POLTAVA STATE MEDICAL UNIVERSITY
THERAPEUTIC STOMATOLOGY PROPAEDEUTICS CHAIR

Propaedeutics of therapeutic dentistry as a preclinical course of therapeutic dentistry: concept, purpose and tasks, sections. Ethics and deontology in dentistry. Iatrogenic diseases. Clinical features of the structure of the teeth of the upper and lower jaws. Signs of teeth. Dental formulas. Preparation of carious cavities: methods, stages.

Lecture for 2-nd year students
of international faculty

The lecturer: PhD in Medical Sciences, Associate Professor
Marchenko Iryna Yaroslavovna

The lecture plan:

1. Purpose and tasks of therapeutic dentistry and propaedeutic course;
2. Basic principles of ethics and deontology in dentistry;
3. Iatrogenic diseases: essence, causes of development;
4. Teeth signs (crown angle sign, crown curvature sign, root deviation sign, proximal surface sign): essence, clinical use;
5. Dental formulas.
6. Classification of carious cavities according to Black;
7. Basic elements of a carious cavity.
8. Stages of classical preparation of carious cavities of various classes.
9. Features of preparation of carious cavities sub composites.
10. Minimal Intervention Treatment methods.

Stomatology

(from Greek: the stoma-mouth, logos-doctrine) -

medical discipline, which is engaged in study of an etiology and pathogenesis of diseases of teeth, jaws and other bodies of an oral cavity, their diagnostics, treatment and prophylaxis.

Stomatology is sectioned on:

1. Therapeutic stomatology;
2. Surgical stomatology;
3. Orthopaedic stomatology;
4. Stomatology of children's age.

Therapeutic stomatology

- The following section enter into therapeutic stomatology:

✓**Phantom course;**

✓**Odontopathology, included endodontology;**

✓**Periodontology;**

✓**Illnesses of a mucosa of an oral cavity**.

Therapeutic stomatology includes study and diagnostics of illnesses of teeth, periodontal tissues and mucosa of an oral cavity, development of methods of their treatment directed on conservation of frame and function.

Therapeutic stomatology

- The therapeutic stomatology is fundamental discipline, as the diseases, which are studied by a therapeutic stomatology, wide-spread among the population of globe:
  - Illness of teeth - the ***caries*** - now affects 90 % of the population of globe;
  - The illness of parodontium -***parodontitis*** - affects 85 % of the population of globe on the data a WHO and 95 % persons of elderly and senile age;
  - The ***diseases of a mucosa*** of an oral cavity affects 20 % of people and in 80 % from this number - as displays of general diseases of an organism.

  Often there are not carious defeats, which prevalence depends on geographical features and professional harmfulness;
- According to the international classification 17 classes of diseases are common, 12 of them are characterized as displays on a mucosa of an oral cavity.

Deontology

- - doctrine about duties and norms of behaviors of the medical personnel, which provide optimum quality and productivity of their job on restoration and conservation of people's health. The deontology surveys the attitude (relation):
  - ✓ the doctor - patient,
  - ✓ doctor – society (community),
  - ✓ doctor - medical personnel.

- For example, conversations are inadmissible at the patients that at one patient " have broken a tooth ", at second - "treated not that tooth", at third - " have broken a needle in a tooth " etc. It is necessary to avoid the critical remarks (at the presence of extraneous) to address the colleagues for mistakes, condemnation of those or other methods of treatment of the doctors of other medical establishments. There should not be a question " our or not our patient ". Every man should receive help in any medical establishment.

The iatrogenic diseases

- are diseases, which arise on fault of the doctors, medical personnel because of their professional mistakes or negligent attitude (relation) to the patient. Iatrogenic diseases appear in result of the inept collecting of an anamnesis, the excessive acquaintance of the patient with results of laboratory researches, etc.
- I. Kassirskiy gives the characteristic of the basic reasons and forms of development of iatrogenic diseases:

The iatrogenic diseases

- Direct traumatizing by the doctor, personnel of the patient owing to a so-called mental inability.
- Indirect traumatizing which connected with reading of the medical literature.
- Feature of the person of the patient, predisposed to psychopathic reactions.
- Technically wrong realization of tool research, erroneous introduction of remedy.
- The form of iatropathology, which arises even at the amplified (strengthened) treatment of any disease by the doctor of appropriate speciality, but as a result can appear another disease, which requires the competence of the doctor of other speciality.

The chair of a propaedeutics of a therapeutic stomatology

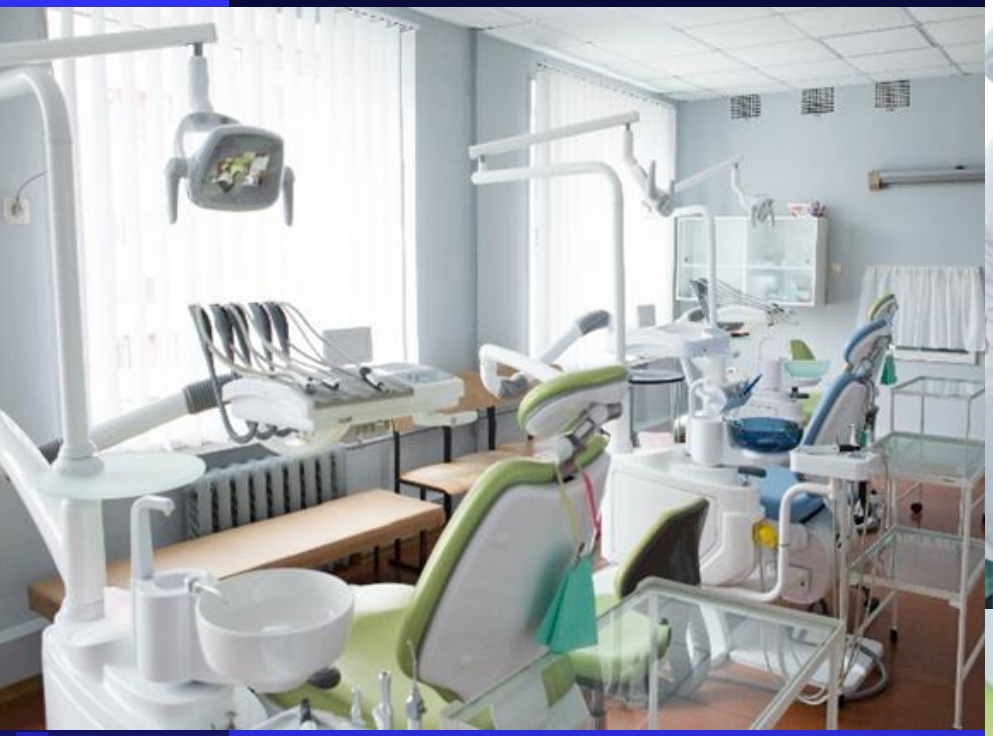
is posed on base 4th municipal hospitals of 2nd polyclinic branch and others hospitals.

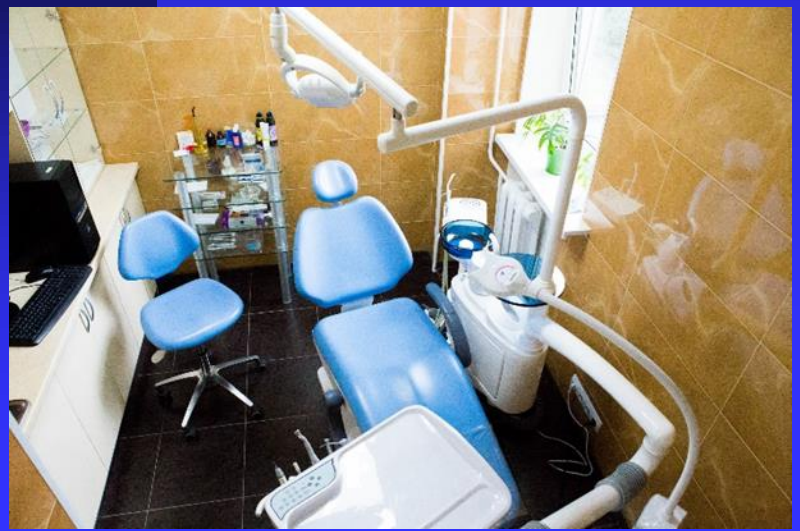
Consists of:

- clinical halls – 4;
- educational rooms for II-year students – 3;
- Simulation class -1
- room for head of Chair – 1;
- room for docents – 1;
- assistant room – 1;
- lab room – 1.

