцы	Отдающая боль
Диагностическая ошибка	Частично прорезавшийся моляр
Инородное тело	Благоприятная среда
Щетинки зубной щетки	Затрудненное глотание
Болезненный к выстукиванию	Распространиться на окружающие ткани
Сужение отверстия кармана	Пораженная область
Неправильное использование	Соответствующее лечение
Тест на жизненность пульпы	Создавать условия, угрожающие жизни
Предположить заболевание	Возможное осложнение
Поразить всю полость рта	Ограничить кровоток
Зловонный запах	На более поздней стадии
Острая пища	

EXERCISE VIII. *Find in the text 4 sentences with Complex Subject and translate them into Russian.*

EXERCISE IX. *Look through the text carefully to fill in the table below.*

Disorder	Complaints	Signs & symptoms	Quality of pain	Possible complications

EXERCISE X. *Speak about odontogenic infections according to the plan.*

- Causes;
- Types of infection;
- Clinical manifestations;
- Possible complications.

EXERCISE XI. *Complete the questions and answer them.*

1. Patients with draining sinus tract ____ of a toothache, ____? (*to complain*)
2. Impaction of foreign bodies never ____ gingival abscess, ____? (*to induce*)
3. What may periapical abscess ____ by? (*to cause*)
4. ____ the whole mouth ____ in case of necrotizing ulcerative gingivitis? (*to affect*)
5. Whom ____ alveolar osteitis usually ____? (*to affect*)
6. What signs and symptoms ____ pericoronitis ____ by? (*to characterize*)
7. ____ the oral mucosa ever ____ its colour in case of cellulitis? (*to change*)

8. If not treated, cellulitis ____ through various spaces of the head and neck, ____? (*to spread*)

9. What ____ osteomyelitis ____? (*to involve*)

EXERCISE XII. *Read the following article on dental management of gingival abscess. Fill in the blanks with the missing words.*

Gingival abscess

The primary goal ____ treatment is ____ eliminate the cause ____ the abscess. Foreign objects usually adhere ____ the soft tissue wall of the gingival crevice. Following the application ____ a topical anaesthetic agent, gently distend the gingival tissue; remove the foreign object, and gently curette the soft tissue wall ____ the lesion to induce drainage. Irrigate the area ____ a warm saline solution, and advise the patient to rinse ____ the same solution ____ every 2 hours ____ 2 days. The patient's condition should improve rapidly once the source ____ infection is eliminated. The routine administration ____ an antibacterial agent is not indicated.

EXERCISE XIII. *Read the following article on dental management of cellulitis. Fill in the blanks with the verbs either in the Active or the Passive Voice.*

Cellulitis

When cellulitis **(to suspect)**, a clinician should never **(to hesitate)** to refer the patient to a specialist. A sample of the purulent exudates should **(to collect)**, usually by aspiration, for culture and susceptibility testing, and empirical antibacterial chemotherapy should **(to initiate)**. As soon as fluctuance **(to note)**, it should **(to incise)** at its most dependent area, the purulent material **(to evacuate)**, a drain **(to insert)** and **(to suture)** in place, and a surgical dressing **(to apply)**. Once the source of the infection **(to identify)**, appropriate primary dental intervention should **(to initiate)**.

LESSON 4

EXERCISE I. *Read the following words paying attention to their pronunciation.*

Pathogen	['pæθədʒən]	Species	['spi:ʃi:z]
Drainage	['dreɪnɪdʒ]	Odontogenic	[əu¸dɔntə'dʒenɪk]
Cellulitis	[¸selu'laɪtɪs]	Sinus	['saɪnəs]
Streptococci	[¸streptə'kɔksaɪ]	Nutrient	['nju:trɪənt]
Penicillin	[¸penɪ'sɪlɪn]	Microbial	[maɪk'rəubɪəl]
Antibiotic	[¸æntɪbaɪ'ɔtɪk]	Aerobic	[eə'rəubɪk]
Efficacy	['efɪkəsɪ]	Flora/florae	['flɔ:rə/'flɔ:ri:]
Obligate	['ɔblɪgət]	Adjacent	[ə'dʒeɪsənt]
Judgment	['dʒʌdʒmənt]		

EXERCISE II. *Translate the following word combinations into Russian.*

Pathogen bacterial in nature	Cortical plane
Clinical judgment	Acute oral-facial infections
Loss of function	Anaerobic gram-positive cocci
Surgical drainage	Host resistance
Underlying cause	Obligate oral anaerobes

Vigorous antibiotic therapy	Nutrients synthesized by the aerobes
Tooth-borne infections	Antibiotic susceptibility
True infection	Bacterial species
To breach the enamel	Synergistic interaction

EXERCISE III. *Match the words with their definitions.*

Drainage	A specific causative agent as a bacterium or virus
Pathogen	Abnormal redness of the skin due to capillary congestion (as in inflammation)
Aerobe	Death of living tissue
Inflammation	An organism that lives only in the presence of oxygen
Erythema	Abnormal reaction to some drugs
Cellulitis	The act or process of drawing off fluid from a cavity or wound by means of suction or gravity
Susceptibility	Diffuse and especially subcutaneous inflammation of connective tissue
Necrosis	A local response to cellular injury that is marked by capillary dilatation, leucocytic infiltration, redness, beat, pain, swelling and often loss of function

EXERCISE IV. *Complete the sentences using the derivatives of the words in bold type.*

1. Infections may be characterized by ____ of function.	**to lose**
2. Sometimes host defences are sufficient to ____ the infection.	**local**
3. Infections may ____ vital structures.	**dangerous**
4. Dental caries is the ____ cause of odontogenic infection.	**to lead**
5. Streptococci are considered to be the major ____ organisms of caries	**to cause**
6. The ____ reaction in the pulp tissue may result in necrosis.	**to inflame**
7. The ____ of the soft tissues by oral streptococci prepares an environment ____ to the ____ of anaerobic bacteria.	**to invade, to conduct, to grow**

EXERCISE V. *Read and translate the following text.*

ANTIBIOTICS IN TREATING ORAL-FACIAL INFECTIONS

OF ODONTOGENIC ORIGIN

Oral-facial infections of odontogenic origin

The essential basis of all infections is the successful multiplication of a microbial pathogen on or within a host. A pathogen usually is defined as any microorganism that has the capacity to cause disease. If the pathogen is bacterial in nature, antibiotic therapy is often included.

All too often, however, antibiotic therapy is initiated for conditions that are not caused by infection. Therefore, clinical judgment is extremely important in determining the presence or absence of infection. The classic signs of infection are known to include pain, erythema or redness, swelling, elevated temperature, and loss of function. Problems arise when some but not all of these signs are present. The conditions that cause an inflammatory reaction often present many of the signs of infection, which sometimes forces clinicians into making difficult clinical decisions. For example, surgical trauma often causes pain, swelling, and loss of function; however, rarely is there an elevated temperature.

Even in the presence of infection, antibiotic therapy may not be necessary. When host defences are sufficiently potent to localize the infection at the site of onset, surgical drainage and removal of the underlying cause (for example, a carious tooth) is definitive therapy and antibiotic treatment is not necessary. In contrast, an infection that is spreading rapidly, or one that endangers vital structures or causes compromise of the airway, requires vigorous antibiotic therapy in combination with surgery. Also, antibiotics oftentimes are mistakenly prescribed for treatment of infections of viral origin for which the antibiotic has no effi-

cacy. When antibiotic therapy is appropriate, an antibiotic should be chosen that is most likely to be effective against the likely pathogenic organisms present.

Differential diagnosis of odontogenic infeciton

In choosing the appropriate antibiotic for therapy of a given infection, a number of important factors must be considered. First, the identity of the organism must be known. In the case of odontogenic infections involving the dental or periodontal structures, this seldom is the case. Second, we must have accurate information regarding antibiotic susceptibility. Unless the organism has been identified, this is not possible. Finally, host factors must be considered in terms of ability to absorb an antibiotic to achieve the appropriate response. When clinical evidence of cellulitis or odontogenic infection has been found and the cardinal signs of swelling, inflammation, pain, and perhaps fever are present, selection of the appropriate antibiotic agent may lead to eradication. Unfortunately, these cardinal signs may not always be obvious.

The presence of severe inflammation alone is not adequate to define a true infection. In the case of the oral- facial complex, determination of infection often is extremely misleading. This is due in part to the fact that so many species of organisms exist as normal oral microflora and often an imbalance in this micro-flora is the only clinical sign of a true infection.

The differential diagnosis of odontogenic infections always includes the teeth as the most likely source, with the infections arising from an infected tooth and its periapical tissues. This occurs more frequently than all other odontogenic infections. Periodontal infections associated with inflammation and infection of the peridontium alone, without involvement of the tooth, result in similar acute signs and symptoms but may be self-limiting since spontaneous drainage through the periodontal lesion itself often occurs, reducing the chance of systemic spread. In contrast, tooth-borne infections often proceed to cellulitis if left untreated.

Another differential would include infection of other adjacent structures, primarily the sinuses, salivary glands, and soft tissues. The incidence of infections in these structures is known to be extremely small compared to those in other oral sources. Although the clinician must be aware of the potential for infection of these structures, they should be included in differentials only when infections of a dental origin have adequately been ruled out.

Causes of odontogenic infections

The mouth and associated hard and soft tissue structures provide complex microenvironments, enabling many different bacterial florae to inhabit them. Consequently, depending on the source of the infection, the microflora involved may be vastly different. Most acute oral- facial infections are of odontogenic ori-gin. Dental caries, resulting in infection of the dental pulp, is the leading cause of odontogenic infection.

The major causative organisms involved in dental caries have been identi-fied as members of the viridans (alpha-haemolytic) streptococci and include

S. mutans, S. sobrinus, and *S. milleri*. Once the bacteria breach the enamel, they invade the dentine and eventually the dental pulp. An inflammatory reaction occurs in the pulp tissue, resulting in necrosis and a lower tissue oxidation-reduction potential. At this point, the bacterial flora changes from a predominately aerobic flora to a more obligate anaerobic flora. The anaerobic gram-positive cocci (*Peptostreptococcus*) and the anaerobic gram-negative rods, including *Bacteroides*, *Prevotella*, *Porphyromonas*, and *Fusobacterium*, are present most frequently. An abscess usually forms at the apex of the involved tooth, resulting in destruction of bone. Depending on the effectiveness of the host resistance and the virulence of the bacteria, the infection may spread through the marrow spaces, perforate the cortical plate, and enter the surrounding soft tissues.

Table 1. Empiric antibiotics of choice for odontogenic infections.

Type of infection	**Antibiotic of choice**
Early (first 3 days of symptoms)	penicillin VK
	clindamycin
	cephalexin (or other oral first-generation cephalosporin)
	beta-lactamase-stable antibiotic:
No improvement in 24–36 hours	clindamycin or amoxicillin/clavulanic acid
penicillin allergy	clindamycin
	cephalexin (if penicillin allergy is not the anaphylactoid type)
	clarithromycin (Biaxin)
Late (longer than 3 days)	clindamycin
	penicillin VK-metronidaziole
penicillin allergy	clindamycin

Table 2. Penicillin VK: Antibacterial spectrum.

Gram-positive cocci	**Oral anaerobes**
Streptococci	Bacteroides
nonresistant staphylococci	porphyromonas
pneumococci	prevotella
	peptococci
Gram-negative cocci	peptostreptococci
Neisseria meningitides	*Actinomyces*
Neiserria gonorrhoeae	*Veillonella*
	Eubacterium
Gram-positive rods	*Eikenella*
Bacillus	*Capnocytophaga*
Corynebacterium	*Campylobacter*
Clostridium	*Fusobacterium*
	Others

The other major source of ondontogenic infection arises from the anaerobic bacteria flora inhabiting the periodontal and supporting structures of the teeth.

Most odontogenic infections (70 %) have a mixed aerobic and anaerobic flora. Pure aerobic infections are much less common and comprise approxi-

mately 5 % of odontogenic infections; pure anaerobic infections make up the remaining 25 %.

Clinical correlates suggest early odontogenic infections to be characterized by a rapid spreading and a cellulitis with the absence of abscess formation. As the infection matures and becomes more severe, the microbial flora becomes a mix of aerobes and anaerobes. The anaerobes present are determined by the characteristic flora associated with the site of origin, whether it be pulpal or periodontal. Finally, as the infectious process becomes controlled by host defences, the flora becomes primarily anaerobic.

More recently, some new information has been published documenting the anaerobic nature of the flora of odontogenic infections.

Odontogenic infections usually result from synergistic interaction among several bacterial species and usually consist of an oral streptococcus and an oral anaerobic gram-negative rod.

Oral streptococci, especially of the *S. milleri* group, can initially invade soft tissues and prepare an environment conductive to the growth of anaerobic bacteria. Obligate oral anaerobes being dependent on nutrients synthesized by the aerobes, the anaerobes appear approximately three days after the symptoms of onset. Early infections are caused primarily by the aerobic streptococci (exquisitely sensitive to penicillin); late infections are caused by the anaerobes (frequently resistant to penicillin).

When selecting the empiric antibiotics of choice for odontogenic infections, it appears logical to discern between infections appearing early in their course from those appearing later.

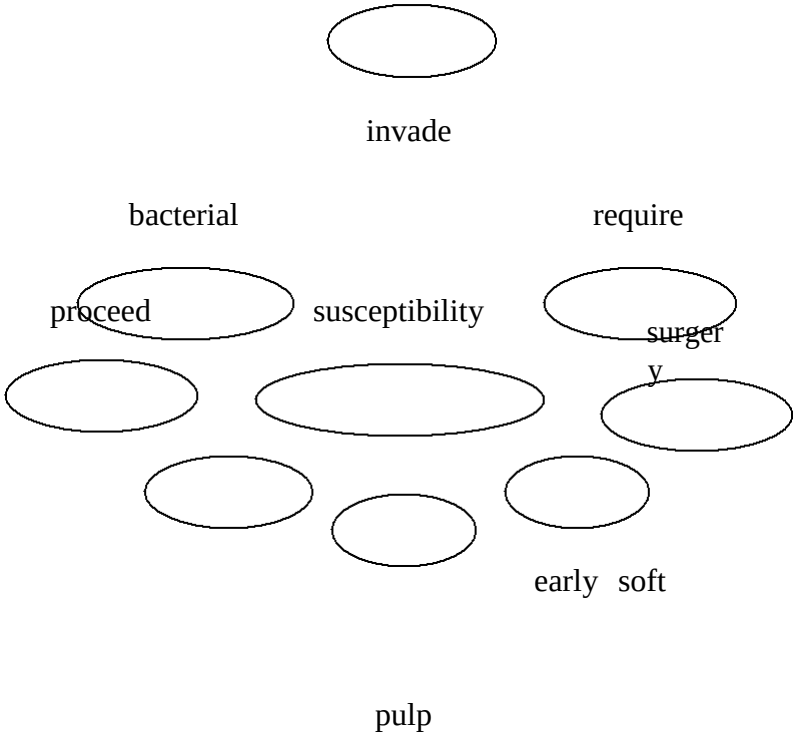
EXERCISE VI. *Find in the text equivalents for the following.*

Способность вызывать заболевание	Снизить возможность распространения
Повышенная температура	Смежные структуры

Вызвать воспалительную реакцию	Слюнные железы
Принимать клиническое решение	Сложная микросреда
Защитные силы организма	Главные причинные факторы
Угрожать жизненноважным структурам	Привести к разрушению кости
Прописать антибиотики для лечения	Проникать в окружающие мягкие ткани
Точная информация	Населять челюстно-опорный аппарат
Добиться необходимой реакции	Быстрое распространение
Признаки отека	Место происхождения
Сильное воспаление	Среда, способствующая росту бактерий
Неправильное использование анти-	Зависеть от питательных веществ,

биотиков	синтезируемых аэробными организ-мами
Наиболее вероятный источник	Инфекции, вызванные стрептокок-ками
	Чувствительный к пенициллину

EXERCISE VII. *Fill in the gaps with the following words.*



1. Antibiotic therapy is usually indicated if the pathogen is ____ in nature.

2. Infections spreading rapidly ____ vigorous antibiotic therapy in combination with ____.
3. Unless the organism has been identified we cannot have information regarding antibiotic ____.
4. If tooth-borne infections are not treated they often ____ to cellulitis.
5. When the bacteria reach the enamel, they ____ the dentine and eventually the ____.

6. ____ odontogenic infections are not characterized by the abscess formation.
7. The infection may enter the surrounding ____ tissues if the host ____ is not sufficient.

EXERCISE VIII. *Find in the text the sentences with Complex Object, Complex Subject and Absolute Participial Construction and translate them into Russian.*

EXERCISE IX. *Complete the sentences according to the contents of the text.*

1. A pathogen is a microorganism that ____.
2. The classic signs of infection include ____.
3. Compared to infection surgical trauma often causes pain, swelling and loss of function but ____.

4. Choosing the appropriate antibiotic for therapy of a given infection one should take into consideration ____.
5. The diagnostic of odontogenic infection includes ____.
6. The leading cause of odontogenic infection is ____.
7. Depending on the effectiveness of the host resistance and the virulence of the bacteria, the infection may ____.

8. Early odontogenic infections are mainly aerobic but ____.

EXERCISE X. *Answer the following questions.*

1. What is a pathogen?
2. What are the signs of infections?
3. When is antibiotic therapy indicated?
4. What factors should the dentist take into consideration before starting antibiotic therapy?

5. Why is it difficult to differentiate odontogenic infections?
6. What is the leading cause of odontogenic infections?
7. What are the major causative agents of dental caries?
8. What flora is characteristic of odontogenic infections?

EXERCISE XI. *Give a short summary of the text using the following words.*

- Pathogen

- Signs of infection
- Antibiotic therapy
- To choose
- Diagnosis
- Microenvironment
- Streptococci
- Aerobes and anaerobes

LESSON 5

EXERCISE I. *Read the following words paying attention to their pronunciation.*

Amalgam	[ə'mælgəm]	Polymerization	[ˌpɔlɪməraɪ'zeɪʃn]
Adhesive	[əd'hi:ziv]	Buccolingual	[ˌbʌkəu'lɪngwəl]
Aesthetic	[ɪs'θetɪk]	Thermal	['θə:məl]
Polychromatic	['pɔlɪkrə'mætɪk]	Hybrid	['haɪbrɪd]
Hydroxyapatite	[haɪ'drɔksɪˌæpətaɪt]	Monochromatic	['mɔnəukrəu'mætɪk]
Monomer	['mɔnəmə]	Hue	[hju:]
Longevity	[lɔn'ʤevətɪ]	Chroma	['krəumə]
Technique	[tek'nɪk]	Translucency	[træns'lu:sənsɪ]
Design	[dɪ'zaɪn]	Fiberoptic	[faɪbər'ɔptɪk]
Restorative	[rɪ'stɔrətɪv]	Shrinkage	['ʃrɪŋkɪʤ]
Morphology	[mɔ:'fɔləʤɪ]	Polymer	['pɔlɪmə]

EXERCISE II. *Translate the following word combinations into Russian.*

Wear resistance	To eliminate postoperative discomfort
Nonadhesive restorative technique	Minimal mechanical retention

High-quality tooth-coloured restoration	The width of the preparation
Stratification process	Buccolingual preparation
Fiberoptic structure	To bevel the margin
Enamel rod	Unconstrained volumetric shrinkage
High polymerization shrinkage	Marginal gaps
Increased incidence of microleakage	Clinical failure
Cavity design	To result in cuspal flexure
Gap-free hybrid layer	Undesirable effects
Stress-free tooth-restoration interface	

EXERCISE III. *Translate the families of words.*

1. Preserve, preservation, preservative.

2. Desire, desirable, undesirable, desirability, desirous.
3. Accept, acceptance, acceptability, acceptable, accepted.
4. Resist, resistance, resistant, resistive, resistless, resistor.
5. Maintain, maintenance, maintaining.
6. Serve, service, serviceability, serviceable.
7. Complicate, complicated, complication.
8. Conduct, conductivity, conductive, conductor.

EXERCISE IV. *Find in the text synonyms to the following words.*

Similar – …, to change – …, to advertise – …, life-span – …, shade – …, interaction – …, cooperation – …, characteristic – …, different – …, to penetrate – …, to secure – …, to choose – …, to maintain – …, progress – ….

EXERCISE V. *Match the words with their definitions.*

Composite resin	An alloy of an element or a metal with mercury
Amalgam	The condition in which a material sticks to itself or another material
Morphology	The portion of the tooth that lies subjacent to the enamel and cementum
Stratification	One of the elongated prismatic bodies making up the enamel of the tooth
Enamel rod	An arrangement in the form of layers
Occlusion	The science that deals with the form and structure of an organism or part, without regard to function
Dentin	The bringing of the opposing surfaces of the teeth of the two jaws in contact
Shrinkage	Material used for restorative purposes
Adhesion	Reduction or decrease in extent or quantity

EXERCISE VI. *Read and translate the text.*

MASTERING THE TECHNIQUE OF DIRECT

POSTERIOR COMPOSITE RESINS

As public and professional acceptance of metallic restoratives diminishes, the search for the ideal restorative material continues. The newer generation of composite resins reportedly possess wear resistance and the longevity equal or superior to the traditional amalgam restoration. However, treatment concepts of nonadhesive restorative techniques involving diagnosis, preparation design, pulp protection, and restoration finishing and maintenance must be altered to apply to the advances in materials science and adhesive technology.

Used with a proper understanding of tooth morphology, restorative material selection colour option, and the physical properties of light, these techniques allow optimally aesthetic restorations to be predictably achieved.

Understanding the stratification process requires knowledge of colour and anatomical morphology of the tooth. In a cross section of the clinical crown there is a three-dimensional structural variation in dentine and enamel layers. In natural teeth, different colours are distributed through the enamel and dentine; a variation in hue, chroma, value and translucency render the tooth polychromatic. The dentine imparts all the colours of a tooth (i.e. determines its hue and chroma) while the enamel acts as a fiberoptic structure that conducts light

through its rods to capture the underlying colour of the dentine (i.e. it is a determinant of value). Since no single monochromatic composite resin can duplicate the complex orientation of the colour evident in natural dentition, it is necessary to select a variation of colours for the “artificial enamel” and “artificial dentine” layers.

Accordingly, to reconstruct the natural polychromatic effect, the layers cannot be stratified in a uniform layer of equal dimensions with plexiglass, which is uniformly distributed in layers but requires an irregular undulated placement of composite resins of various colours. This allows the optical proper-ties of light passing through the natural tooth and the restoration to reflect, re-fract, absorb, and transmit according to the optical densities of the hydroxyapa-tite crystals, enamel rods, and the dentinal tubules and restorative material, ren-dering the tooth multicoloured.

The longevity of the composite restoration has been the topic of concern by many private practitioners and clinical studies. Early attempts to use composite resins in the posterior region turned out to reveal complications, including an elevated rate of occlusal wear, inadequate bonding systems, high polymerization shrinkage and lack of adaptation to the margins after polymerization, increased incidence of microleakage with frequent secondary caries, and postoperative sensitivity. Improving serviceability of posterior composite resins in the oral cavity requires addressing these obstacles while developing an optimal protocol for placing posterior composite restorations. A successful restorative procedure for posterior composite resins relies on the interrelation of the clinician, cavity design, isolation, occlusion, selected material, and compliance of the patient. Fundamental principles of this process require maintaining sound tooth struc-ture, achieving a sterile, gap-free hybrid layer, and eliminating microleakage by securing a stress-free tooth-restoration interface.

Differing physical and mechanical characteristics of composite resin and metallic restorations require a distinctive adhesive preparation design divergent from that of the classic amalgam preparation. Composite resin is considered to have a greater potential for bonding to tooth structure than does amalgam, and as such, minimal mechanical retention is required. Accordingly, clinicians confined to mechanical principles associated with amalgam must reexamine operative procedures for adhesive restorations and institute a new, nonmechanical ideology.

The procedure requires the removal of the carious lesion and/or defective restoration, development of the proper cavity form, consistent with enamel rod

orientation, and placement of the restorative material. The composite restoration not only provides strength for unsupported or weakened tooth structure, but also, because of a low thermal conductivity, eliminates most postoperative discomfort.

A good adhesive preparation design requires maximum preservation of remaining tooth structure, with no extension for prevention. Since composite requires less volume than amalgam to resist clinical fracture, the preparation is limited to the ability to access the lesion or defect. The width of the preparation

should be as narrow as possible, because the wear resistance of the restoration is directly proportional to the dimension. As a result, increased buccolingual preparation width can trespass into the centric holding areas. To allow for a better resin adaptation, internal line angles should be rounded and cavity walls smoothed. When there is enamel present to increase the potential for bonding, bevelling should be restricted to the gingival and proximal margins. Restricted bevelling increases the fracture resistance by enlarging the bulk of the restoration, as well as expanding the bonding surface area and decreasing microleakage by exposing the enamel rods for etching. The occlusal cavosurface margin should not be bevelled, because increased width of the preparation may infringe on the centric holding area, accelerating the wear rate of the restoration.

Application of the aforementioned adhesive design principles also requires a comprehensive understanding of the complex interplay between polymerization shrinkage and adhesion. The cross-linking of resin monomers into polymers is responsible for an unconstrained volumetric shrinkage of 2 % to 5 %. The uncompensated forces may exceed the bond strength of the tooth-restoration interface resulting in a gap formation from a loss of adhesion. Bacterial and fluid penetration through the marginal gaps may occur, causing colonization of microorganisms, recurrent caries, and postoperative sensitivity with possible subsequent irritation of the pulp – all of which effectuate clinical failure.

However, even if the adhesion process is effective, shrinkage forces generated by a high modulus material or a high volumetric shrinkage can result in stresses being transferred in a pulpal direction, resulting in pressure in odontoblastic processes, which can cause pain on mastication. In addition, these residual stresses can result in cuspal flexure or enamel fracture. Managing and combating these undesirable effects can be accomplished by using a combination of selective bonding and incremental layering of the composite resin.

EXERCISE VII. *Find in the text equivalents for the following.*

Новое поколение композитов	Удаление кариозного поражения
Прогресс в материаловедении	Ослабленная структура зуба
Физические свойства света	Низкая теплопроводимость
Проводить свет	Устойчивость к износу

Естественный зубной ряд	Десневой край
Однородный слой	Устойчивость к перелому
Оптические свойства света	Всестороннее понимание
Зубные канальцы	Потеря прилегания
Долговечность композитов	Послеоперационная чувствительность
Отсутствие краевого прилегания	Последующее раздражение пульпы
Улучшить прочность	Одонтобластические отростки
Сохранить здоровую структуру зуба	Боль при жевании
Устранить подтекание	Трещина эмали

EXERCISE VIII. *Match the left and right columns to make up the sentences according to the contents of the text.*

Knowledge of colour and the anatomical morphology is required for …	… in a uniform layer of equal dimension.
No single monochromatic composite resin can duplicate …	… eliminates most postoperative discomfort.
The artificial enamel or dentine layers cannot be stratified …	… understanding the stratification process.
A successful restorative procedure for posterior composite resins depends on ...	… the interrelation of the clinician, cavity design, isolation, occlusion, selected material and compliance of the patient.
The composite restoration provides strength for weakened tooth structure and …	… the complex orientation of the colour evident in natural dentition.
The width of the preparation should be as narrow as possible because …	… the wear resistance of the restoration is directly proportional to the dimension.
Pain on mastication may occur even if the adhesion process is effective due to ...	… to the pressure in odontoblastic processes resulting from shrinkage forces.

EXERCISE IX. *Agree or disagree with the following.*

1. New composite resins possess wear resistance equal or inferior to the amalgam restoration.

2. The dental pulp determines the colour of the tooth.
3. Properties of composite resins require the similar adhesive preparation design as in case with amalgams.

4. Amalgams have a greater potential for bonding to tooth structure than does composite resin.
5. The composite restoration results in postoperative discomfort.
6. Bacterial and fluid penetration may result in irritation of the pulp.

EXERCISE X. *Answer the following questions.*

1. Why must treatment concepts of non-adhesive restoration techniques be altered?
2. What factors should be taken into consideration to achieve optimally aesthetic restoration?

3. Which structures are responsible for the colour of the tooth?
4. What does an irregular indulated placement of composite resins contribute to?

5. Why did early attempts to use composite resins in the posterior region fail?

6. What does a successful restorative procedure for posterior composite resins rely on?
7. What are the advantages of composite restorations in comparison with amalgams?

8. What do a good adhesive preparation design and resin adaptation mean?
9. How are polymerization shrinkage and adhesion interconnected?

EXERCISE XI. *Transform the sentences from the text using the word(s) given.*

Do not change the meaning of the first sentence.

1. Understanding the stratification process requires knowledge of colour and anatomical morphology of the tooth.

   …. **is required** ….

2. Composite resin is considered to have a greater potential for bonding to tooth structure than does amalgam.

   It is ….

3. A good adhesive preparation design requires maximum preservation of remaining tooth structure, with no extension for prevention.

   It is necessary to ….

4. To allow for a better resin adaptation, internal line angles should be rounded and cavity walls smoothed.

   The clinician should ….

5. These techniques allow optimally aesthetic restorations to be predictably achieved.

   … **make it possible** ….

6. Early attempts to use composite resins in the posterior region turned out to reveal complications.
   It turned out that ….

EXERCISE XII. *Translate the following sentences from the text paying particular attention to -ing-forms. Define them.*

- Fundamental principles of this process require *maintaining* sound tooth structure, *achieving* a sterile, gap-free hybrid layer, and *eliminating* microleakage by *securing* a stress-free tooth-restoration interface.

- Restricted *bevelling* increases the fracture resistance by *enlarging* the bulk of the restoration, as well as *expanding* the *bonding* surface area and *decreasing* microleakage by *exposing* the enamel rods for *etching*.

- *Managing* and *combating* these undesirable effects can be accomplished by *using* a combination of selective *bonding* and incremental *layering* of the composite resin.