Educational rooms for II-year students

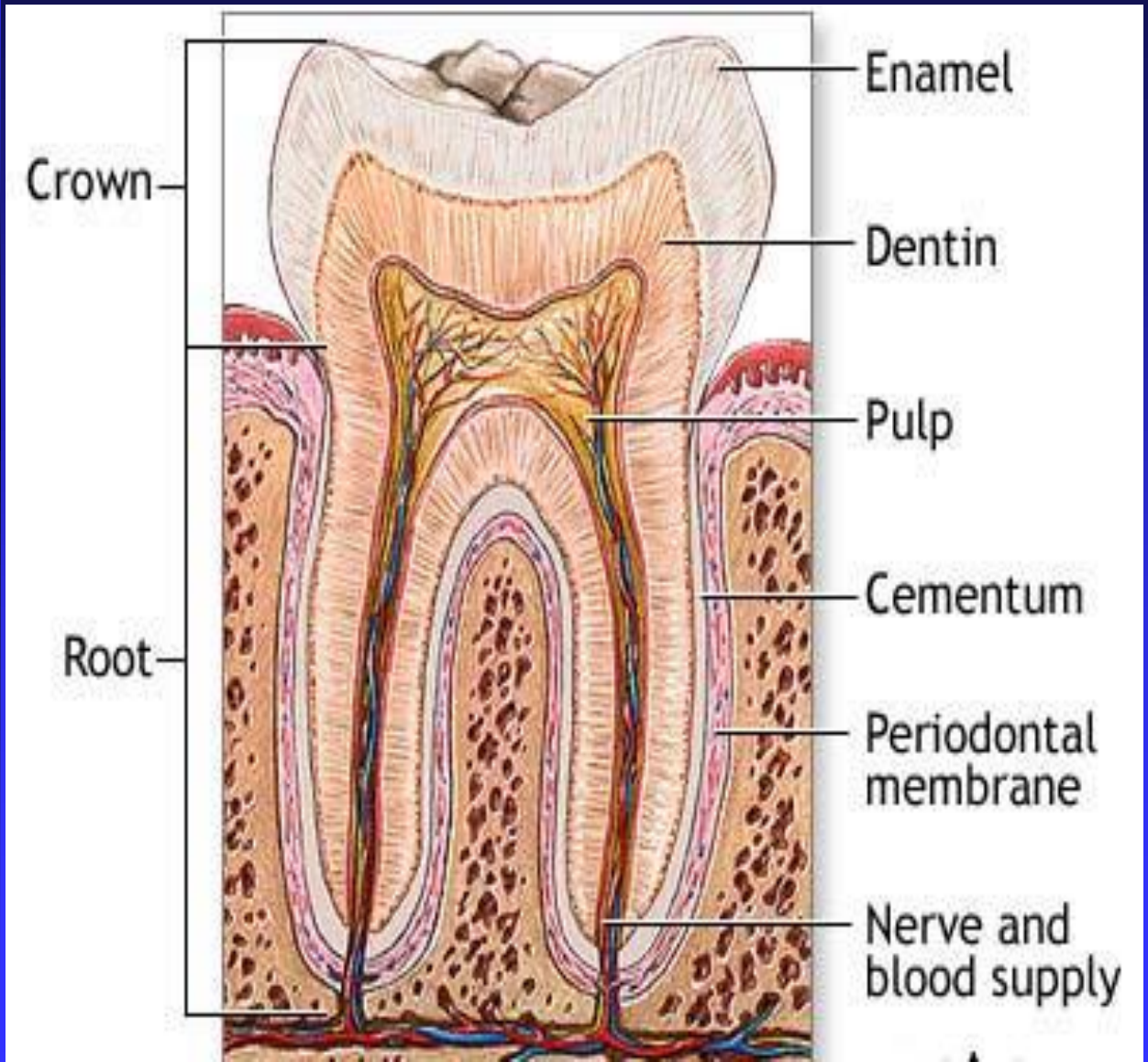
Clinical halls





Annual competition «Lege Artis»

Histological and anatomic structure of tooth



Anatomic structure:

- crown;
- neck;
- roots.

Histological structure:

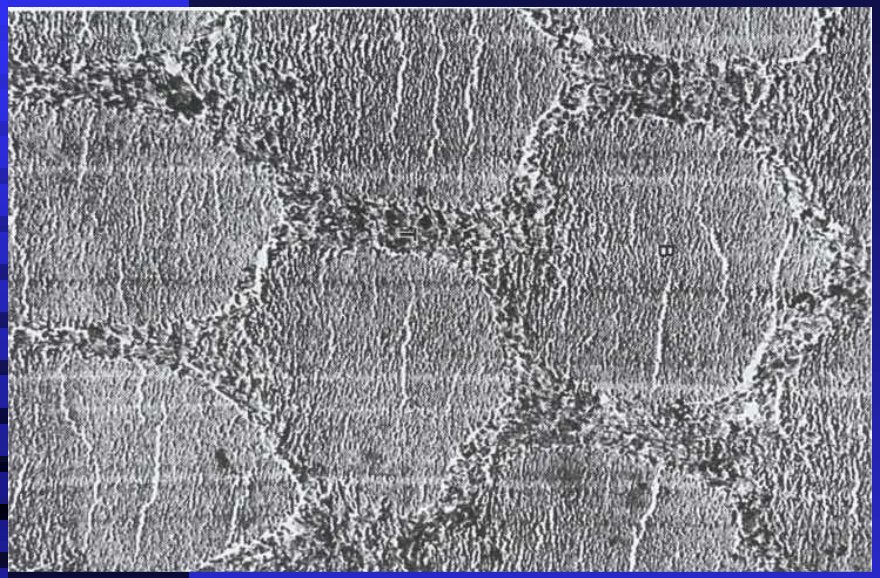
- enamel;
- dentine;
- cement;
- pulp.

Enamel

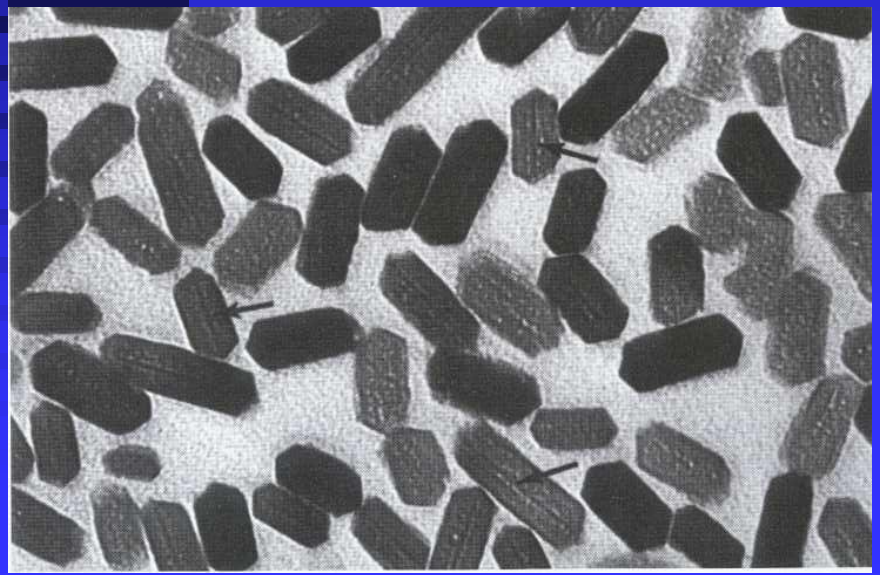
- **The enamel** is the hardest tissue of the human body which covers tooth crown externally.
- Thickest at the cutting edges of frontal teeth and molars and premolars cusps up to 2-2.5 mm. It is rather thinner at the fissures area (no more than 0.5-0.65 mm). The enamel is the thinnest at the neck area (less than 100 microns).
- **Chemical composition of enamel.** The enamel contains 95% of mineral substances (mainly hydroxyapatite, carbonatapatite, fluorapatite etc.), 1,2 % is organic, 3,8 % is water, connected with crystals and organic components.

Enamel rods (prisms)

are the main functional structure units of the enamel.