LESSON 6

EXERCISE I. *Read the following words paying attention to their pronunciation.*

Fluoridation	[ˌfluərɪ'deɪʃn]	Macroscopic	[ˌmækrəu'skɔpɪk]
Fluoroapatite	[ˌfluərəu'æpətaɪt]	Microscopic	[ˌmaɪkrəu'skɔpɪk]
Demineralization	[dɪˌmɪnɪrəlaɪ'zeɪʃn]	Videography	[vɪdɪ'ɔgrəfɪ]
Hydroxylapatite	[haɪˌdrɔksɪl'æpətaɪt]	Binocular	[bɪ'nɔkjulə]
Desiccation	[ˌdesɪ'keɪʃn]	Loupe	[lu:p]
Criteria	[kraɪ'tɪərɪə]	Syringe	['sɪrɪndʒ]
Lesion	[li:ʒn]		

EXERCISE II. *Translate the following word combinations into Russian.*

Pit-and-fissure caries	Air-water syringe
Increased caries resistance	Caries detection dyes
Introduction of fluoride	Remnant organic matrix
Visible signs	To identify caries
Occlusal surfaces of posterior teeth	Bonded composite material
Pit-and-fissure sealant	Marginal integrity

Recurrent caries	Adhesive procedures
Accurate diagnosis	Caries resistance
Bacterial plug	Air abrasion
Outside-in progression of caries	Topical fluorides
Inside-in progression	Unaided eye
Intact surfaces of enamel	

EXERCISE III. *Translate the families of words.*

1. Dental, interdental, dentist, dentistry, dentition, denture, dentinal, dentine.

2. Prepare, preparation, preparatory, preparative, preparedness, prepared, un-prepared.

3. Protect, protective, protection, protector, protected.
4. Adhere, adhesion, adherence, adhesive, adhesiveness.
5. Abrade, abrasion, abrasive, abrasiveness, abradant.
6. Suspect, suspicious, suspicion, suspected.
7. Precise, precisely, precision.
8. Fluorine, fluoride, fluoridation, fluorosis.

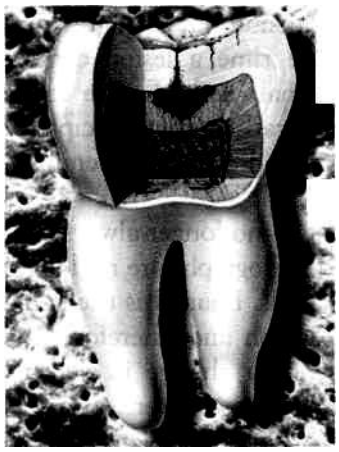
EXERCISE IV. *Match the words with their definitions.*

Caries	An instrument for making or enlarging a hole in the bone or in a tooth
Acid	Removal of carious material from tooth in order to establish biochemically correct forms in the tooth to receive and retain restorations
Fissure	A compound yielding a hydrogen ion in a polar solvent
Explorer	An infectious disease with progressive destruction of tooth substance
Fluoride	The natural teeth, as considered collectively, in the dentinal arch
Sealant	A developmental break or fault in the tooth enamel
Dentition	A sharp pointed probe used to investigate natural or restored teeth surfaces
Drill	The tissues that surround and support the teeth
Preparation	A compound of fluorine with a metal, a nonmetal, or an organic radical
Periodontium	A membrane that lines the oral cavity and other canals and cavities of the body
Mucosa	A material used to effect an airtight closure

EXERCISE V. *Read and translate the text.*

CURRENT PIT-AND-FISSURE CARIES MANAGEMENT

The nature and progression of dental caries is known to have changed as a result of more than 30 years of fluoridation. Fluoride, when incorporated into the enamel surface, results in the formation of fluoroapapatite, which has a decreased acid solubility compared to normal hydroxylapatite. This creates an enamel surface that has increased caries resistance. A positive aspect of fluoridation is the overall reduction in caries in the population; however, a new problem has been created. Fluoride has reduced smooth surface caries, but the anatomical features responsible for pit-and-fissure caries remain.



With pit- and-fissure caries, the enamel surface does not cavitate because of the fluoride, which makes the diagnosis of pit -and-fissure caries less than straightforward. The term cavity no longer applies to the caries process. Today, there is a new model for this disease. In 1924, GV Black recommended diagnosing caries with a sharp dental explorer. If some pressure was required to remove the explorer from a site, Dr. Black recommended restoring the tooth regardless of any visible sign of disease. Forty years before the introduction of fluoride, GV Black recognized the anatomical environment of pits and fissures to result in

caries, and the disease may be present before there are any visible signs. The accurate diagnosis of these surfaces is now more difficult than ever.

The Diagnostic Dilemma

The biggest challenge facing the dental profession today is the proper management of pits and fissures in the occlusal surfaces of posterior teeth. The reason is well illustrated by the life cycle of a first molar:

1. A first molar tooth is treated with a pit-and-fissure sealant.
2. When the sealant fails, an occlusal amalgam is placed.
3. When recurrent caries is evident, a larger amalgam is placed which may involve the proximal surfaces.
4. When a cusp fractures, a crown is placed.
5. As the pulp degenerates, a root canal treatment is performed, and ultimately, the tooth may be extracted.

At best this is a degenerative cycle, illustrating the importance of early, accurate diagnosis and precise, successful treatment in the management of pits and fissures.

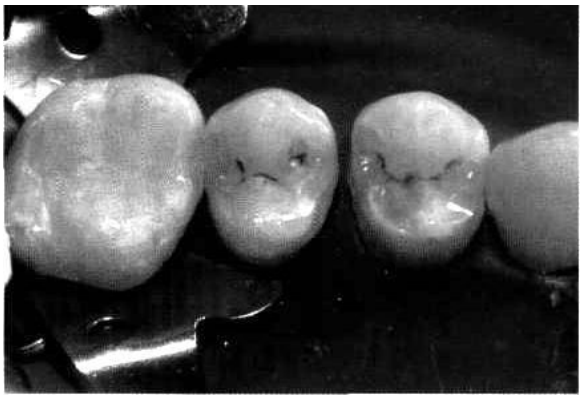
Dental caries is now considered to be an infectious disease. Within months of eruption, teeth with pits and fissures develop an organic or bacterial plug, which remains in the fissure system. Normally, this plug is populated with *Streptococcus sanguis,* which is not believed to cause dental caries. When the plug becomes infected with *Mutans streptococci,* disease presents within 6 to 24 months. In the traditional model of decay, the caries caused demineralization of the enamel, which led to cavitation as the disease progressed into the dentine. The cavitation was easily diagnosed with a radiograph, and probed with an explorer. The traditional model was an outside-in progression of caries. Now, as a result of fluoride, there may be a new disease model. In the new model, the enamel caries demineralization does not lead to cavitation, but spreads along the dentinoenamel junction (DEJ) at the base of the pits and fissures, and through enamel fractures and pores. The new model for caries is better described as an inside-out progression. Unfortunately, by the time a lesion can be diagnosed by traditional methods, the caries process is advanced rather than incipient. Decay is regularly found beneath seemingly intact surfaces of enamel.

Because the enamel no longer always cavitates, explorers and radiographs are no longer effective diagnostic tools. The demineralization zone can better be evidenced by desiccation with a stream of air from an air-water syringe. In fact, explorers have been implicated in causing cavitation and increasing caries probability in a demineralized area.

New diagnostic tools and criteria are needed, and lesion activity and treatment outcome must also be considered. The diagnosis of pit-and-fissure caries has evolved from a macroscopic nature to a microscopic one. These areas are best examined under magnification. One source of magnification is intraoral videography. In the area of suspicious pit-and-fissure defects, the intraoral cam-

era provides diagnostic images of subsurface enamel colour and changes and provides magnification that is otherwise impossible to the unaided eye of the dentist. Other sources of magnification are operating microscopes, binocular telescopes, or loupes. The use of the surgical microscope also presents a paradigm shift for the dentist. The microscope increases the level of precision in diagnosis and treatment outcomes to levels that are not possible with traditional methodologies.

Caries detection dyes also add new capabilities in diagnosing early lesion activity. When placed in occlusal pits and fissures, left for 10 seconds, and then rinsed, these dyes mark the denatured protein in the affected dentine and the remnant organic matrix in the enamel, accurately identifying caries in both tissues. Caries detection dye is considered to be a reliable diagnostic tool for occlusal carious lesions has far reaching implications for those who advocate the earliest intrvention in the caries development paradigm. The advantages of these methodologies can be traced to the enhancement of visual acuity in the operating field, diagnostic accuracy, technical precision, and the ability to assess progress and performance. In addition, recent advances in digital radiography offer hope in providing greater diagnostic accuracy with radiology.



Occlusal fissures of maxillary premolars demonstrate penetration

and staining with caries detection dye

The need for early, conservative treatment is self evident. The goal of operative dentistry is known to maintain primary oral health, which is defined as the absence of disease of the teeth, periodontium, and mucosa. Dental disease does not heal itself. To watch suspicious occlusal pits and fissured is to allow the caries process to proceed from a microscopic lesion to a macroscopic lesion. The macroscopic treatment of teeth is an unfortunate and degenerative process. There is truth in the re-restoration life cycle of a molar. Nearly three out of every four amalgam restorations are replacements of existing restorations. The cycle of re-restoration leads to an increase in restoration size, and that the longevity of a restoration is directly related to the amount of tooth structure removed. With this in mind, it is imperative to identify incipient occlusal caries at the earliest possible moment, treat it as conservatively as possible, keep the preparation within the protective cusps and away from interocclusal forces, and then restore

the tooth with bonded composite material, to maximize structural and marginal integrity and restoration longevity. Such a service provides the benefit of retention of sound tooth structure combined with the latest adhesive procedures to minimize the initial restorative trauma and provide maximum caries resistance. This provides the patient with the strongest end result, and the healthiest dentition for their future.

The Treatment Dilemma

Because conventional diagnostic methods may not reveal the presence or extent of caries within pits and fissures, clinicians choose from several options for the management of pits and fissures:

1. Watch the pits and fissures, which allows caries to progress until the lesion is confirmed visibly or symptomatically.
2. Seal the pits and fissures with the intent of monitoring them during recall visits to identify and repair defective sealants.

3. Remineralize any defect using topical fluorides in the office and at home.

4. Remove the defect with a bur, making a typical traditional cavity preparation.

5. Explore the defect with air abrasion to remove stain in the shallow layers of the tooth to see if caries exists.

Caries detection dyes and air abrasion are reported to have become important diagnostic instruments because they are able to reveal cavities that would be otherwise undetectable. In addition, air abrasion provides a fast, easy, conservative, and reliable way to stop caries while the lesion is still very small, while at the same time avoiding the use of the drill. This precision is likely to facilitate a conservative new approach to the interception of decay.

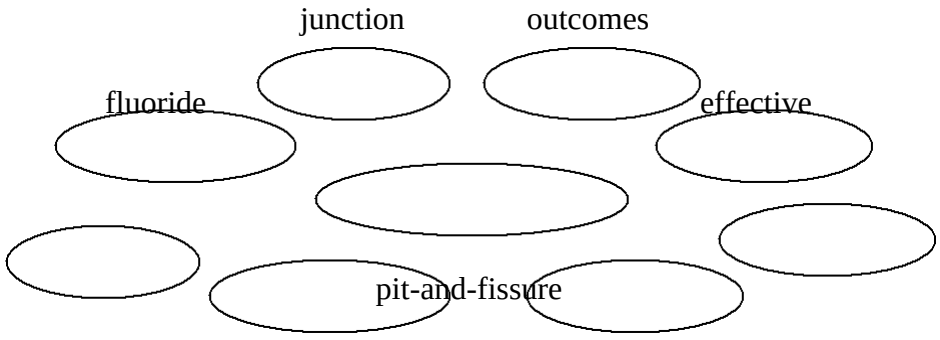
EXERCISE VI. *Find in the text equivalents for the following .*

Эмалевая поверхность	Поддерживать здоровье зубов и полости рта

Пониженная растворимость кислоты	Замещение существующих пломб
Повсеместное сокращение	Срок годности пломбы
Гладкая поверхность	Количество удаленной структуры
Острый стоматологический зонд	Выявить начинающийся кариес
Видимые признаки	Защитные бугорки
Поместить амальгаму	Межокклюзионные силы
Распространиться на проксималь-ные поверхности	Удержание здоровой структуры зуба
Лечение корневого канала	Здоровый зубной ряд
Успешное лечение	Традиционный диагностический метод
Приводить к образованию полости	Повторный визит

Дентино-эмалевое соединение	Препарирование полости
Высушивание с помощью струи воздуха	Поверхностный слой зуба
Исход лечения	Надежный способ приостановить кариес
Источник увеличения	Небольшое повреждение
Уровень (степень) точности	Избегать использования дрели
Новые возможности	Новый подход
Надежное диагностическое средство	Предотвращение кариеса
Диагностическая точность	

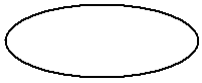
EXERCISE VII. *Fill in the gaps with the following words.*



abrasion

cavitate

resiatance increase



laterally

1. Fluoride incorporated into the enamel surface results in increased caries

   ____ but makes the diagnosis of ____ caries more difficult.

2. As a result of ____, the enamel caries demineralization spreads along the dentino-enamel ____ at the base of pits and fissures, and through enamel fractures and pores.
3. Caries spreads ____ along this junction and the enamel doesn't ____.
4. As explorers and radiographs are no longer ____, new tools and criteria are needed.

5. Intraoral videography, operating microscopes, binocular telescopes ____ the level of precision in diagnosis and treatment ____.
6. Caries detection dyes and air ____ have become important diagnostic tools.

EXERCISE VIII. *Find in the text 7 sentences with Complex Subject and translate them into Russian.*

EXERCISE IX. *Complete the questions and answer them.*

1. What ____ fluoridation _____ in (*to result*)?

2. GV Black didn't recommend restoring the tooth until the first visible signs of disease appear, ____?

3. What ____ the biggest challenge facing the dental profession today (*to represent*)? Why?

4. Why ____ dental caries ____ to be an infectious disease (*to consider*)?
5. What ____ the difference between the traditional and new model for caries (*to be*)?
6. Why ____ explorers and radiographs no longer ____ to be effective diagnostic tools (*to consider*)?

7. What ____ the advantage of using intraoral videography (*to be*)?
8. What other sources of magnification ____ you ____ (*to know*)?
9. Why ____ caries detection dye ____ to be a reliable diagnostic tool (*to believe*)?

10. Why ____ it important to identify incipient occlusal caries as early as possible (*to be*)?

EXERCISE X. *Use the following words to give a short summary of the text.*

- positive aspect of fluoridation

- a new problem
- visible signs
- pits and fissures
- to spread along the DEJ
- effective diagnostic tools
- to increase the level of precision
- early conservative treatment

EXERCISE XI. *Transform the following sentences from the text using the word(s) given. Do not change the meaning of the first sentence.*

1. Fluoride has reduced smooth surface caries, but the anatomical features responsible for pit-and-fissure caries remain.
   … **been** ….
2. GV Black recognized the anatomical environment of pits and fissures to result in caries.
   … **were recognized** ….
3. A first molar tooth is treated with a pit-and-fissure sealant.
   … **should** ….

4. Dental caries is now considered to be an infectious disease.
   … **that** ….
5. The longevity of a restoration is directly related to the amount of tooth structure removed.
   … **depends** ….
6. When a cusp fractures, a crown is placed.
   In case of ….

LESSON 7

EXERCISE I. *Read the following words paying attention to their pronunciation.*

Gingival	['ʤɪnʤɪvəl]	Semilunar	[ˌsemɪ'lu:nə]
Gingiva	['ʤɪnʤɪvə]	Dynamic	[daɪ'næmɪk]
Mucogingival	[ˌmjukəu'ʤɪnʤɪvəl]	Papillae	[pə'pɪli:]
Subepithelial	[ˌsʌbepɪ'θi:lɪəl]	Rationale	[ˌræʃə'na:l]
Keratinized	['kerətɪnaɪzd]	Curette	[kju'ret]
Tetracycline	[ˌtetrə'saɪklin]	Hydrochloride	['haɪdrəuklɔ'raɪd]
Alveolar	[ˌæl'vɪələ]	Citric	['saɪtrɪk]

EXERCISE II. *Match the left and right parts.*

1	Gingival recession	A	Кровоснабжение
2	Causative factor	B	Обнаженные корни
3	Predisposing factor	C	Свободная десна
4	Attached gingiva	D	Слизистая неба
5	Root exposure	E	Поврежденная десна
6	Root abrasion	F	Рецессия десны

7	Crown fracture	G	Этиологический фактор
8	Recurrent decay	H	Кровоток
9	Root coverage	I	Обнаженные корни
10	Gingival autograft	J	Перелом коронки
11	Cervical abrasion	K	Аутотрансплантат на десну
12	Graft gingival tissue	L	Смежная ткань
13	Gingival grafting	M	Пересадка десны
14	Denuded roots	N	Рецидивный кариес
15	Palatal mucosa	O	Провоцирующий фактор
16	Blood supply	P	Источник крови
17	Source of blood	Q	Неподвижная часть десны
18	Adjacent tissue	R	Десневой край
19	Free gingiva	S	Истирание шейки зуба
20	Cervical lesion	T	Искривленные корни
		U	Сильное гниение
		V	Ткань десневого протеза
		W	Стираемость корня
		X	Выпрямление корня
		Y	Покрытие корня
		Z	Пришеечная часть десны

EXERCISE III. *Match the words with their definitions.*

Flap	A small projecting body part similar to a nipple in form.
Edentulous	The superficial destruction of a surface area tissue by inflammation, ulceration or trauma.
Graft	A slip of soft tissue partially or totally detached to be used in repairing defects
Abrasion	The removal of calcareous deposits from the teeth by using suitable instruments
Scaling	Toothless, lacking teeth
Lesion	A slip or portion of tissue used for implantation
Papilla	A moving back or withdrawal
Erosion	Any pathologic disturbance of a tissue, with loss of continuity, enlargement, function, etc.
Recession	The abnormal wearing away of a substance or tissue by a mechanical process

EXERCISE IV. *Complete the sentences using the derivatives of the words in bold type.*

1. An adequate ____ of dentine should be present to deliver the necessary rigidity and ____.	**thick, strong**

2. Noncarious cervical lesions are categorized as ____, ____, or abfraction, accordingly to their aetiology.	**to abrade, to erode**
3. The margin of the cavity is placed on a caries-free surface to avoid the risk of plaque ____ that could lead to ____ of the disease.	**to accumulate, to recur**
4. If optimal relationship between denture and muscle is not achieved, functional denture ____ can result.	**stable**
5. The ____ of the method was demonstrated in numerous studies.	**to rely**
6. Falls in ____ of complete dentures are commonly related to ____ or ____ imbalance.	**stable, muscle, occlusion**
7. A significant loss of periodontal ____ may occur in 10-30% of the adult population.	**to attach**

EXERCISE V. *Read and translate the following text.*

SOFT TISSUE ROOT COVERAGE AS TREATMENT

FOR CERVICAL ABRASION AND CARIES

Gingival recession is defined as exposure of the root surface by an apical shift in the position of the gingiva. Causative factors of gingival recession include inflammation that can be induced by bacterial plaque accumulation or by

the mechanical action of aggressive tooth brushing. Predisposing factors for the development of gingival recession include a deficiency in width and thickness of attached gingiva. Deficiency in the amount of attached gingiva may be genetically determined or may be the result of orthodontic movement, particularly in cases in which a tooth has been moved out of the alveolar bone housing.

Preoperative view of teeth No. 5 and 6. Both teeth have 3.0 mm

of gingival recession

Root exposure resulting from gingival recession is known to lead to tooth sensitivity, root abrasion, chemical erosion, root caries, and adverse aesthetics. Therefore, it is common for areas with gingival recession to require treatment.

Teeth with gingival recession combined with a carious lesion or a cervical abrasion traditionally have been treated with cervical (Class V) restorations. While these restorations have been effective in treating such lesions, several

problems have been revealed, including margin microleakage, abfraction, discoloration, crown fracture, recurrent decay, and loss of the restoration.

An alternative to Class V restorations in treating teeth with gingival recession is the placement of soft tissue grafts for root coverage. Mucogingival surgical procedures present the advantage of restoring the dento-gingival unit. Various techniques currently are available for root coverage, including free gingival autografts, subepithelial connective tissue grafts, guided tissue regeneration, coronally positioned flaps, and acellular dermal matrix grafts.

Soft tissue grafts for root coverage have been suggested as treatment for cervical radicular carious lesions, cervical abrasions, and even for previously restored roots in the cervical area. The rationale, indications, and treatment modalities for root coverage are discussed and cases are presented illustrating root coverage in two clinical situations, including root caries and cervical abrasion.

Root coverage: Selecting the proper surgical technique

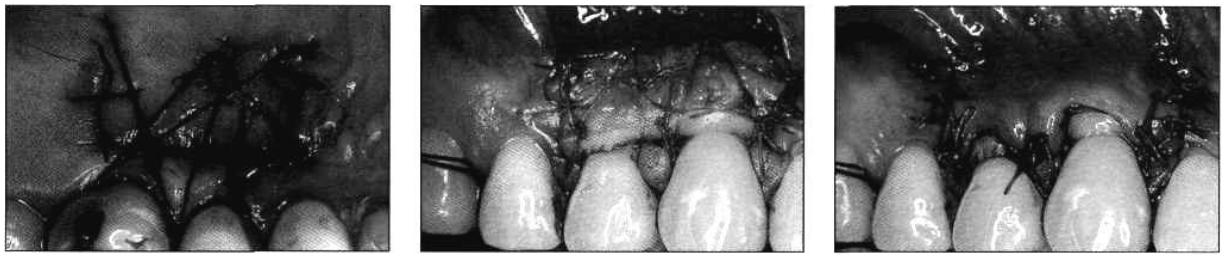
Several procedures have been described as successful techniques for root coverage. Basically, techniques can be divided into two major categories, depending on the presence of adequate or inadequate keratinized tissue.

Clinical situations in which the existing keratinized tissue is adequate but gingival recession is present are not very common. When treating such cases, there is no need to graft gingival tissue since a mucogingival problem is not pre-

sent. The surgical procedure, therefore, consists of coronally displacing the existing gingival tissue. Techniques used in these situations include the coronally positioned flap and the semilunar flap.

Most clinical situations of gingival recession requiring root coverage involve a deficiency in keratinized attached tissue. Therefore, these cases demand gingival grafting for successful management. The earliest procedure proposed to correct mucogingival problems and cover denuded roots was the laterally sliding flap or pedicle graft. Although effective, this technique is believed to carry the risk of creating recession in the donor area; its current clinical applications are limited to cases in which the donor site is edentulous.

The most popular techniques currently employed in mucogingival surgery are those utilizing free soft tissue grafts. The free gingival graft is a predictable root coverage procedure that has the advantage of creating an ample gain in attached gingiva and increasing vestibular depth. Colour match is not always optimal, however, since the donor palatal mucosa tends to be lighter in colour than the buccal gingival tissue.



The palatal flap was sutured following harvesting of the connective tissue graft

The subepithelial connective tissue graft may create the most favourable biologic and aesthetic results. Colour match usually is favourable with connec-

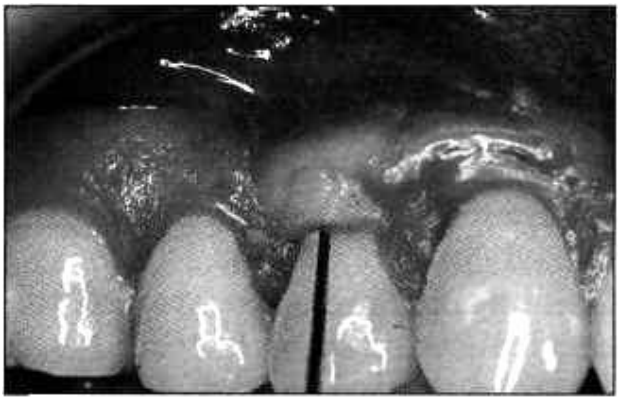
tive tissue grafts and the discomfort originating from the donor palatal area is reduced due to the possibility of suturing. Locations in which an increase in ves-tibular depth is desired are the main contraindication for root coverage with connective tissue grafts.

A two-step procedure for root coverage also has been proposed. This tech-nique involves the placement of a conventional free gingival graft at the existing receded gingival line. After allowing six to eight weeks for healing, a second surgical procedure consisting of coronally positioning the grafted tissue is per-formed. These two-step procedures are indicated in cases of severe recession combined with minimal vestibular depth.

More recently, guided tissue regeneration and acellular dermal matrix grafts also have been proposed as root coverage alternatives. Both techniques have the advantage of not requiring a palatal donor site, thereby causing less postoperative discomfort. Long-term data on the stability of results achieved with these techniques is required before they can be recommended as routine procedures.

Healing considerations in root coverage surgery

Understanding the dynamics of healing following root coverage surgery with any type of free soft tissue graft is fundamental in determining the chances for success. The clinician's concern is the predictability of the surgical procedure. The answer relies on the source of blood supply to the grafted tissue. The portion of the soft tissue graft that is in contact with the root surface needs collateral blood supply from the adjacent interproximal papillae to survive in the early phase of healing. In the absence of interproximal tissue, there is no reliable source of blood for the graft. Therefore, root coverage with a soft tissue graft can be expected to succeed only to the level of the adjacent interproximal tissue.



Complete root coverage on teeth #5 and 6

If root coverage is attempted by use of a flap technique, positioned either coronally or laterally, the presence of interproximal papillae also is important.

While blood supply is abundant at the base of the flap, the interpoximal tissue is necessary for suturing the flap in its more coronal position. If the interproximal papillae are not present, stabilizing the most coronal portion on the flap over the denuded root surface is not possible.

Successful root coverage includes a biologic attachment between the grafted tissue and the root surface. Failure to achieve attachment between the grafted tissue and the root is considered to result in the formation of a periodontal pocket. Therefore, treatment of the previously exposed root surface by scaling and root planing is essential for a positive outcome. Scaling and root planing can be achieved mechanically with the use of curettes or rotary instruments. Root conditioning with chemical agents such as citric acids and tetracycline hydrochloride following scaling and root planing has been proposed but a controlled clinical trial did not reveal any advantage in combining such a treatment with mechanical root instrumentation.

EXERCISE VI. *Find in the text equivalents for the following.*

Смещение верхушки (корня)	Щечно-десневая ткань
Накопление бактериального налета	Соответствие цвета
Недостаток ширины и толщины	Область неба донора

Прикрепление десны	Атрофированная десневая линия
Расположение в альвеолярной кости	Минимальная глубина преддверия
Чувствительность зуба	Вызвать послеоперационный дискомфорт
Эффективный в лечении поражений	Предсказуемость хирургической процедуры
Краевое микроподтекание	Добавочное кровоснабжение
Мягкая ткань	Межпроксимальные сосочки
Преимущество восстановления	Надежный источник
Обновление ткани	Обильное кровоснабжение
Способ лечения	Пришить лоскут
Ороговевшая ткань	Коронковое положение
Нарушение в десне и слизистой	Обнаженная поверхность корня
Нехватка ткани	Добиться прикрепления
Скользящий лоскут	Положительный исход
Увеличить глубину преддверия	Выявить преимущество

EXERCISE VII. *Fill in the gaps with the following words.*

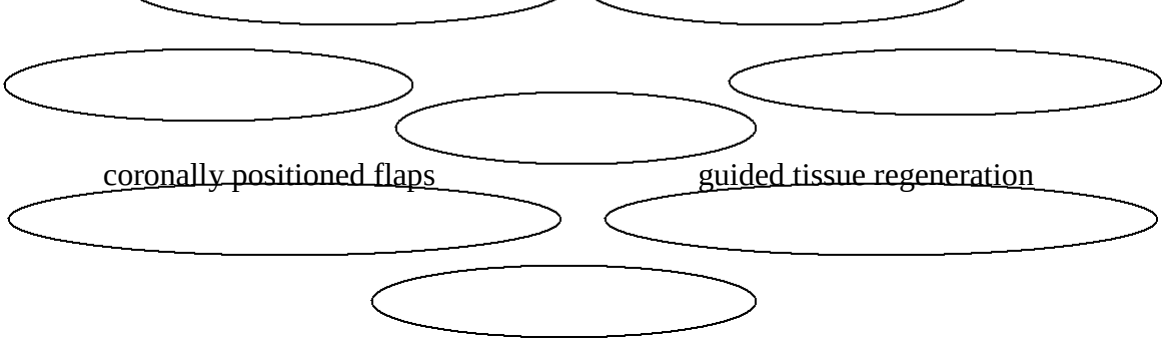
gingival autografts

mucogingival surgery cervical restorations

plaque accumulation gingival recession

soft tissue graft connective tissue

causative factors



keratinized tissue

1. Exposure of the root surface by an apical shift in the position of the gingiva is called ____.
2. Inflammation may be one of the ____ of the recession, it resulting from either ____ or aggressive tooth brushing.

3. Dentists use ____ to treat teeth with gingival recession.
4. An alternative method of treatment is the placement of ____ for root coverage.

5. Roots may be covered using different techniques, such as ____, ____, ____.
6. Depending on the presence of adequate or inadequate ____ successful techniques for root coverage are divided into two major categories.

7. The most popular techniques in ____ are those utilizing free soft tissue grafts.
8. The most favourable biological and aesthetic results may be created by the subepithelial ____.

EXERCISE VIII. *Answer the following questions.*

1. What does gingival recession result from?

2. What are the shortcomings of cervical (Class V) restorations in case of gingival recession combined with a carious lesion?
3. What is the alternative to Class V restorations?
4. What techniques are used for root coverage? When are they used?
5. What surgical technique is indicated in different cases?
6. Why are soft tissue grafts popular today?
7. What are the advantages of the subepithelial connective tissue graft?
8. What is very important for the survival of the soft tissue graft?
9. Why is presence of interproximal papillae important?

EXERCISE IX. *Use the following words to give a short summary of the text.*

- Exposure

- Causative factors
- Predisposing factors
- The amount of attached gingiva
- To lead to
- Cervical restorations
- Alternative
- Root coverage
- Successful techniques

EXERCISE X. *Fill in the gaps with suitable words to get additional information on root coverage.*

Another factor related ____ the success ____ root coverage procedures

____ smoking. Even though successful root coverage can occur ____ smokers, it ____ been shown in one study that the mean root coverage ____ smokers was 57 %, compared ____ 78 % ____ nonsmokers at six months postsurgery. Smoking ____ thought to affect periodontal wound healing through a compromise in revascularization ____ soft and hard tissues. Smoking is also believed ____ cause alterations ____ the metabolic function of cells such ____ fibroblasts and osteoblasts and may induce an increase ____ the production ____ some inflammatory mediators that play a role ____ periodontal tissue destruction. This affects the reparative and regenerative potential ____ the periodontium.