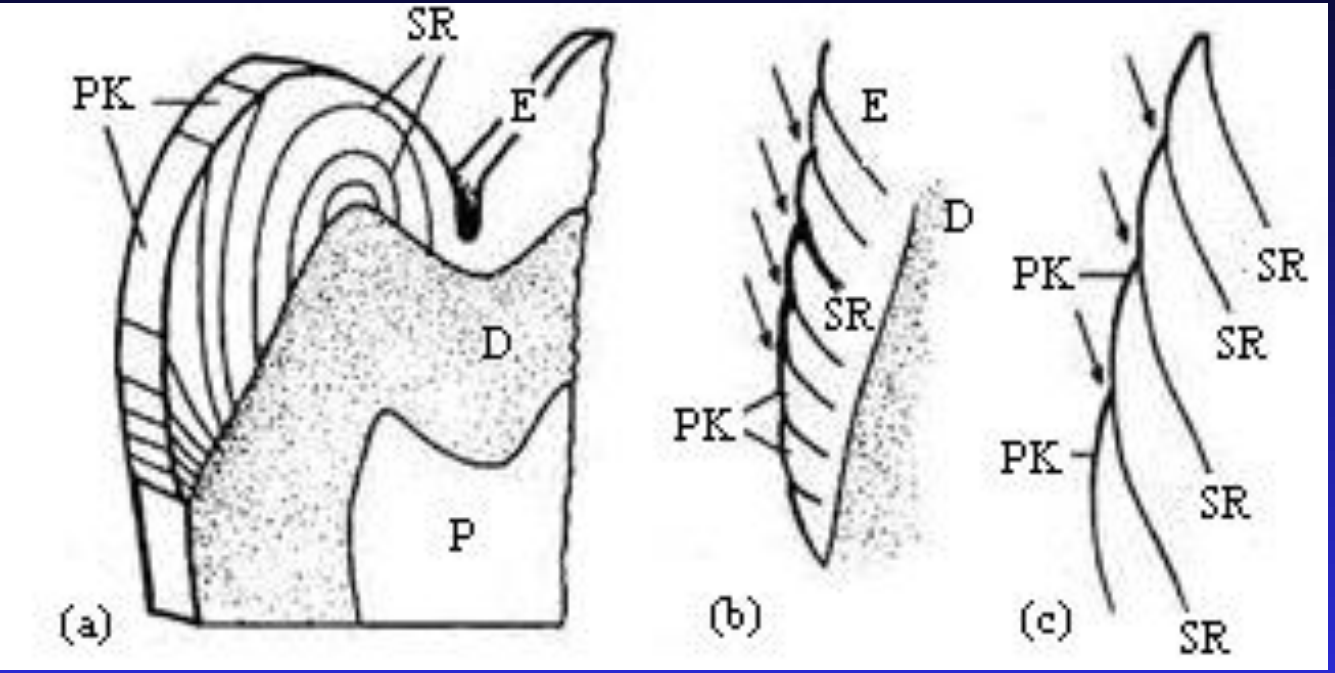


Electron micrograph (approximately x5000) of crosssection of rods in mature human enamel. Crystal orientation is different in "bodies" (B) than in "tails" (T). (From AH Meckel,WJ Griebstein, *RJ Neal.*



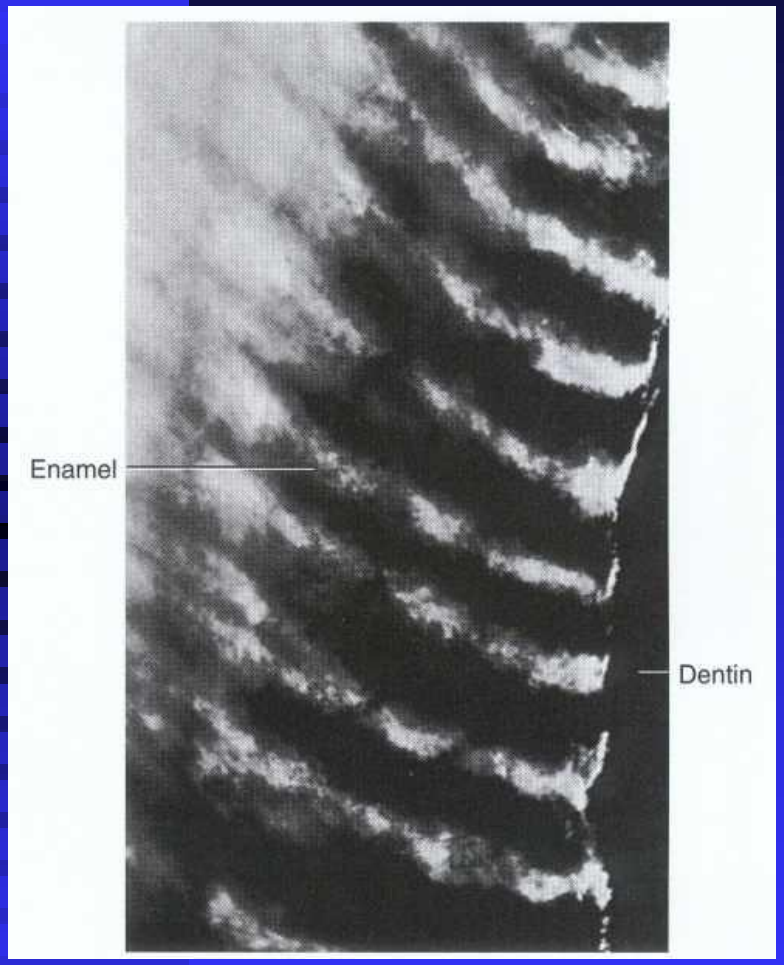
Electron micrograph (approximately x350,000) of mature, hexagon-shaped enamel crystallites *(arrows).*

Striae of Retzius



In cross-sections striae of Retzius look like yellow - brown symmetric arches going obliquely from the enamel surface to dentine-enamel junction. In transversal sections they represent concentric circles and remind annual rings on a tree. The striae of Retzius are growth lines of enamel. This is a zone with less mineralization of enamel along which the carious process spreads over dentine.

Hunter-Schreger bands



Vertical ground section through enamel photographed by reflected light of Hunter-Schreger bands.

In connection with the S-shaped form and tortuous course of the enamel rods on longitudinal sections of the tooth arises an optical effect due to the different cutting plane. Some of them are cut off lengthwise (parazones), the other - transversely (diazones). Alternation of parazones and diazones in cross-sections of enamel under reflected light causes the appearance of light and dark strips about 100 microns in width (10-13 enamel prisms), perpendicularly to enamel surface

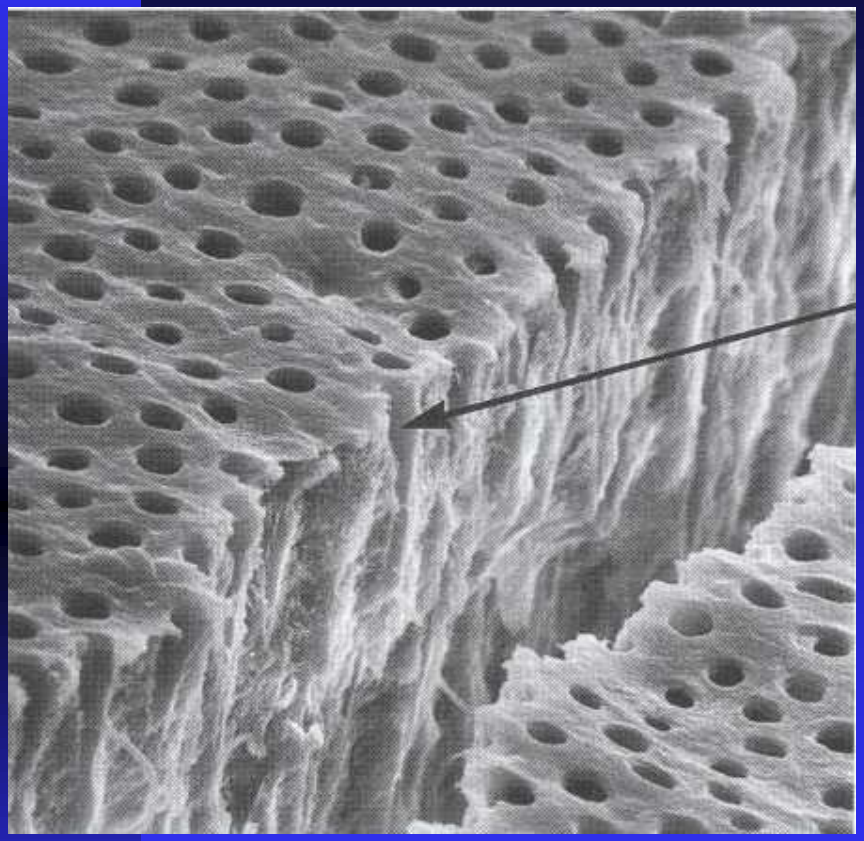
Dentine

is a calcified tooth tissue forming its bulk and determining its form.

The dentine consists of calcified intercellular substance penetrated by dentinal tubules, containing processes of odontoblasts cells, the bodies of which lay on pulp periphery.

The dentine has light yellow coloring and is somewhat elastic; it is stronger than a bone and cement but 4 - 5 times softer than enamel. The mature dentine contains 70 % of inorganic substances (mainly hydroxyapatite), 20 % of organic substances (mainly type-I collagen) and 10 % of water.

Dentinal tubules



Ground dentinal surface, acidetched for 5 seconds with 37% phosphoric acid. The artificial crack shows part of the dentinal tubules (T). The tubule apertures are opened and widened by acid application.*(From Brannstrom M)*

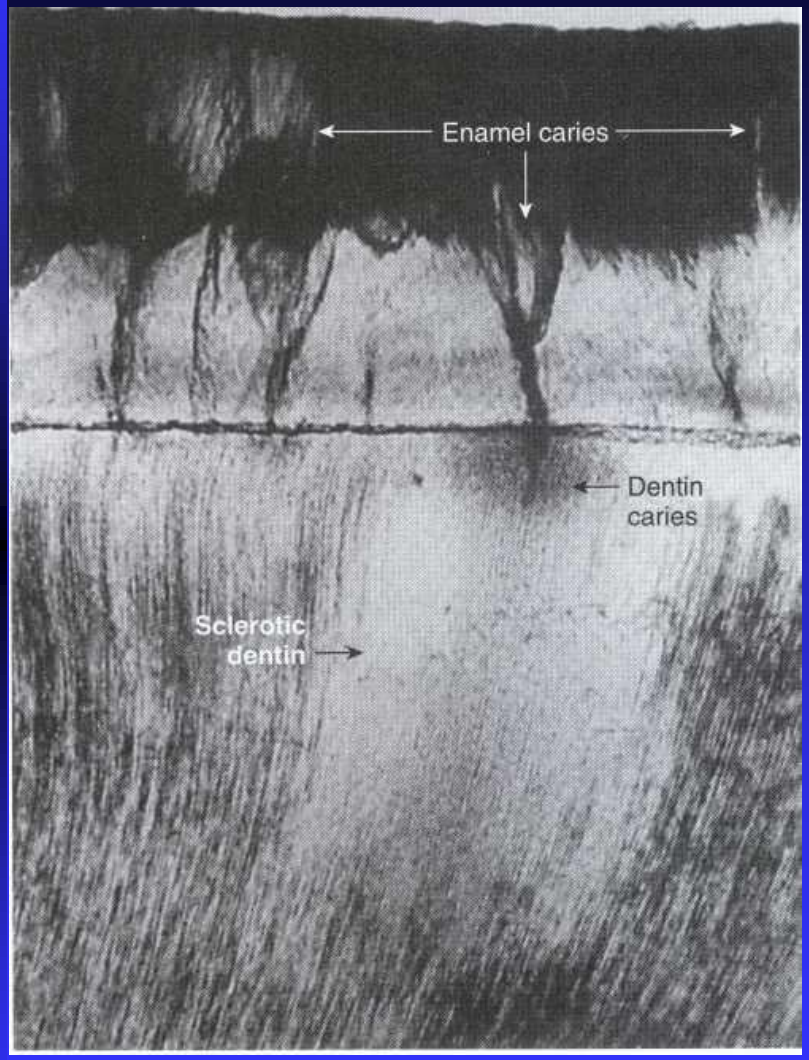
Dentinal tubules in cross-section, 1.2 mm from pulp. Peritubular dentin (P is more mineralized than intertubular dentin (I).

Kind of dentine

Depending on formation time there are three types of dentine: primary, secondary and tertiary dentine.

- **Primary dentine** is formed during formation and eruption making the bulk of this tissue.
- **Secondary dentine** (regular, or physiological secondary dentine) is the part of circumpulpal dentine, it is formed in the generated tooth after eruption and is a continuation of primary dentine. Secondary dentine is formed more slowly than primary. Compared with primary dentine the secondary is characterized by a little less regulated location of dentinal tubules and collagen fibrils as well as lower degree of a mineralization.
- **Tertiary dentine** (irregular, secondary, reparative, substitutive dentine) is formed in response to irritating factors action. Unlike primary and secondary dentine located along the pulp-dentine border, tertiary dentine is formed more or less locally — only by cells immediately responing to irritation. it is usually unevenly and poorly mineralized and characterized by irregular course and various inclusions or even the absence of dentinal tubules.

Sclerotic (transparent) dentine



is formed as a result of progressive secretion of peritubular dentine in dentinal tubules that causes their gradual narrowing and obliteration.

Sclerotic dentin occurring under enamel caries with early penetration of dentin caries along enamel lamella. *(From*

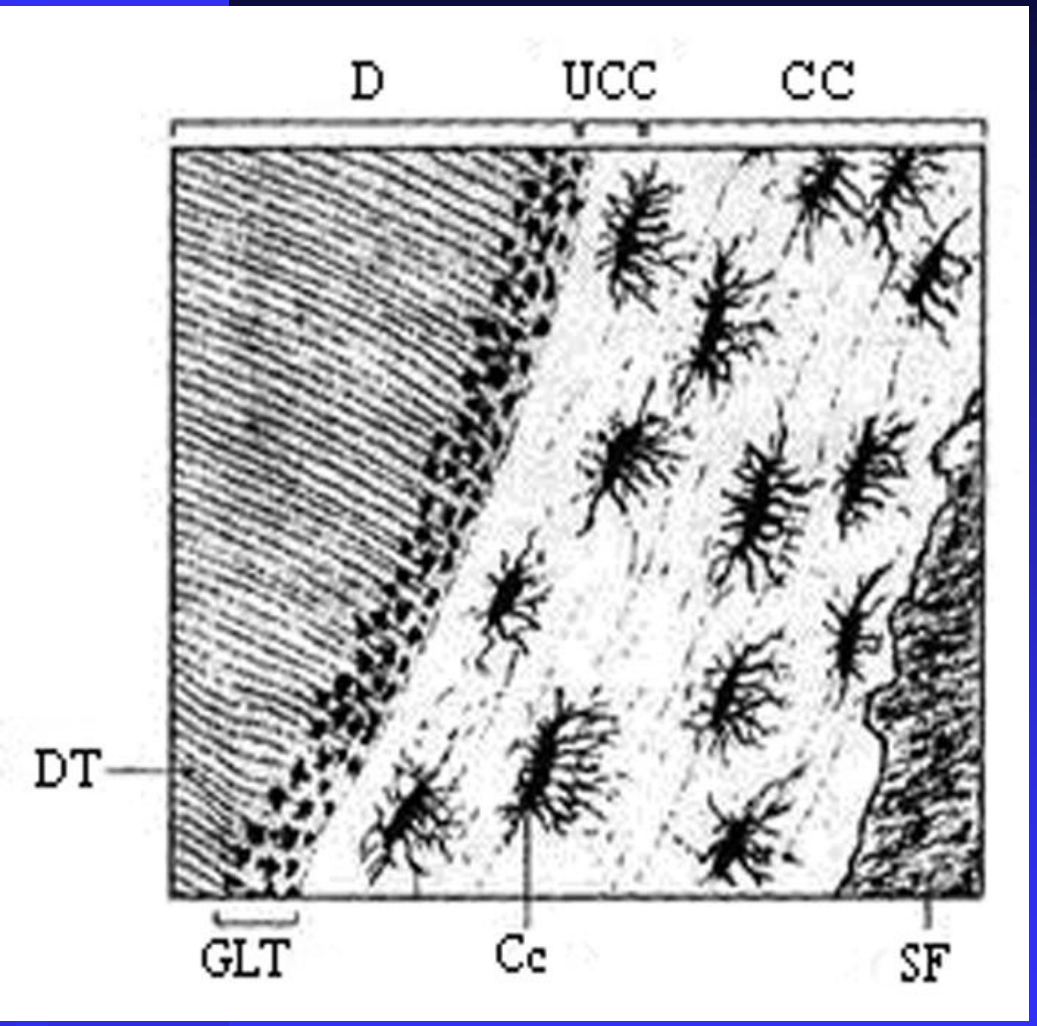
CEMENTUM

- is a specialized calcified substance covering the root of a tooth.
- **Chemical composition of cementum** The cementum contains of mineral substances 62-65%, organic – 23 - 26% and 12% of water.
- There are two types of cementum :

primary (noncellular) developing during root formation and eruption,

secondary (cellular) developing after tooth eruption

CEMENTUM



Cellular (secondary) cementum covers the apical one third of the root and the area of roots bifurcation in multirooted teeth.

UCC – uncellular cementum;
CC – cellular cementum;
D – dentine;
DT – dentinal tubules;
GLT – granular layer of Tomes;
Cc – cementocytes;
SF – Sharpey's fibers.

PULP

is the abundantly vascular and innervated specialized friable fibrous connective tissue filling the pulp chamber.