LESSON 8

EXERCISE I. *Read the following words paying attention to their pronunciation.*

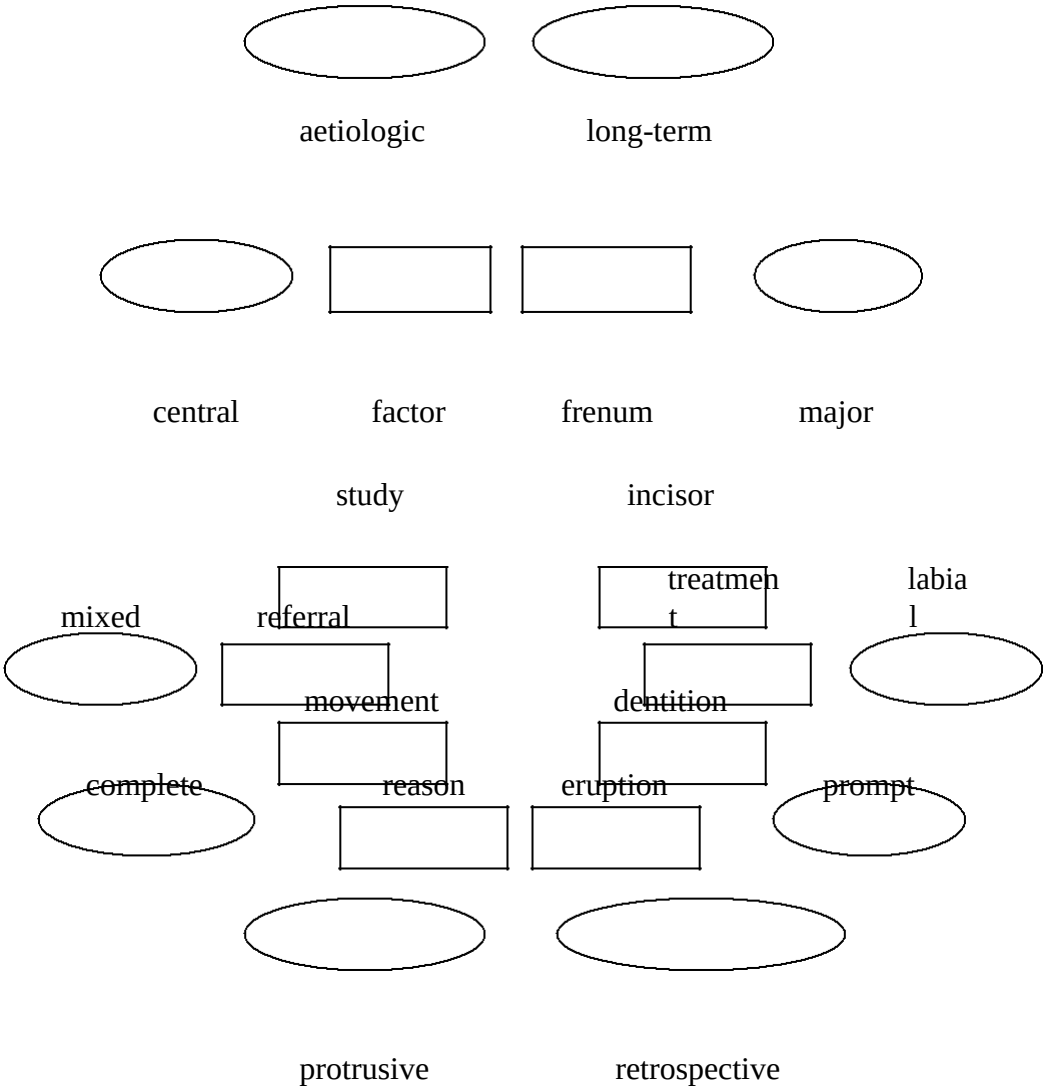
Diastema	[daɪəsˈti:mə]	Tongue	[tʌŋ]
Iatrogenic	[aɪətrəuˈʤenik]	Buccal	[ˈbʌkəl]
Mesiodens	[ˈmɪzɪəudenz]	Pivot	[ˈpɪvət]
Frenum	[ˈfri:nəm]	Closure	[ˈkləuʒə]
Frenectomy	[fri:ˈnektəmɪ]	Guidance	[ˈgaɪdəns]
Longitudinal	[ˌlɔnʤɪˈtju:dɪnl]	Interim	[ˈɪntərɪm]
Microdontia	[maɪkrəuˈdɔnʃɪə]	Wax	[wæks]
Hypodontia	[haɪpəuˈdɔnʃɪə]	Pituitary	[pɪˈtjuɪtərɪ]
Acromegaly	[ækrəuˈmegəlɪ]	Supernumerary	[ˌsu:pəˈnju:mrərɪ]

EXERCISE II. *Translate the following word combinations into Russian.*

Median diastema	Periodontal support
Definitive treatment plan	Rapid maxillary expansion appliance

Techniques available for management	Overcontoured palatal surfaces
Mixed dentition	To displace the maxillary incisors labially
Supernumerary teeth	Custom-made incisal guidance table
To delay the eruption	Selection of appropriate technique
Risk factors for relapse	Family history
Missing maxillary lateral incisors	Labial frenum
Continuous dental eruption	Full-mouth periodontal charting
Dento-alveolar compensation	Mesio-distal crown width
Buccal displacement	

EXERCISE III. *Match the words in the ovals and boxes to make up word combinations:*



EXERCISE IV. *Translate the families of words.*

1. Attract, attraction, attractive, inattractive, inattractiveness, attractable.

2. Define, definite, indefinite, definitive, definition.
3. Erupt, eruption, erupted, unerupted, eruptive.
4. Trauma, traumatic, traumatize, traumatology.
5. Continue, continuous, discontinue, continuity.
6. Protrude, protrusive, protrusion, protruding.
7. Appear, disappear, appearance, disappearance, appearing, disappeared.

EXERCISE V. *Match the words with their definitions.*

Diastema	Return of the manifestations of a disease after an interval of improvement
Mesiodens	A supernumerary tooth located in the midline of the anterior maxillae
Frenum	Fissure or abnormal opening in any part, especially if congenital
Relapse	A post upon which something hinges or turns
Hypodontia	A condition of having fewer teeth than normal
Acromegaly	A narrow reflection or fold of mucous membrane passing from a more fixed to a movable part, serving to check undue movement of the part
Microdontia	A disorder marked by progressive enlargement of peripheral parts of the body
Pivot	A condition in which a single tooth, or pairs of teeth, or the whole dentition, may be disproportionately small

EXERCISE VI. *Read and translate the text.*

MANAGEMENT OF MEDIAN DIASTEMA

Median diastema, also known as midline diastema, can be defined as the presence of a space between the central incisors. The presence of such spacing in the maxilla often is unattractive and it may be the major reason for patients themselves or their parents to seek professional care. Before a definitive treatment plan can be formulated, it is important to understand the aetiology of the problem, which can be developmental, pathological (systemic or dental), or iatrogenic. The significance of individual aetiological factors may vary among patients; therefore, each patient must be evaluated thoroughly before the provision of any treatment.

During the mixed dentition, the presence of interdental spaces between maxillary incisors before the eruption of permanent canines is normal. The phenomenon is known as the “ugly duckling” stage; the spaces usually will be reduced spontaneously without treatment.

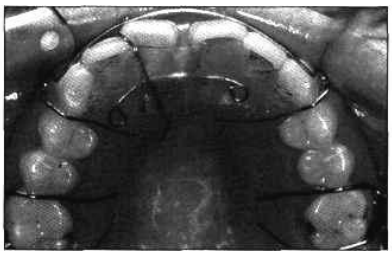
The presence of an erupted midline supernumerary tooth (mesioden) clearly is a cause of median diastema. However, there is controversy regarding the effects of unerupted mesiodens and the treatment required.

Differences in the effects of mesiodens can be explained by the different age groups of the subjects studied. It generally is anticipated that the prevalence of median diastema will decrease from the mixed to the permanent dentition. In terms of patient management, the diagnosis of unerupted mesioden is important and probably only regular recalls can determine its occlusal effects. Prompt referral to an orthodontist or oral surgeon is advised once the eruption of permanent teeth is adversely affected (for example, delayed and rotated).

The midline labial frenum also was thought to be a major local soft tissue factor separating the upper central incisors; different “frenectomy” procedures are presented in the literature. However, some researchers found no differences in spontaneous diastema closure with or without frenectomy in a longitudinal study of children with “abnormal frenum”. Another retrospective study undertaken on patients treated orthodontically for median diastema closure also revealed that an abnormal frenum and/or an intermaxillary osseous cleft did not appear to be risk factors for relapse. Based on these studies, the routine practice

of frenectomy before orthodontic treatment for median diastema closure is not necessary. Indeed, longterm orthodontic retention using composite resin and flexible metal wire cementation on the palatal surfaces of the central incisors may be a less traumatic option to prevent relapse.

Median diastema of 2.5 mm between central incisors



Maxillary occlusal view showing design of a removable orthodontic appliance

Frontal view after two months of orthodontal treatment

Other developmental causes include microdontia and hypodontia, where congenitally missing maxillary lateral incisors are relatively common. Habitual object sucking also must be excluded.

Apart from rare systemic pathology such as acromegaly (from a pituitary gland tumour), the late development of a central diastema more commonly is associated with the breakdown of the supporting periodontal tissues. It is well recognized that tooth position is not static even after complete eruption. While con-

tinuous dental eruption and dento-alveolar compensation are responsible for the maintenance of occlusal vertical dimension, the positions of the anterior teeth are influenced by the balance of forces generated from the lips, tongue, and protrusive mandibular movement. Buccal displacement and extrusion of anterior incisors can be observed frequently among patients with advanced periodontitis. The amount of periodontal support is a factor determining the pivot location for a tooth. Combined orthodontic and periodontal treatments usually are required to manage the situation.

Median diastema also can occur as a result of orthodontic or restorative treatments. For the correction of posterior crossbite, the use of a rapid maxillary expansion appliance in children opens the midline suture in the maxilla. Thus, the central incisors can move apart with the alveolar bone and a fixed orthodontic appliance is required to move the incisors mesially for space closure.

Placement of anterior full -coverage crowns with overcontoured palatal surfaces can abrade the opposing mandibular incisors, dislodge the restorations, increase tooth mobility, or even displace the maxillary incisors labially. The incorporation of palatal platforms and the establishment of an adequate anterior guidance on interim restorations for subsequent transfer to an articulator (using a custo-made incisal guidance table) should be considered when placing multiple anterior crowns.

Diagnosis and treatment planning

Successful treatment depends on the correct diagnosis of the underlying cause(s) and the selection of appropriate techniques. A comprehensive history, including the duration of the diastema, changes in size, recent placement of anterior crowns or orthodontic treatment, and family history, will be helpful. Examination of the patient should include activity of labial frenum, tongue, and lips; full-mouth periodontal charting; nature of centric occlusion and anterior guidance; and degree of posterior support.

Radiographs are helpful to determine the level of periodontal support and the presence of supernumerary or congenitally missing teeth. Study models and photographs can be taken to measure and monitor the size of the diastema. A diagnostic wax-up also should be made to illustrate the possible results with different treatment options.

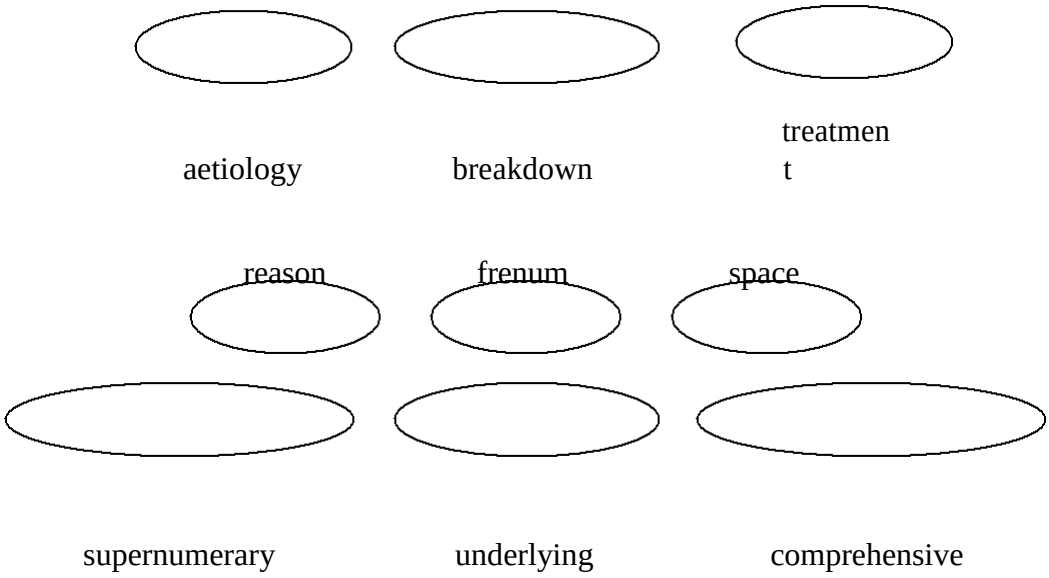
It is helpful to follow basic guidelines for the establishment of an attractive anterior appearance. By evaluating the “golden proportion” (8:5) between the mesio -distal crown widths of the central to lateral incisors when viewed head-on, it is possible to determine whether composite resin alone can close the diastema and give a satisfactory appearance.

EXERCISE VII. *Translate from Russian into English.*

Наличие пространства между центральными резцами	Разрыв тканей периодонта
Понимать этиологию	Полное прорезывание
Тщательно оценивать	Сохранение высоты прикуса
Наличие межзубного пространства	Выпячивание нижней челюсти
Прорезывание постоянных клыков	Исправление перекрестного прикуса

Уменьшить пространство без лечения	Шов по средней линии верхней челюсти
Постоянный зубной ряд	Несъемный ортодонтический аппарат
Непрорезавшийся зуб	Установление коронки
Немедленное обращение	Поцарапать (стереть) резцы-антагонисты
Местный фактор	Подвижность зуба
Закрытие диастемы	Множественные коронки
Длительное изучение	Всесторонний анамнез
Небная поверхность	Центральная окклюзия
Предотвратить рецидив	Врожденно отсутствующие зубы
Опухоль гипофиза	Удовлетворительный внешний вид

EXERCISE VIII. *Fill in the gaps with the words given below.*



1. The presence of a ____ between the central incisors may be the major ____ for patients to seek professional care.
2. It is very important for the dentist to determine its ____.
3. Median diastema is known to result from the presence of an erupted midline ____ tooth.
4. The late development of a central diastema is often associated with the ____ of the supportive periodontal tissues.
5. Orthodontic or restorative ____ can also lead to median diastema.
6. Basing on the ____ cause(s), and a ____ patient's history the dentist can make a correct diagnosis.
7. Full-mouth periodontal charting, nature of central occlusion, activity of labial ____, tongue, lips and degree of posterior support will be very helpful before starting ____.

EXERCISE IX. *Answer the following questions.*

1. When is median diastema observed?

2. What are the causes of median diastema?
3. What may reduce the space between the maxillary central incisors?
4. Does frenectomy help treat the pathology in question?
5. What influences the position of the anterior teeth?
6. Can median diastema be caused by orthodontic or restorative treatment? How does it happen?
7. What are the shortcomings of using anterior full-coverage crowns?
8. What does treatment of median diastema depend on?

EXERCISE X. *Transform the following sentences from the text using the word(s) given. Do not change the meaning of the first sentence.*

1. Before a definitive treatment plan can be formulated, it is important to understand the aetiology of the problem.

   Understanding the aetiology ….

2. Prompt referral to an orthodontist or oral surgeon is advised once the eruption of permanent teeth is adversely affected.
   As soon as … **it is important** ….