Morphologically the pulp consists of:

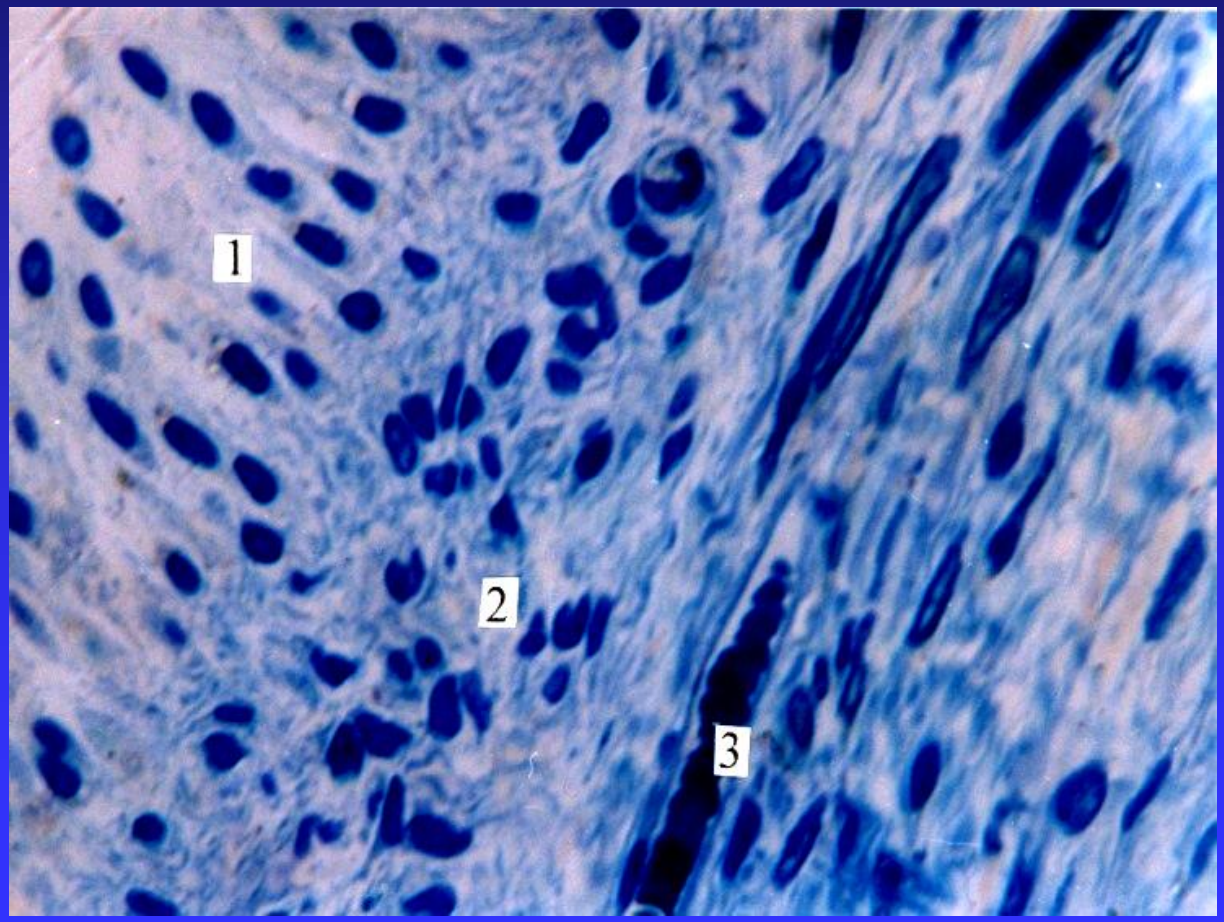
cells (odontoblasts, fibroblasts, stellate cells, macrophages and others);

fibers (collagen, reticular, argyrophilic);

intercellular substance (glycosaminoglycans penetrated by blood vessels and nerves).

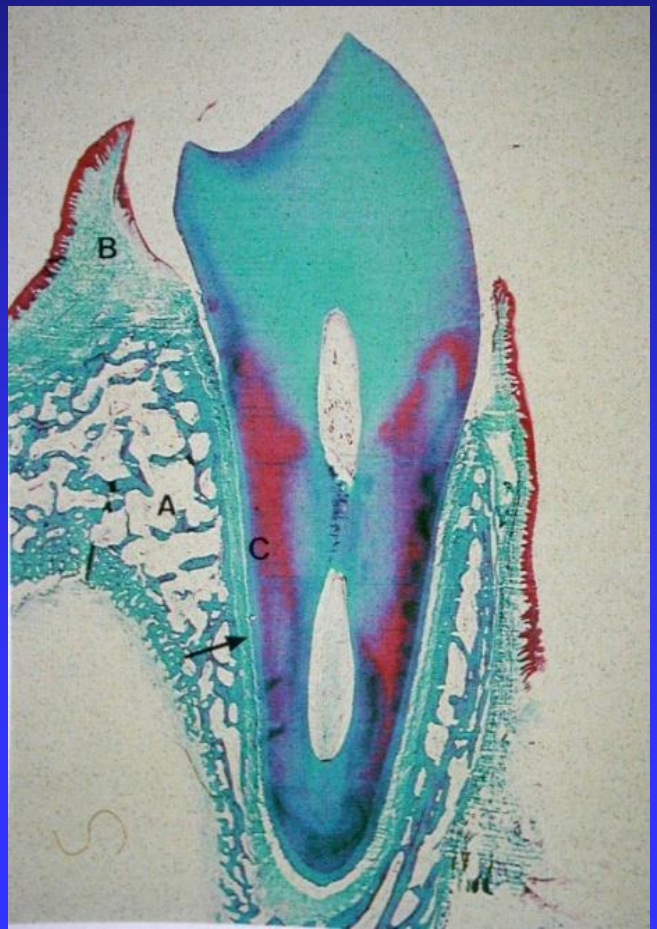
Pulp layers:

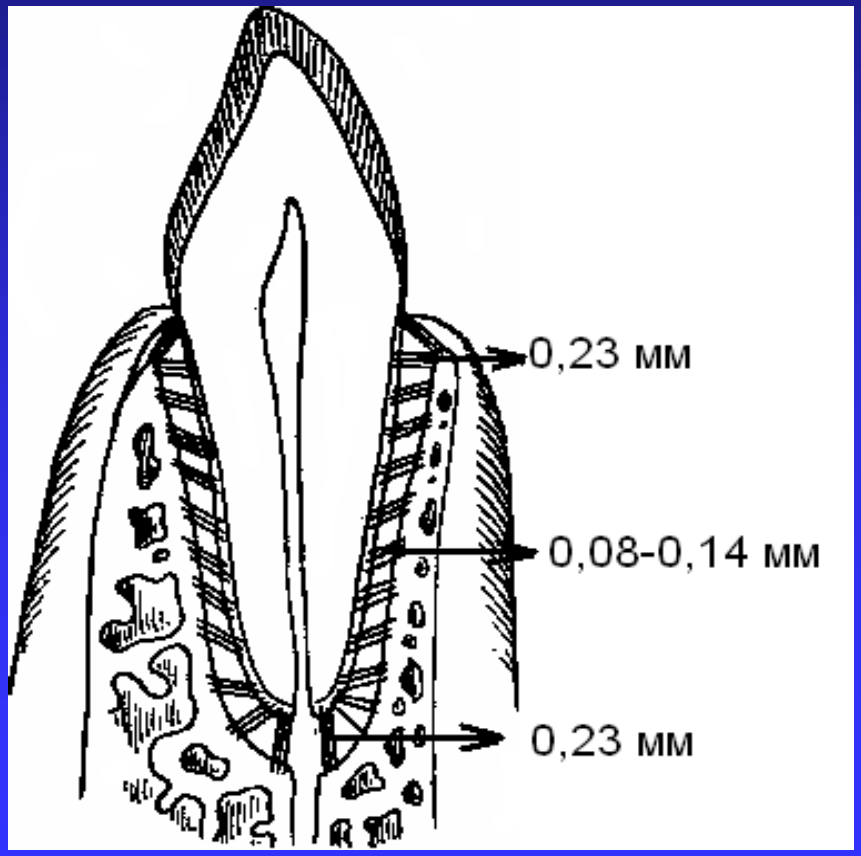
1. Peripheral (odontoblastic);
2. Subodontoblastic;
3. Central.



PERIODONTAL LIGAMENT

is the connective tissue which fills periodontal space between tooth root and an alveolus, connecting with root cement on the one side and an internal compact lamina of an alveolus on another.





CONCEPT OF PERIODONTIUM

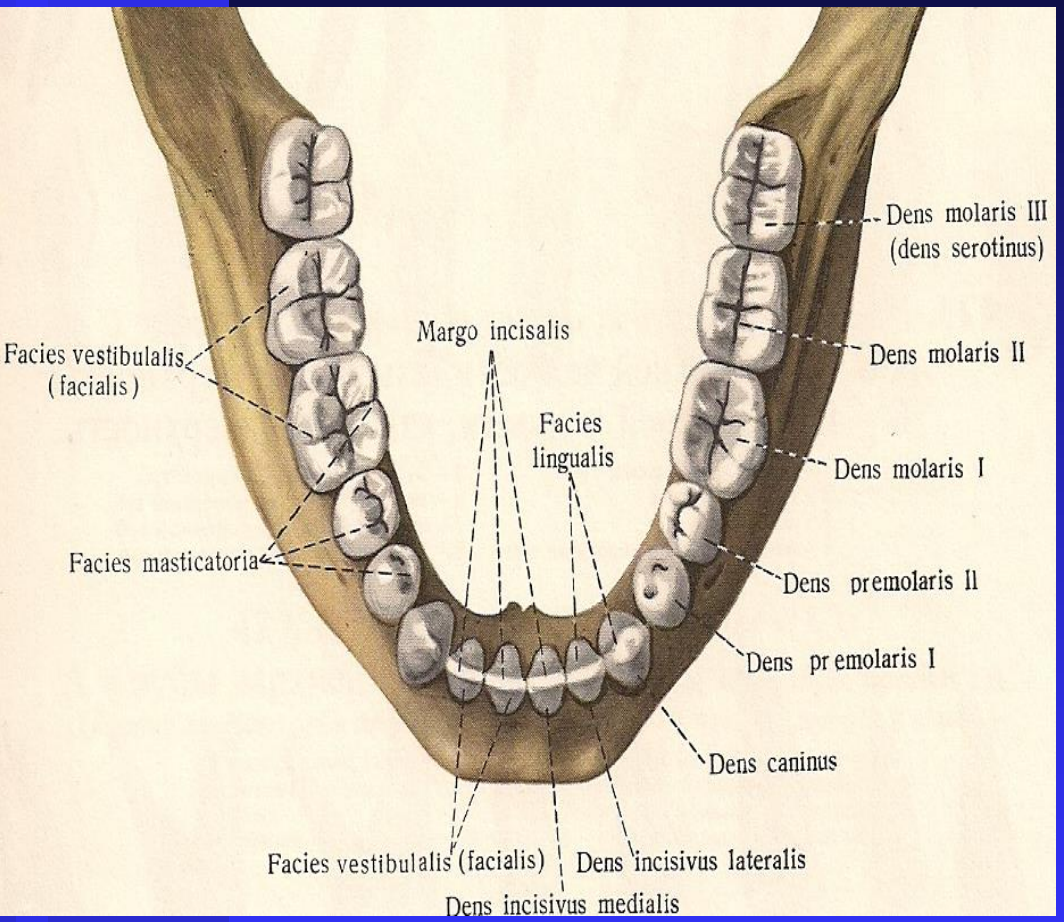
- Periodontium is a complex of tissues surrounding a tooth. Periodontium includes cementum, periodontal ligament, alveolar bone and gingiva.
- It performs a number of functions :

1) hold-suppoting and amortized – it retains tooth in the alveolus distributing the masticatory loading and regulating pressure at mastication;

2) barrier – it forms a barrier preventing penetration of microorganisms and harmful matters in the root area;

3) trophic – it provides the cementum nourishment;4) sensory – due to a presence of plenty of sensitive nerve endings in periodontal ligament.

Surfaces of tooth



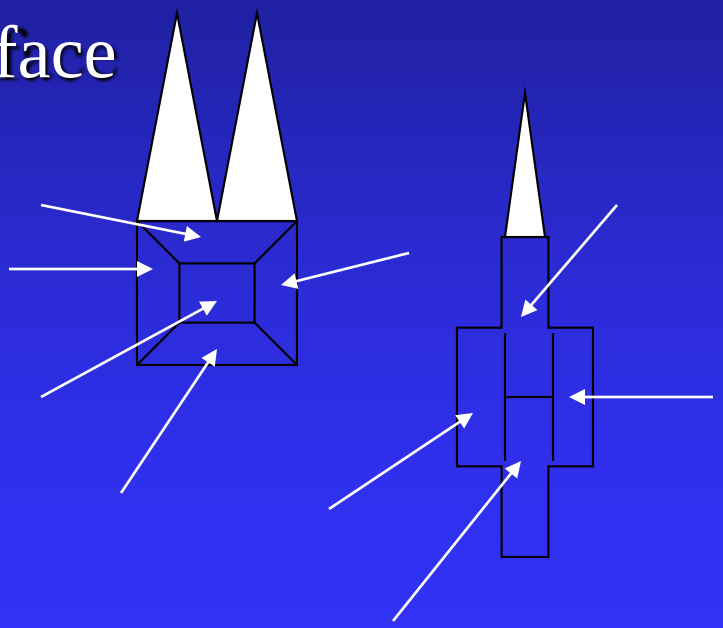
The frontal teeth has 4 surfaces, and molars and premolars - 5.

- occlusal (chewing)
- vestibular (buccal)
- oral (palatinal or lingual)
- contact distal
- contact medial

Surfaces of tooth

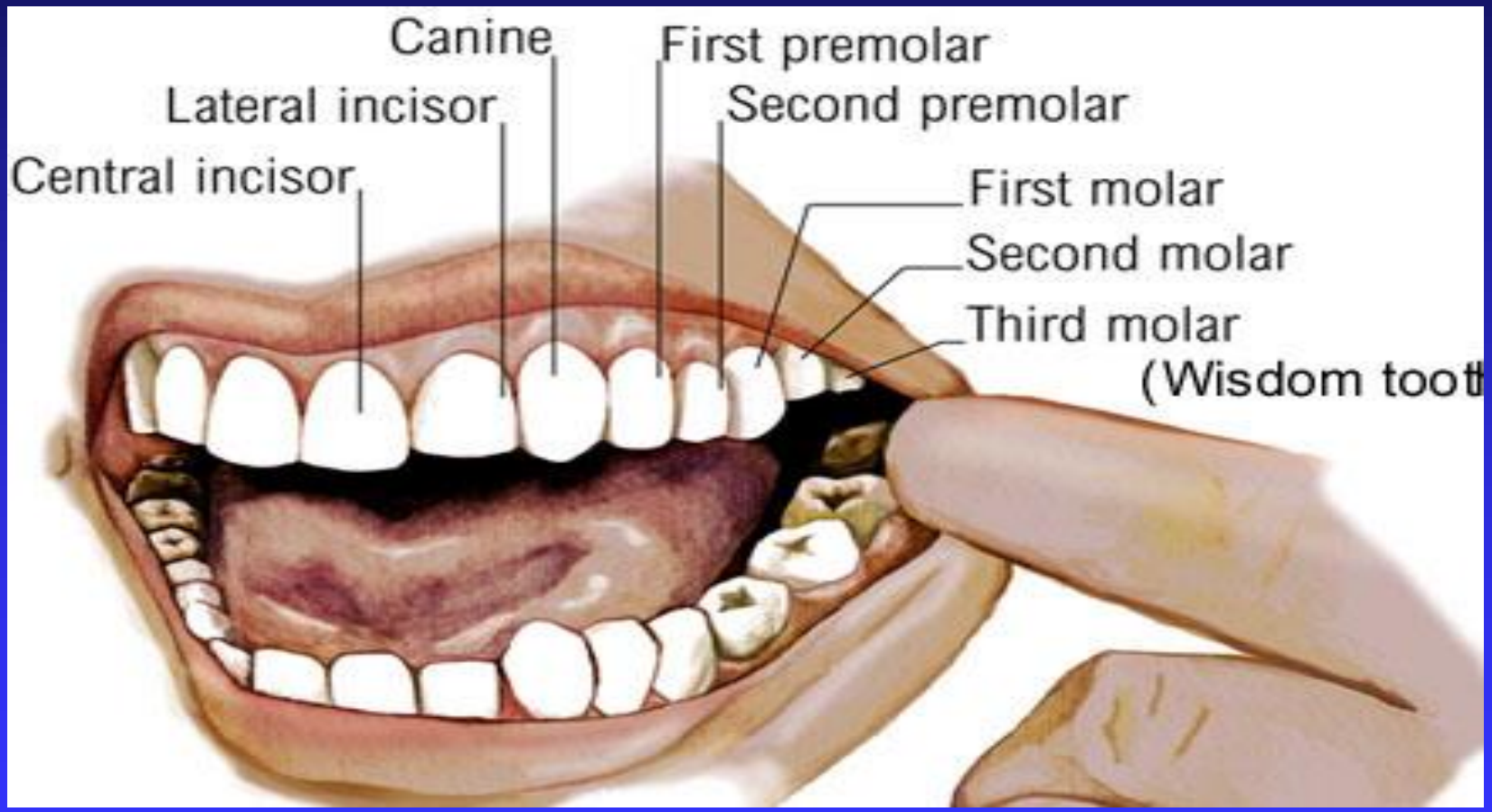
The circuits of the tooth formula are developed also, in which all surfaces of crowns of teeth in the unwrapped kind are displayed. It is possible to show localization of a carious cavity, filling on it. In this formula for the description of the location of a carious cavity use the following letter designations:

- 0 - occlusal (chewing) surface
- I - cutting (incisive) edge
- M - medial contact surface
- D - distal contact surface
- F - vestibular (frontal)
- B - buccal
- L - lingual

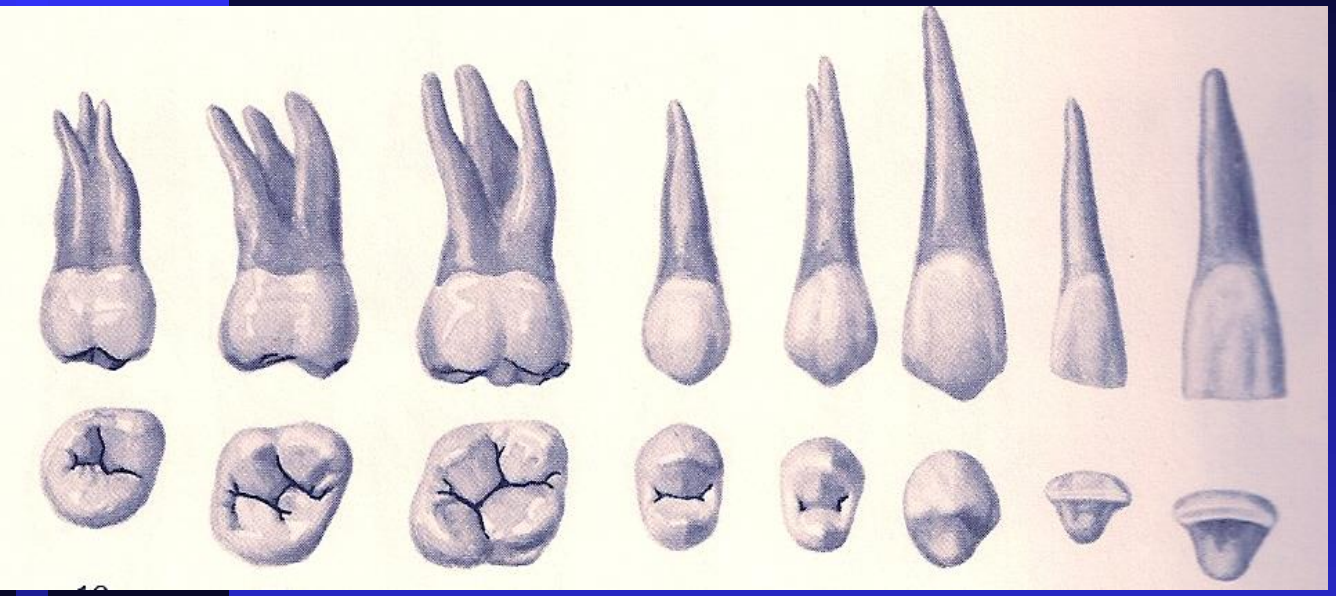


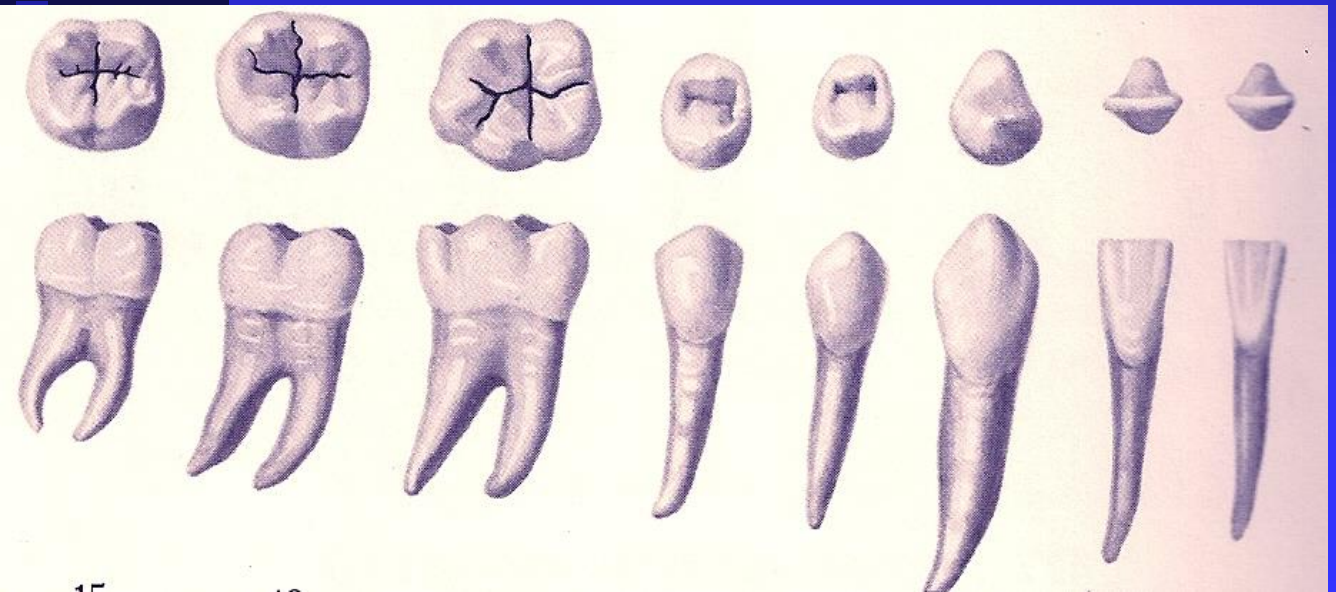
The combined carious cavities are designated by a combination of 2 letters MO, MOD