3. The late development of a central diastema more commonly is associated with the breakdown of the supporting periodontal tissues.
   … **depends on** ….
4. It is helpful to follow basic guidelines for the establishment of an attractive anterior appearance.
   ... helps ….

5. Placement of anterior full-coverage crowns with overcontoured palatal surfaces can abrade the opposing mandibular incisors, dislodge the restorations, increase tooth mobility, or even displace the maxillary incisors labially.
   … **can result from** ….

LESSON 9

EXERCISE I. *Read the following words paying attention to their pronunciation.*

Adjacent	[a'ʤeɪsnt]	Appliance	[əp'laɪəns]
Hygiene	['haɪʤi:n]	Contour	['kɔntuə]
Veneer	[və'nɪə]	Recurrent	[rɪ'kʌrənt]
Porcelain	['pɔ:slɪn]	Sacrifice	['sækrɪfaɪs]
Align	[a'laɪn]	Furcation	[fə:'keɪʃn]
Mesial	['mi:zɪəl]	Embrasure	[əmb'reɪʒə]
Guide	[gaɪd]	Mesial	['mi:zɪəl]

EXERCISE II. *Translate the following word combinations.*

Malposed teeth	Fixed partial denture
Crowded incisors	Adjacent teeth
Appliance therapy	Forced eruption
Porcelain veneers	Coronal shift of gingiva and bone
Minor tooth movement	Mesially tipped molar

Space between the cuspids	Space maintenance
Relationship of teeth in occlusion	Uneven marginal ridges
The mesial aspect of the cuspid	Posterior bite collapse
Mesial-distal width	Loss of the occlusal vertical dimension
Adequate overjet	Faulty occlusal landmarks
Recontouring of enamel	Excessive tooth preparation
Deep overbite	Inadequate space for the pontic
To prevent any labial movement	Clenching habits
Extensive recurrent caries	Molar uprighting
The height and thickness of the alveo- lar bone	Appropriate treatment

EXERCISE III. *Match the words with their definitions.*

Crest	A tooth located in the posterior aspect of the jaw and adapted for grinding by having a broad, somewhat ridged surface
Veneer	The portion of the alveolar bone extending beyond the periphery of the socket, lying interproximally
Crown	A tooth which usually has two cusps and replaces the molar of the deciduous dentition
Cuspid	The part of a tooth that is covered with enamel

Incisor	The hard tissue covering the anatomic crown of the tooth
Molar	One of the four pointed teeth distal to the lateral incisors
Premolar	A vertical overlapping of upper teeth over lower teeth
Enamel	One of the cutting teeth, four in number, in each jaw at the apex of the dental arch
Overbite	A thin surface layer of tooth-coloured material laid over a metal crown or natural tooth surface

EXERCISE IV. *Translate the families of words.*

1. Apex, apical, periapical, apices;

2. Alveolus, alveoli, alveolar;
3. Apply, appliance, application, applicable, applicant;
4. Restore, restoration, restorative, restorable, nonrestorable, restorer;
5. Remove, removal, removable, removability;
6. Recur, recurrent, recurrence, recurring;
7. Place, placement, replacement, replace;
8. Able, ability, inability, disable, disability.

EXERCISE V. *Complete the sentences using the derivatives of the words in bold type.*

1. The ____ portion of the canals was ____ to bind at the working ____.	**apex, large, long**
2. In the vast majority of patients the distance from the ____ crest to the ____ crest is approximately 3 mm.	**alveolus, gingiva**
3. The permanent left central incisor was built up with resin composite to improve the patient's ____	**to appear**
4. The treatment was not ____ because the patient didn't wear the removable ____ regularly.	**success, to apply**
5. The remaining pulp chamber should be of sufficient ____ and ____ to provide adequate bulk of amalgam for retention.	**wide, deep**
6. A ____ to a standard cavity design is suggested to help to preserve the occlusal ____.	**to modify, high**
7. Sclerosed dentin may affect the ____ of adhesive ____ materials to bond well to its surface.	**able, to restore**

EXERCISE VI. *Read and translate the text.*

CLINICAL APPLICATIONS OF APPLIANCE THERAPY

IN GENERAL DENTAL PRACTICE

Malposed teeth, including flared and crowded incisors, tipped molars, and fractures apical to the alveolar crest, are just some of the problems dentists are confronted with on a daily basis. In response to these challenging problems, simple appliance therapy techniques prove to be an approach to treatment that should be considered.

Many patients are known to be concerned with the appearance of their teeth and request that the dentist improve their aesthetic presentation. Full orthodontic therapy may not be an option, so minor tooth movement should be considered. This article will describe some of the approaches using removable appliances that can give patients the smile they want while providing optimum restorative / prosthodontic care.

Before the introduction of veneers, improvement of anterior aesthetics generally involved preparing teeth for full -coverage porcelain crowns. Removal of significant amounts of tooth structure was the rule, not the exception. Today, porcelain veneers allow dentists to solve a range of aesthetic problems without having to remove large amounts of tooth structure. However, to achieve an ideal result, it is often wise to consider minor tooth movement as a prelude to the restorative phase of care.



Facial view shows overlapping central incisor and lateral incisor	*Use of a simple removable appliance with various springs*	*Facial view after minor tooth movement and veneer placement*

One of the most common complaints voiced by adult patients is crowding of the mandibular anterior teeth. Crowding is defined as not having enough space between the cuspids for the lateral and central incisors to be ideally aligned in the arch form. When this occurs, the lateral and central incisors overlap and are forced either labially or lingually. Correcting this problem begins by the dentist carefully evaluating the severity of the crowding and the relationship of the maxillary and mandibular anterior teeth in occlusion. Measuring the amount of crowding is accomplished by comparing the existing space to the space needed to align the anterior teeth. Measuring the existing space is accom-

plished by measuring the space from the mesial aspect of one cuspid to the mesial of the other. Measuring the required space is accomplished by summing the mesial-distal widths of the central and lateral incisors at their widest point.

When the mandibular anterior crowding is 1.5 mm or less and adequate overjet exists between the maxillary and mandibular anterior teeth to move the mandibular teeth labially, carefully recontouring the interproximal enamel of the 6 mandibular anterior teeth and placing an activated removable appliance (e.g. a Spring Hawley) can generally correct this limited degree of crowding.

To fabricate this appliance, the dentist or laboratory technician must first reset the mandibular anterior teeth on the model into the ideal position. This requires that each tooth be adjusted proximally to the same degree that will be required in the mouth. The Spring Hawley retainer is then fabricated to this ideal position. It is important to note that on the day of delivery of the appliance – and not before – the interproximal recontouring of enamel is accomplished. This will allow the teeth to move into the ideal position as guided by the appliance.

If the patient's overbite appears to be deep and the mandibular anterior teeth already make contact with the palatal surfaces of the maxillary anterior teeth, the appliance will not promote movement of the teeth into their idealized position regardless of the amount of recontouring or the force exerted, since this contact will simply prevent any labial movement of the mandibular anterior teeth. Therefore, it is critical that the dentist evaluate the overbite relationship prior to selecting this treatment approach.

A challenging clinical problem is presented by a patient with a fracture or extensive recurrent caries that extends to or is apical to the crest of the alveolar bone. These teeth often appear to be nonrestorable, but there are several approaches that can be considered for these problems. These range from (1) extraction of the remaining root and placement of a prosthetic restoration (2) surgical exposure of sound tooth structure to (3) forced eruption of the tooth.

Extraction may appear to be the simplest solution and is indicated if the fracture or caries is extensive. Nevertheless, tooth loss is associated with a decrease in the height and thickness of the alveolar bone. This may compromise the aesthetics of the restorative treatment regardless of whether an implant or fixed partial denture is used.

Surgical exposure of sound tooth structure can also be problematic. The mucoperiosteal flap that allows access to the osseous crest cannot be limited to the involved tooth and must be extended to adjacent teeth for access and establishment of proper contours. Adequate removal of crestal bone and proper contouring may result in the sacrifice of supporting bone on several uninvolved teeth. This is known to cause root sensitivity, expose furcations, and in some cases can involve the maxillary sinus. When crown lengthening is attempted for an anterior tooth, the result may be open embrasures and long clinical crowns.

An alternate approach is forced eruption of the involved tooth. Forced eruption can be defined as orthodontic movement in a coronal direction through

the application of gentle, continuous forces. Specifically, when a root segment is forcefully erupted, the forces stretch the gingival and periodontal fibers, producing a coronal shift of gingiva and bone. If accomplished slowly, the gingival and supporting bone will follow to a position that is coronal to the adjacent teeth. These gingival and osseous changes can help the clinician manage many different restorative problems. For example, after forced eruption, periodontal surgery can be performed, exposing sound tooth structure without sacrificing bone on the adjacent teeth. The soft tissue can then be positioned at a height to blend with the adjacent teeth to produce an aesthetic result.

The mesially tipped molar is a common dental problem. This often occurs because the first permanent molar is extracted in childhood due to caries and the second molar tips mesially. In the adult, the first molar can be lost as the result of (multiple) endodontic / restorative failures, extensive caries, caries in the buccal and / or lingual furcation, tooth fracture, and advanced periodontal disease. Without timely replacement or provision for space maintenance, the second molar can drift mesially, with the crown tipping in an anterior direction. When this occurs, consequences can include extrusion and migration of adjacent and opposing teeth, uneven marginal ridges, vertical osseous defects, altered coronal-to-gingival form, food impaction, caries, and ultimately posterior bite collapse with loss of the occlusal vertical dimension.

Some of the restorative challenges presented by a mesially tipped molar include the following: inadequate parallelism of abutment teeth; altered occlusal plane; lack of proper interproximal space; root proximity problems; faulty occlusal landmarks; the need for excessive tooth preparation, resulting in pulpal involvement; inadequate space for the pontic; periodontal deformities, including both the hard and soft tissues; a patient’s inability to perform adequate oral hygiene; and bruxism and clenching habits.

A tipped molar having such a profound effect on prosthodontic treatment, molar uprighting appears to be one of the most common orthodontic procedures performed as an aid to restorative therapy. However, before proceeding with molar uprighting, a thorough diagnosis is essential, and an appropriate treatment plan should be developed.

EXERCISE VII. *Find in the text equivalents for the following.*

Искривленные зубы	Доступ к верхушке кости
Сталкиваться с проблемой	Поддерживающая кость
Внешний вид зубов	Чувствительность корня
Съемное приспособление	Удлинение коронки
Фарфоровые коронки	Открытый межзубный промежуток
Удаление значительного количества структуры зуба	По направлению к коронке зуба
Скученность передних зубов	Костные изменения

Боковой и центральные резцы	Мягкая ткань
Выровнять зубы	Обширный кариес
Измерить требуемое пространство	Перелом зуба
Изготовить приспособление	Без своевременного замещения
Откорректировать зубы проксимально	Задержка пищевых остатков
Небная поверхность зубов	Опорные зубы
Подход к лечению	Нехватка пространства
Верхушка альвеолярной кости	Надлежащая гигиена полости рта
Удаление оставшегося зуба	Тщательный диагноз
Слизисто-надкостничный лоскут	

EXERCISE VIII. *Match the left and right columns to make up the sentences according to the content of the text.*

1. Simple appliance therapy should be considered as an approach to treatment of such problems as …	… root proximity problems, the need for excessive tooth preparation, perio-dontal deformities and other defects.
2. Crowded teeth means lack of proper space …	… which is followed by periodontal surgery.
3. An activated removable appliance is known …	… malposed teeth, tipped molars and fractures apical to the alveolar crest.
4. A fracture or extensive recurrent	… to correct the degree of crowding.

caries represents …	
5. Extraction of the remaining root and placement of a prosthetic restoration seems …	… endodontic restorative failures, extensive caries, tooth fracture and advanced periodontal disease.
6. Surgical exposure of sound tooth structure can cause …	… between teeth to be ideally aligned in the arch.
7. Forced eruption represents an alternate approach …	… root sensitivity, expose furcation and even involve the maxillary sinus.
8. The mesially tipped molar can result from …	… to be the simplest solution.
9. If not corrected, a mesially tipped molar can lead to …	… a challenging clinical problem which appears difficult to solve.

EXERCISE IX. *Answer the following questions.*

1. What problems affecting the teeth appearance are dentists confronted with?

2. What is the advantage of using porcelain veneers?
3. What teeth are usually affected by crowding?
4. What appliance is usually used to correct the mandibular anterior crowding 1.5 mm or less?

5. Why isn't the appliance used if the patient's overbite is deep?
6. What approaches are used in managing extensive recurrent caries?

7. What are their advantages and disadvantages?

8. What does the mesially tipped molar result from?
9. What does it lead to?

EXERCISE X. *Give your own definitions to the following.*

Malposed teeth …

Flared teeth …

Crowded teeth …

Tipped molar …

Orthodontic therapy …

A removable appliance …

Restorative treatment …

Recurrent caries …

Periodontal disease …

EXERCISE XI. *Transform the following sentences from the text using the word(s) given. Do not change the meaning of the first sentence.*

1. Many patients are known to be concerned with the appearance of their teeth.

   It is known …

2. Porcelain veneers allow dentists to solve a range of aesthetic problems without having to remove large amounts of tooth structure.

   … **can be solved …**

3. A challenging clinical problem is presented by a patient with a fracture or extensive recurrent caries.
   … **present …**

4. After forced eruption, periodontal surgery can be performed.

   … **is preceded by …**
5. The first molar can be lost as the result of (multiple) endodontic / restorative failures, extensive caries, caries in the buccal and / or lingual furcation, tooth fracture, and advanced periodontal disease.

   … **can result from …**

6. Molar uprighting appears to be one of the most common orthodontic procedures performed as an aid to restorative therapy.
   It appears …

OBJECTIVES AND DEVELOPMENT COURSES

The objectives of development disciplines:

goals - BUTNat-surgical preparation of students required for the subsequent

lessons on clinical departments, primarily surgical, and independent medical practice; formation of students' knowledge of the system, taking into account individual variability of organs, blood vessels, nerves; formation of students' abilities to apply their topographic anatomical knowledge to support the diagnosis, explaining the features of the pathological processes, diagnostic solutions and operative surgical tasks; mastery of elementary students operational activities and some types of surgical techniques, the formation of professional competencies.

Tasks:

- formation of students' knowledge of topographic anatomy of the areas, organs and systems, focusing on clinically important anatomical and functional features;
- formation of students' abilities to apply their topographic anatomical knowledge to support the diagnosis, explaining the features of the pathological processes, diagnostic solutions and operative surgical tasks.
- students master the basic operational activities and some types of surgical techniques.
- formation of professional competence.

The list of planned learning outcomes for subjects (modules), correlated with the planned result of the development of vocational education programs

The study of discipline "Topographical anatomy and operative surgery" in the development of the discipline of the material is aimed at developing students following of general and professional competencies in accordance with the GEF IN:

Competence index. Content of a competence (or a part of it)	The proposed results of the course students are:
GPC-1 Able to implement moral and legal norms, ethical and deontological principles in professional activities	Know: the relationship "doctor-patient", "doctor-relatives"; moral and ethical standards, rules and principles of professional medical behavior, the rights of the patient and the doctor; basic ethical documents of international and domestic professional medical associations and organizations. Be able to: protect the civil rights of doctors and patients of different ages; apply techniques and techniques of effective communication in professional activities; use the

	techniques of self-regulation of behavior in the process of interpersonal communication. Own: methods of effective communication in professional activities; methods of self-regulation of behavior in the process of interpersonal communication.
GPC-4 Able to use medical devices provided for by the procedure for the provision of medical care, as well as conduct examinations of a patient in order to establish a diagnosis	Know: the basics of the legislation of the Russian Federation on the protection of public health, the main regulatory and technical documents; basic principles of management and organization of medical care to the population; organization of medical control over the state of health of the population, issues of examination of disability and medical and legal assistance to the population; etiology, pathogenesis and preventive measures for the most common diseases; modern classification of diseases; clinical picture, characteristics of the course and possible complications of the most common diseases occurring in a typical form in different age groups; diagnostic methods, diagnostic capabilities of methods of direct examination of a patient of a therapeutic, surgical and infectious profile, modern methods of clinical, laboratory instrumental examination of patients (including endoscopic, radiological methods of ultrasound diagnostics); criteria for the diagnosis of various diseases; clinical and pharmacological characteristics of the main groups of drugs and the rational choice of specific drugs in the treatment of the main pathological syndromes of diseases and emergency conditions in patients, including the basics of anti-doping

	legislation; procedures for the provision of medical care for the main diseases of the therapeutic, surgical, obstetric-gynecological and other profiles. Be able to: plan, analyze and evaluate the quality of medical care, determine the status of the patient: collect anamnesis, interview the patient and / or his relatives, conduct a physical examination of the patient (examination, palpation, auscultation, blood pressure measurement, determination of the properties of the arterial pulse, etc.) .); assess the patient's condition in order to make a decision on the need to provide him with medical care; to conduct a primary examination of systems and organs: nervous, endocrine, immune, respiratory, cardiovascular, blood and hematopoietic organs, digestive, urinary, reproductive, musculoskeletal and joints, eyes, ear, throat, nose; to set priorities for solving the patient's health problems: critical (terminal) condition, condition with pain syndrome, condition with chronic disease, condition with infectious disease, disability, geriatric problems; to make a preliminary diagnosis - to synthesize information about the patient in order to determine the pathology and the reasons that cause it; outline the volume of additional studies in accordance with the prognosis of the disease, to clarify the diagnosis and obtain a sufficient result; formulate a clinical diagnosis; develop a plan of therapeutic (surgical) actions, taking into account the course of the disease and its treatment; formulate indications for the chosen method of treatment, taking into account etiotropic and pathogenetic agents, substantiate pharmacotherapy in

	a particular patient with major pathological syndromes and emergency conditions, determine the route of administration, regimen and dose of drugs, assess the effectiveness and safety of the treatment; apply various methods of drug administration. Possess: Possess the methods of using medical devices in the diagnosis and treatment of therapeutic patients
GPC-6 Able to organize patient care, provide primary health care, ensure the organization of work and make professional decisions in case of emergency conditions at the prehospital stage, in emergency situations, epidemics and in outbreaks of mass destruction	Know: functional responsibilities of nursing staff, ward and procedural nurses; deontological aspects of patient care; fundamentals of the legislation of the Russian Federation on the protection of public health, basic regulatory and technical documents; basic principles of management and organization of medical care to the population; the basics of legislation on the sanitary and epidemiological welfare of the population, the main regulatory documents for the prevention of nosocomial infections, the organization of the work of junior and paramedical personnel in medical organizations; the basics of preventive medicine, the organization of preventive measures aimed at strengthening the health of the population; methods of sanitary and educational work; organization of medical control over the state of health of the population, maintenance of standard accounting and reporting medical documentation in medical organizations; organization of work of junior and middle medical personnel in medical organizations; - the basics of the organization of medical (outpatient

	and inpatient) care for various groups of the population, the criteria for the diagnosis of various diseases; features of first aid and resuscitation measures to victims of road traffic injuries, drowning, electrical injury, strangulation asphyxia, methods of restoring patency of the upper respiratory tract. Be able to: organize patient care; to plan, analyze and evaluate the quality of medical care, the state of health of the population and the influence of environmental and working environment factors on it; participate in the organization and provision of medical and preventive and sanitary and anti-epidemic assistance to the population, taking into account their social and professional (including professional sports) and age-sex structure; carry out preventive, hygienic and anti-epidemic measures; determine the patient's status: collect anamnesis, interview the patient and / or his relatives, conduct a physical examination of the patient (examination, palpation, auscultation, blood pressure measurement, determination of the properties of the arterial pulse, etc.); apply various methods of drug administration; to make a preliminary diagnosis - to synthesize information about the patient in order to determine the pathology and the reasons that cause it; examine patients with various traumatic injuries, with purulent-septic conditions, identify life-threatening disorders in bleeding, apply transport splints, bandages and kerchiefs, administer medications through drains

	and microirrigators, assess the suitability of blood and its preparations for transfusion, monitor hemodynamic parameters and breathing; carry out resuscitation measures in the event of clinical death; to carry out measures with the population of the attached area for the primary and secondary prevention of the most common diseases requiring therapeutic or surgical treatment, carry out preventive measures to increase the body's resistance to unfavorable environmental factors using various methods of physical culture and sports, hardening, and promote a healthy lifestyle; fill out a medical history, write a prescription. Own: methods of organizing patient care, the quality of medical care; own methods for the provision of primary pre-medical health care; the method of medical examinations and the appointment of medical measures.
GPC-9 Able to implement the principles of quality management in professional activities	Know: etiology, pathogenesis, diagnosis, treatment, prevention of the most common surgical diseases; precautions, special clothing; the clinical picture, features of the course and possible complications of the most common diseases occurring in a typical form; features of the provision of medical care in emergency conditions; modern methods of clinical, laboratory and instrumental diagnostics of patients, surgical profile; general principles and peculiarities of diagnostics of hereditary diseases and congenital anomalies; types and methods of modern anesthesia; ways

	and methods of prevention of postoperative pulmonary complications; features of intensive care; requirements and rules for obtaining informed consent from the patient for diagnostic and treatment procedures; basic principles of diagnostics, treatment and rehabilitation of infectious patients, indications for hospitalization of patients with infectious diseases; peculiarities of collecting highly pathogenic biological materials; implementation of specific and non-specific prophylaxis of infectious diseases; epidemiology of infectious, parasitic and non-infectious diseases, implementation of anti-epidemic measures, protection of the population in the centers of especially dangerous infections, in case of deterioration of the radiation situation and natural disasters; the basics of organizing outpatient and inpatient care for the population, modern organizational forms of work and diagnostic capabilities of the polyclinic service; the main clinical manifestations of skin and sexually transmitted diseases, human immunodeficiency virus (HIV) and sexually transmitted infections; - features of the organization of work with patients with HIV infection; the basics of organizing outpatient and inpatient care for the population, modern organizational forms of work of tuberculosis dispensaries, the main clinical manifestations of tuberculosis of internal organs, features of the organization of work with patients with tuberculosis infection; requirements and rules for obtaining informed consent from the patient for diagnostic

	and treatment procedures; methods of carrying out urgent measures and indications for hospitalization of patients; the main clinical manifestations of diseases of the nervous system, oncological pathology, especially their diagnosis and monitoring; general principles and peculiarities of diagnostics of hereditary diseases and congenital anomalies of the nervous system. To be able to: collect a complete medical history of the patient, conduct a survey of the patient, his relatives (collect biological, medical, psychological and social information); conduct a physical examination of a patient of different ages (examination, palpation, auscultation, measurement of blood pressure (BP), determination of pulse characteristics, respiratory rate), send him for laboratory and instrumental examination, for a consultation with specialists; interpret the results of the examination, make a preliminary diagnosis to the patient, outline the amount of additional studies to clarify the diagnosis; formulate a clinical diagnosis; develop a treatment plan taking into account the course of the disease, select and prescribe drug therapy, use non-drug treatment methods, carry out rehabilitation measures for diseases of a surgical profile, identify life-threatening disorders and provide first aid in emergency situations to victims in lesions in emergency situations; determine the presence of a fracture and dislocation, free gas in the abdominal cavity by the X-ray; hydro- and pneumothorax; analyze and

	evaluate the quality of medical care, the state of health of the population, the influence of lifestyle factors, the environment and the organization of medical care on it; carry out resuscitation and first aid techniques for cardiac arrest, anaphylactic shock, blockage of the upper respiratory tract, collapse, vasovagal attack, epileptic seizure, or other emergency situations that may occur in professional practice. Own: own methods of interviewing a patient, his relatives (collect biological, medical, psychological and social information); methodology for examining a patient of different ages

Instructions on fire safety measures in premises
Ulyanovsk state University

All employees and students of USU must clearly know and strictly follow the rules of fire safety, prevent violations of the fire regime, be able to use almost primary fire extinguishing agents and keep them clean and tidy.

OFFICIALS RESPONSIBLE FOR BUILDINGS AND ROOMS. They are OBLIGED to:

1. Monitor the condition of power grids and electrical equipment, take the necessary measures to eliminate malfunctions.
2. Strictly observe internal order and cleanliness, baskets and boxes for papers should be regularly cleaned, garbage should be taken out of the building to a specially designated place.
3. Know the plan for evacuating people from buildings in case of fire.
4. All emergency doors and other exits to contain in a serviceable condition .
5. Check the readiness of fire extinguishing equipment and all violations inform the head of the economic unit and the fire safety engineering service.
6. Upon completion of the work to carry out a mandatory inspection of all premises.

Smoking is

1. Smoking is PROHIBITED IN the premises of USU, except for places specified by the order of the rector
2. Perform flammable works without the written permission of the Vice-rector for AHR and CS and the fire safety engineer.

3. Store flammable and flammable liquids.
4. Use home-made electric household heating devices or devices not of the established sample.
5. Use fire-fighting equipment for other purposes.
6. Clutter up passageways, corridors, stairs, exits with various materials.
7. To make installation of temporary electric systems, to apply them in inserts do not meet the technical requirements.
8. To carry out cleaning of the premises using gasoline, kerosene and other flammable and combustible liquids.
9. Leave live electrical appliances unattended.

EVERYONE WHO DETECTED A FIRE OR FIRE, MUST:

1. immediately report the fire to the fire Department " 01 " and the operational duty officer of the ahch Ulsu (32-98-22).
2.Notify all people in the building about the fire.
3. Disconnect the power grid and electrical equipment.
4. To take measures to evacuate people.
5. Start extinguishing the fire with primary fire extinguishing means before the arrival of the fire Department.

PERECHEN questions for an exam

1. Subject and methods for the study of topographic anatomy. Basic concepts of topographic anatomy: the region and its borders; external and internal benchmarks; projection of neurovascular structures and bodies; fascia cellular spaces.
2. The role of domestic scientists in the development of topographic anatomy and operative surgery: Pirogov, P.I.Dyakonov, N.I.Napalkov, V.N.Shevkunenko, A.N.Maksimenkov, V.V.Kovanov C .I.Spasokukotsky, Vishnevsky, N.I.Burdenko.
3. General principles of transplantation of organs and tissues.
4. Topography fronto-parietal-occipital region. Features of the blood supply to the covers of the cranial vault. Technique primary surgical treatment of wounds of the cranial vault.
5. Topography sinuses of the dura mater. The veins of the cranial vault and persons, their connection with intracranial veins and venous sinuses of the dura mater. The value in the spread of purulent infection.
6. Topography of the temporal region. Scheme craniocerebral topography. The projection of the middle meningeal artery. And osteoplastic decompressive craniotomy.
7. Topography mastoid region. Trepanation of the mastoid process. Possible complications.
8. Topography of parotid-masticatory area. The spread of purulent zatokov with mumps. Operations in acute purulent parotitis.

9. Topography buccal area. Features of venous outflow area of the face - venous anastomoses, their importance in the spread of purulent infection.
10. Topography of surface formations side face area. Features of venous outflow area of the face - venous anastomoses, their importance in the spread of purulent infection. Direction surgical incisions on the face.
11. The topography of the deep areas of the face. Fascia and cellular spaces. The spread of purulent zatokov face. Intervention in purulent processes in the face.
12. Area of sternocleidomastoid muscle. Topography of the cervical plexus. Vagosympathetic blockade on Vishnevsky.
13. Topography suprahyoid area. Submental and submandibular triangles. Submandibular gland. Autopsy submandibular cellulitis.
14. Topography of the submental and submandibular triangle. autopsy submandibular cellulitis.
15. Topography sleepy triangle of the neck. Reflex neck area. An autopsy phlegmon vaginal fascial primary neurovascular bundle.
16. Topography sternoclavicular-mastoid region. Vagosympathetic blockade on Vishnevsky.
17. The fascia and cellular tissue of the neck area. Autopsy submandibular cellulitis.
18. Fascia and neck kletchatochnyh space. Autopsy retropharyngeal cellulitis. Classification of the fascia of the neck by Shevkunenko. Closed or open space of the neck ..
19. The fascia and cellular tissue of the neck area. Autopsy phlegmon fascial sheath main neurovascular bundle.
20. Topography of the larynx and cervical trachea. The upper and lower tracheostomy. Konikotomiya.
21. Topography of the pharynx and cervical esophagus. Autopsy pozadipischevodnoy cellulitis. Online access to the cervical esophagus.
22. Topography of the lateral triangle of the neck. Predlestnichnaya and interscalene gap. On-line access to the organs of the neck.
23. Topography staircase-vertebral triangle. Quick access to the common carotid artery in the scapular-tracheal and sleepy triangles.
24. The Topography thoracic duct and neck lymph nodes. Access to the common carotid artery in the sleepy triangle.
25. Topography of thoracic duct and lymph nodes in the neck. Autopsy previstseralnoy cellulitis neck.
26. Topography of the thyroid and parathyroid glands. Subtotal subcapsular strumectomy of Nikolaev.
27. Tracheostomy and its species. Possible complications arising from incorrect operation is performed.
28. The topography of the breast. Lymph path. Operations in purulent mastitis.
29. The topography of the breast. Lymph path. Sectoral resection and radical mastectomy.

30. Topography intercostal spaces. Primary surgical treatment of penetrating wounds of the chest wall. ribs subperiosteal resection
31. Topography of the diaphragm. Weaknesses of the diaphragm. Topographic-anatomic substantiation of education diaphragmatic hernias.
32. Topography of the pleura and lung. Segmental structure of the lungs. Online access to the organs of the chest cavity. Puncture and thoracostomy.
33. Topography of the pleura and lung. Segmental structure of the lungs. Puncture and thoracostomy.
34. The topography of the mediastinum. Vessels, nerves and nerve plexus posterior mediastinum. Surgical approaches to the anterior and posterior mediastinum.
35. Topography vessels, nerves and nerve plexus of the mediastinum. Reflex zones.
36. Topography of the heart and pericardium. Topography of the thoracic aorta. Pericardiocentesis.
37. Topography of thoracic trachea, bifurcation of the trachea and main bronchi. The lymph nodes of the chest cavity. Online access to the organs of the chest cavity.
38. Topography of the thoracic esophagus and vagus nerves. Line access to the thoracic esophagus.
39. Topography thoracic duct lymph nodes of the thoracic cavity. Puncture and drainage of the pleural cavity.
40. Fascia cellular spaces and mediastinum. The spread of purulent zatokov. Surgical approaches to the posterior mediastinum organs.
41. The topography of the anterolateral abdominal wall. Surgical approaches to the organs of the abdominal cavity.
42. Topography of the anterolateral abdominal wall. Topographic-anatomic substantiation of formation of umbilical hernia. Operations when umbilical hernias.
43. Topography of the inguinal canal. Topographic-anatomic substantiation of the emergence of acquired oblique inguinal hernia. Plastic inguinal canal of Girard-Spasokukotsky the weld Kimbarovskogo modification.
44. Topography of the inguinal canal. Topographic-anatomic substantiation of occurrence of direct inguinal hernia. Sliding hernia. Plastic inguinal canal by Bassini.
45. The topography of the inguinal canal. Topographic-anatomic substantiation of formation of congenital inguinal hernia. Features of treatment of hernia sac in congenital inguinal hernia.
46. The topography of the femoral canal, femoral hernia. Femoral and inguinal methods operations in femoral hernias.
47. The peritoneal cavity. Division by floors. Subdiaphragmatic space. Predzheludochnaya and stuffing bags. On-line access to the cavity omental.
48. The peritoneal cavity. Division by floors. The topography of the pancreas. Quick access to the pancreas.
49. Topography of the liver, its segmental structure. Hepatoduodenal bunch. Methods for stopping bleeding in liver damage. Liver suturing wounds.

50. The topography of the gallbladder, biliary tract and hepatoduodenal ligament. Quick access to the gallbladder. Operations: cholecystendysis, cholecystectomy, choledochotomy.
51. Topography of the abdominal portion of the esophagus and stomach. Closure of perforated gastric ulcer.
52. Topography of the abdominal portion of the esophagus and stomach. Types gastrojejunostomy.
A vicious circle and the reasons for its formation.
53. Topography of the abdominal portion of the esophagus and stomach. Gastrectomy Billroth-I, Billroth-II to modify the Hofmeister-Finsterer.
54. Topography of duodenum and the duodenal-jejunal flexure. processing methods duodenal stump with gastrectomy.
55. Topography of the spleen. Splenectomy.
56. Topography of the packing bags. Gland hole. On-line access to the cavity omental.
57. Topography of the packing bags. The topography of the pancreas. Quick access to the pancreas.
58. Topography of the small intestine. Rule Gubarev. small intestine revision method.
59. Topography of the small intestine. Mesenteric sinuses (sinus). Revision of the abdominal cavity. resection technique of the small intestine and the imposition of intestinal anastomosis means the "end-to-end" and "side-to-side."
60. Topography of the cecum and the appendix. Surgical approaches and appendectomy technique.
61. Topography of the colon. Colostomy. Operation overlay unnatural anus by the method Maidla.
62. Topography of the small and large intestines. Technique audit abdominal cavity for bleeding and damage the hollow body. Intestinal seams, general requirements for the imposition of intestinal sutures. Closure of penetrating wounds of the small intestine.
63. Topography of kidneys, the fixing apparatus kidneys. Decapsulation. Nephropexy.
64. Topography of the lumbar region. Weak spots. Fascia and cellular tissue formation retroperitoneal space. Perirenal blockade, possible complications.
65. Topography of kidneys, ureters and adrenal glands. Surgical approaches to the kidneys and ureters.
66. Topography of the abdominal aorta and inferior vena cava. Nerve plexus, lymph nodes, retroperitoneal space. Surgical approaches to the kidneys and ureters.
67. Progress in the peritoneum male and female pelvis. Drainage vesico-rectal and utero-rectal recesses.
68. Topography of female pelvic peritoneal department. Drainage of the utero-rectal cavity. The puncture of the abdominal cavity through the posterior vaginal fornix.
69. Topography of female pelvic peritoneal department. The topography of the uterus with appendages. Surgery for an ectopic pregnancy.

70. Topography of the bladder. Predpuzyrnoe retrovesical and cellular spaces. Puncture of the bladder.
71. The topography of the bladder, urethra, prostate, vas deferens. Operations in wounds of the bladder. Methods drainage predpuzyrnogo cellular spaces.
72. fascial-cellular spaces of a small basin. The spread of purulent zatokov. Blockade of the lumbar and sacral plexus of Shkolnikov-Selivanov.
73. Topography of the rectum. Pozadipryamokishechnoe cellular spaces. The spread of purulent zatokov. Surgery for injuries of the rectum.
74. Topography scapular region. Arterial anastomoses and development of collateral circulation in the axillary artery occlusion.
75. Topography of the subclavian area. Subclavian and axillary lymph nodes. Opening and drainage subpektoralnoy cellulitis.
76. Topography and the deltoid region of the shoulder joint. Puncture of the shoulder joint.
77. Topography of the shoulder joint. Puncture and arthrotomy of the shoulder joint.
78. The topography of the axilla. Online access to the neurovascular bundle. Exposure of the axillary artery.
79. The topography of the anterior-medial shoulder area. Amputation of the shoulder to the middle third of the level.
80. The topography of the back shoulder region. The doctrine of the amputation. Classification of amputations Term: primary, secondary and repeat (reamputatsiya). Amputation of the shoulder in the middle third.
81. Topography of the rear area of the elbow. The elbow joint. Puncture and arthrotomy of elbow joint.
82. The topography of the anterior region of the forearm. Exposure of the radial artery in the lower third of the forearm. Fascial-cellular spaces Pirogov. The spread of purulent infection.
83. The topography of the anterior region of the forearm. Online access to the ulnar neurovascular bundle.
84. Topography of the median bed of palm. Autopsy subgaleal cellulitis median lodge palm on the war-Yasenetsky.
85. Topography of the median bed of palm. Operations during intraosseous and subungual
panaritiums.
86. Topography of the median bed of palm. Operations in purulent tenosynovitis II, III and IV fingers.
87. Topography lateral bed palm. Operations in purulent tenosynovitis I finger.
88. Topography of the gluteal region. The spread of purulent zatokov podfastsialnogo cellular spaces of the gluteal region. Autopsy podfastsialnoy cellulitis gluteal region.
89. The topography of the femoral triangle. Exposure of the femoral artery and femoral vein below the inguinal ligament.
90. Topography of blood vessels and nerves of the femoral triangle. Exposure of the femoral artery in the femoral triangle.

91. Topography of the obturator canal. The spread of purulent zatokov fastsialno-kletchatochnyh formations. Drainage cellular spaces of the pelvic Buyalsky-McWhorter.
92. Topography of the medial thigh bed. Leading channel. The seam of the vessel Karrelyu-
Morozova.
93. The topography of the sciatic nerve in the gluteal region and the rear region of the thigh. Exposure of the sciatic nerve in the gluteal region.
94. Topography of the knee joint. Osteoplastic amputation Gritti-Shimanovsky. Principles of formation of the supporting stump.
95. Topography of the popliteal fossa. The development of collateral circulation in the popliteal artery occlusion. The seam of the vessel by Carrel-Morozova.
96. Topography of the popliteal fossa. The development of collateral circulation in the popliteal artery occlusion. Cone-circular amputation Pirogov.
97. The topography of the front region of the tibia.
98. Classification of limb amputations in the form of soft tissue dissection. Fastsioplasticheskaya amputation of the lower leg.
99. The rear region of the tibia topography. Goleno-popliteal channel. Osteoplastic amputation of the lower leg of Pirogov.
100. Topography of the front area of the ankle and rear foot. Exposure of dorsal artery of foot.
101. Field of the medial malleolus. The medial malleolar channel. Purulent zatokov propagation path of the medial malleolar channel.
102. Topography of the area of the sole. Heel and plantar channels. Autopsy subgaleal cellulitis soles on the war-Yasenetsky.

List of recommended literature

main:

1. Topographic anatomy and operative surgery [electronic resource]: a textbook / AV Nikolaev. - 3rd ed.. and ext. - M.: GEOTAR Media, 2016. - http://www.studmedlib.ru/book/ISBN9785970438480.html

2. Sergienko VI, Topographic anatomy and operative surgery: a textbook / Sergienko VI, Petrosyan EA - M.: GEOTAR Media, 2013. - 648 p. - ISBN 978-5-9704-2362-2 - Text: // EBS electronic "student adviser": [site]. - URL:http://www.studentlibrary.ru/book/ISBN9785970423622.html

3. Sapin MR, anatomy and topography of the nervous system: Textbook. Manual / Sapin MR, DB Nikitiuk, S. Klochkova. - M.: GEOTAR Media, 2016. - 192 p. - ISBN

978-5-9704-3504-5 - Text: // EBS electronic "student adviser": [site]. - URL:http://www.studentlibrary.ru/book/ISBN9785970435045.html

more:

1. Ostroverkhov GE Operative surgery and topographic anatomy: a textbook. - M.: MIA 2005.

2. Operative surgery and topographic anatomy: a textbook for honey. Universities / Ed. VV Kovanova. - 4 th ed., Ext. - Moscow: Medicine, 2001. - 408 p.

3. Andreev ID, Topographic anatomy and operative surgery of childhood / [ID Andreev et al.]; ed. SS Dydykin DA Morozov - Moscow: GEOTAR Media, 2018. - 176 p. - ISBN 978-5-9704-4334-7 - Text: // EBS electronic "student adviser": [site]. - URL:http://www.studentlibrary.ru/book/ISBN9785970443347.html

4. Kagan II, Topographic anatomy and operative surgery. In 2 vols. Volume 2: Textbook / Ed. II Kagan, ID Kirpatovsky - M: GEOTAR Media, 2012. - 576 p. - ISBN 978-5-9704-2154-3 - Text: // EBS electronic "student adviser": [site]. - URL:http://www.studentlibrary.ru/book/ISBN9785970421543.html

5. Lopuhin YM, Workshop on operative surgery: Proc. Manual / Lopuhin YM, Vladimirov VG Zhuravlev AG - M.: GEOTAR Media, 2013. - 400 p. - ISBN 978-5-9704-2626-5 - Text: // EBS electronic "student adviser": [site]. - URL:http://www.studentlibrary.ru/book/ISBN9785970426265.html

6. OP Bolshakov, Operative surgery: a manual on manual skills / ed. AA Vorobiev, I. Kagan. - M.: GEOTAR Media, 2015. - 688 p. - ISBN 978-5-9704-3354-6 - Text: // EBS electronic "student adviser": [site]. - URL:http://www.studentlibrary.ru/book/ISBN9785970433546.html

educational and methodical:

1. Astakhov O. B. Veins and venous anastomoses of the trunk, and it's clinical value : for students of the
Faculty of Medicine in the following specialties: 31.05.01 - General Medicine : In English / O. B.
Astakhov, A. O. Plugatyreva ; Ulyanovsk State University, Insitute of Medicine, Ecology and Physical
culture. - Ulyanovsk : ULSU, 2018. - 39 p.

2. A.V. Smolkina, S.V. Makarov, V.P. Demin, S.I. Barbashin. Sharp purulent diseases of skin and hypodermic fatty cellulose / Study Guide (e-course). - Ulyanovsk, USU, 2019. - 23 p.

3. Smolkina A.V., Makarov S.V., Ostrovsky V.K., Midlenko I.I. Wounds, bleedings. Desmurgiya – science about bandages: electronic teaching method. allowance. // Study Guide (e-course)..- Ulyanovsk,
USU, 2018. - 32 p

4. Smolkina A.V., Gnoevikh Vitaly V. INSTRUCTIONS FOR ORGANIZATION OF INDEPENDENT

WORK FOR THE DISCIPLINE Topographic_anatomy_and_operative_surgery-[Электронный
ресурс].- Ulyanovsk, 2019.
5. Smolkina A. V., Gnoevikh Vitaly V. METHODOLOGICAL GUIDELINES FOR PRACTICAL EXERCISE ON THE DISCIPLINE Topographic_anatomy_and_operative_surgery -[Электронный
ресурс].- Ulyanovsk, 2019.

c) Professional databases, information and reference systems

1. Electronic library systems:

1.1. Digital educational resource IPRsmart:electronic library system : website / LLC Company"AI Pi Ar Media". - Saratov, [2022]. –URL:http://www.iprbookshop.ru . – Access mode: for registration. users. - Text : electronic.

1.2. YURAYT Educational Platform :educational resource, electronic library : website / LLC Electronic Publishing House. – Moscow, [2022]. - URL: https://urait.ru . – Access mode: for registration. users. - Text : electronic.

1.3. Database "Electronic library of a technical university (EBS "Student consultant"):electronic library system : website / LLC Politehresurs. – Moscow, [2022]. –URL:https://www.studentlibrary.ru/cgi-bin/mb4x. – Access mode: for registration. users. –Text : electronic.

1.4. Doctor's consultant. Electronic medical library :database : website / LLC Higher School of Organization and Management of Healthcare-Comprehensive medical consulting. – Moscow, [2022]. – URL: https://www.rosmedlib.ru . – Access mode: for registration. users. – Text : electronic.

1.5. Large medical library : electronic library system : website / LLC Bukap. – Tomsk, [2022]. – URL: https://www.books-up.ru/ru/library/ . – Access mode: for registration. users. – Text : electronic.

1.6. EBS Lan:electronic library system : website/ EBS Lan LLC. –St. Petersburg, [2022]. – URL:https://e.lanbook.com . – Access mode: for registration. users. –Text : electronic.

1.7. EBS Znanium.com:electronic library system : website / Znanium LLC. - Moscow, [2022]. - URL: http://znanium.com . – Access mode: for registration. users. - Text : electronic.

1.8. ClinicalCollection :scientific information database EBSCO // EBSCOhost : [portal]. – URL: http://web.b.ebscohost.com/ehost/search/advanced?vid=1&sid=9f57a3e1-1191-414b-8763-e97828f9f7e1%40sessionmgr102. – Access mode : for authorization. users. – Text : electronic.

1.9.Database "Russian as a foreign language" :electronic educational resource for foreign students : website / LLC Company "AI Pi Ar Media". – Saratov, [2022]. – URL: https://ros-edu.ru . – Access mode: for registration. users. – Text : electronic.

2. ConsultantPlus [Electronic resource]: legal reference system. /Consultant Plus LLC - Electron. dan. - Moscow :ConsultantPlus, [2022].

3.Databases of periodicals:

3.1. Database of periodicals EastView : electronic journals / LLC IVIS. - Moscow, [2022]. – URL:https://dlib.eastview.com/browse/udb/12 . – Access mode: for authorization. users. –Text : electronic.

3.2. eLIBRARY.RU : scientific electronic library : website / Scientific Electronic Library LLC. – Moscow, [2022]. – URL: http://elibrary.ru . – Access mode: for authorization. users. – Text : electronic

3.3. Electronic Library of the Grebennikov Publishing House (Grebinnikon) : electronic library / ID Grebennikov LLC. – Moscow, [2022]. – URL: https://id2.action-media.ru/Personal/Products. – Access mode: for authorization. users. – Text : electronic.

4. Federal State Information System "National Electronic Library": electronic library: website / FSBI RGB. – Moscow, [2022]. –URL:https://нэб.рф . – Access mode: for users of the scientific library. – Text : electronic.

5. SMARTImagebase: EBSCO scientific information database//EBSCOhost : [portal].– URL: https://ebsco.smartimagebase.com/?TOKEN=EBSCO-1a2ff8c55aa76d8229047223a7d6dc9c&custid=s6895741. – Access mode : for authorization. users. – Image : electronic.

6. Federal information and educational portals:

6.1. Single window of access to educational resources: federal portal.– URL:http://window.edu.ru/ . – Text : electronic.

6.2. Russian education: federal portal / founder of FGAU "FITZTO". – URL: http://www.edu.ru . – Text : electronic.

7. Educational resources of USU:

7.1. Electronic library system of USU : module "Electronic library" of ABIS Mega-PRO / LLC "Date Express". – URL:http://lib.ulsu.ru/MegaPro/Web. – Access mode :for users of the scientific library. – Text : electronic.