Clinic structure of teeth



Clinic structure of teeth





1- central incisor

2- lateral incisor

3- canine

4, 5 – premolars

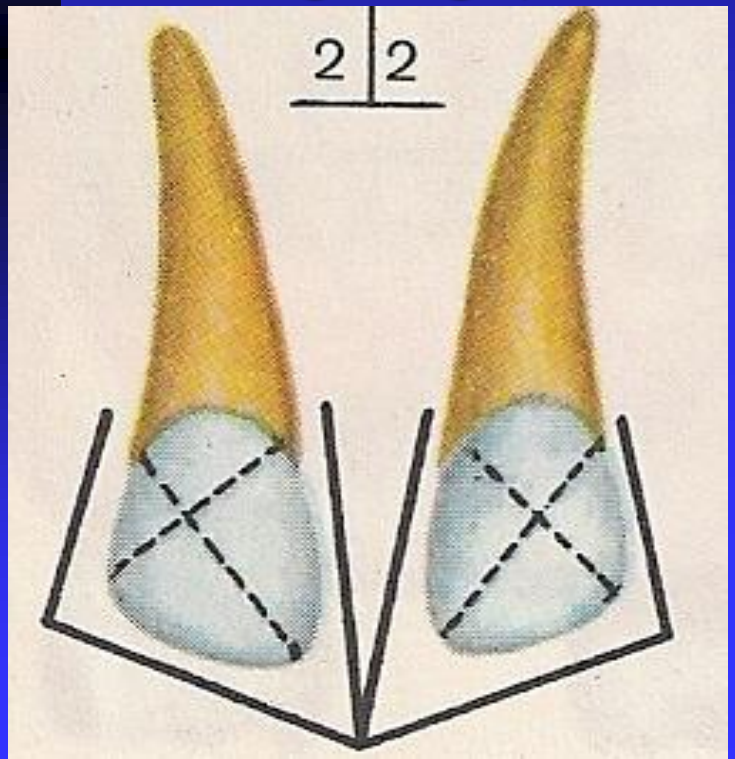
6, 7, 8 - molars

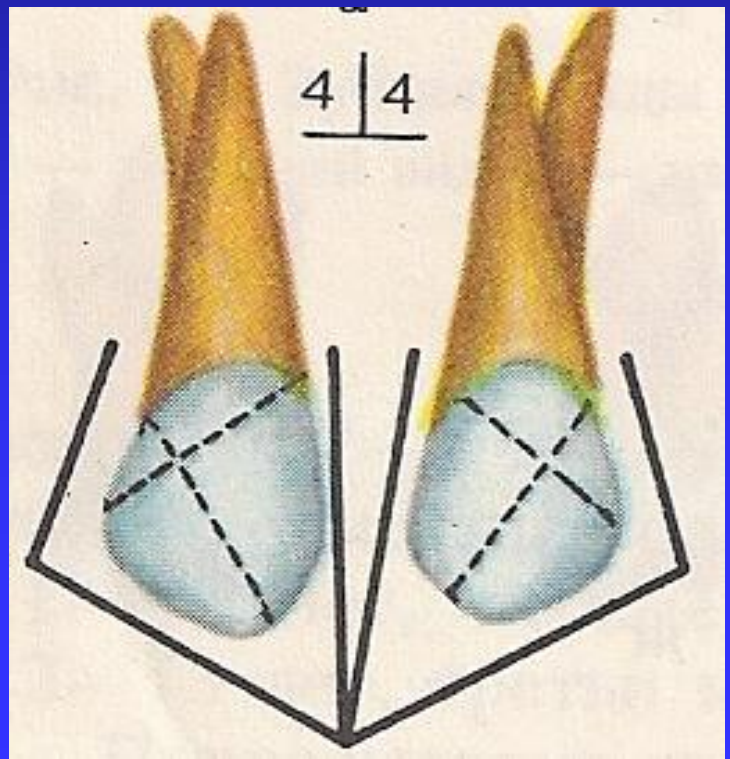
Signs of belonging of the tooth.

- 1. Sign of an angle of a crown;
- 2. Sign of curvature of a crown;
- 3. Sign of a deflection of a root;
- 4. Sign of contact surfaces.

The sign of an angle of a crown

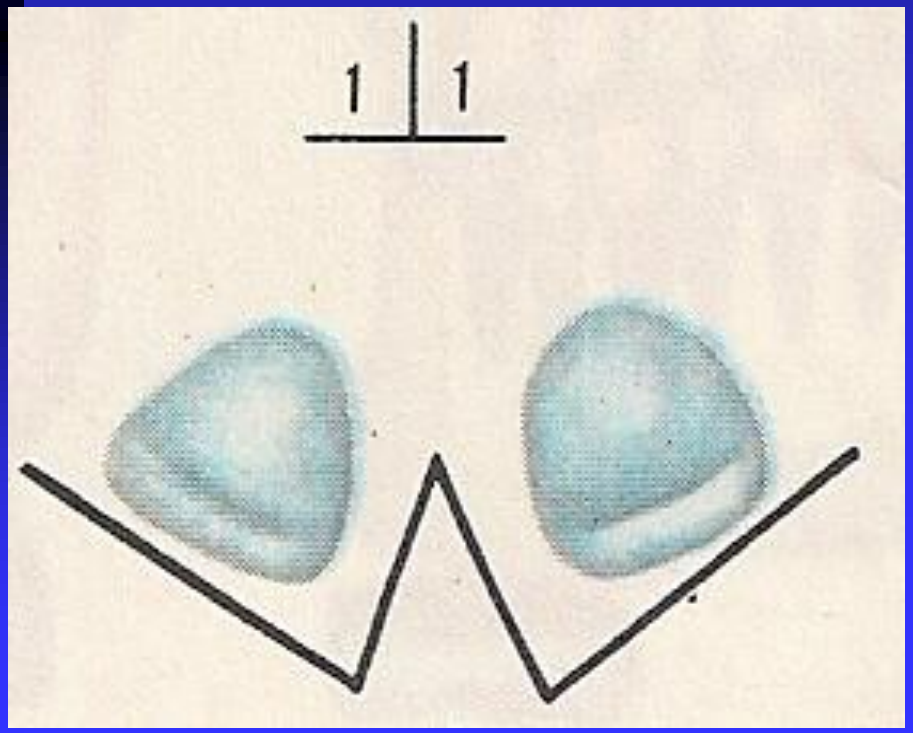
- means, that the medial angles (between medial contact surface of a crown and cutting edge or masticating surface is much sharper that distal edge (between distal contact surface and cutting edge).

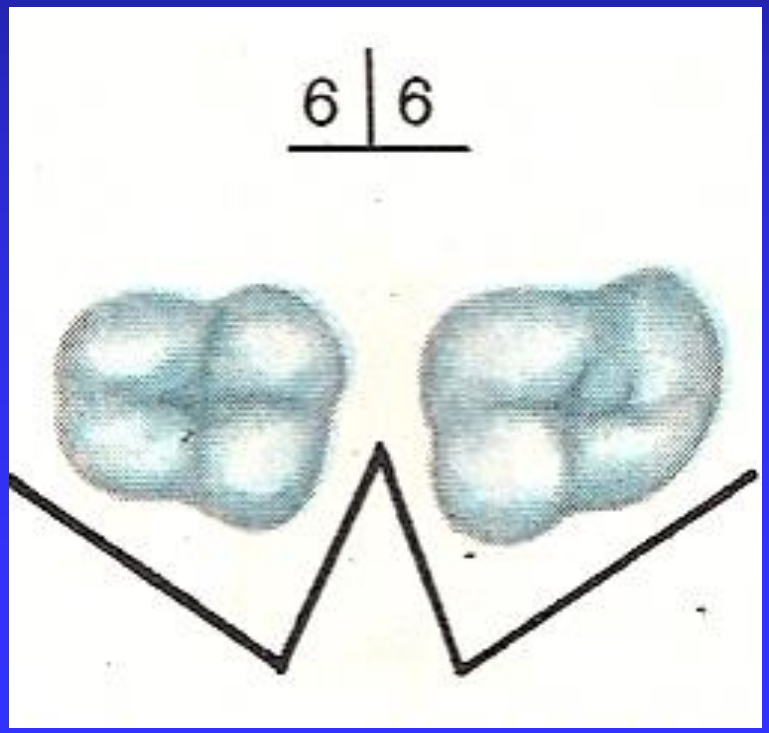




The sign of curvature of a crown

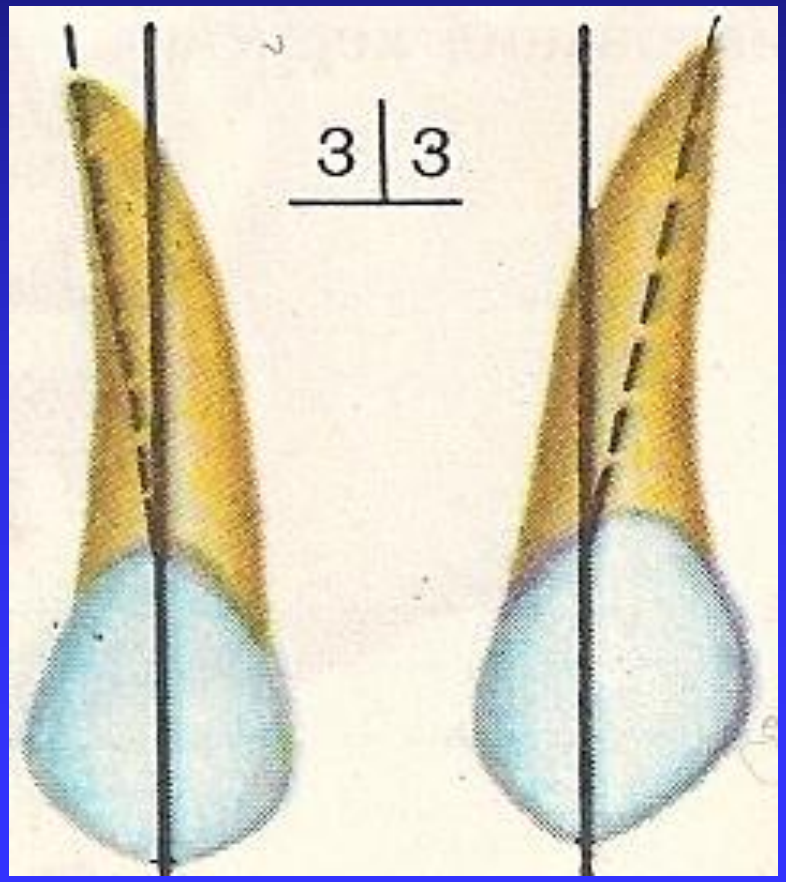
- Medial part of vestibular surface is more convex than distal (the greater protuberance of a vestibular part of a crown posed near to its medial edge and more flat at distal. This sign is more legibly expressed in view of the teeth from occlusal surface.

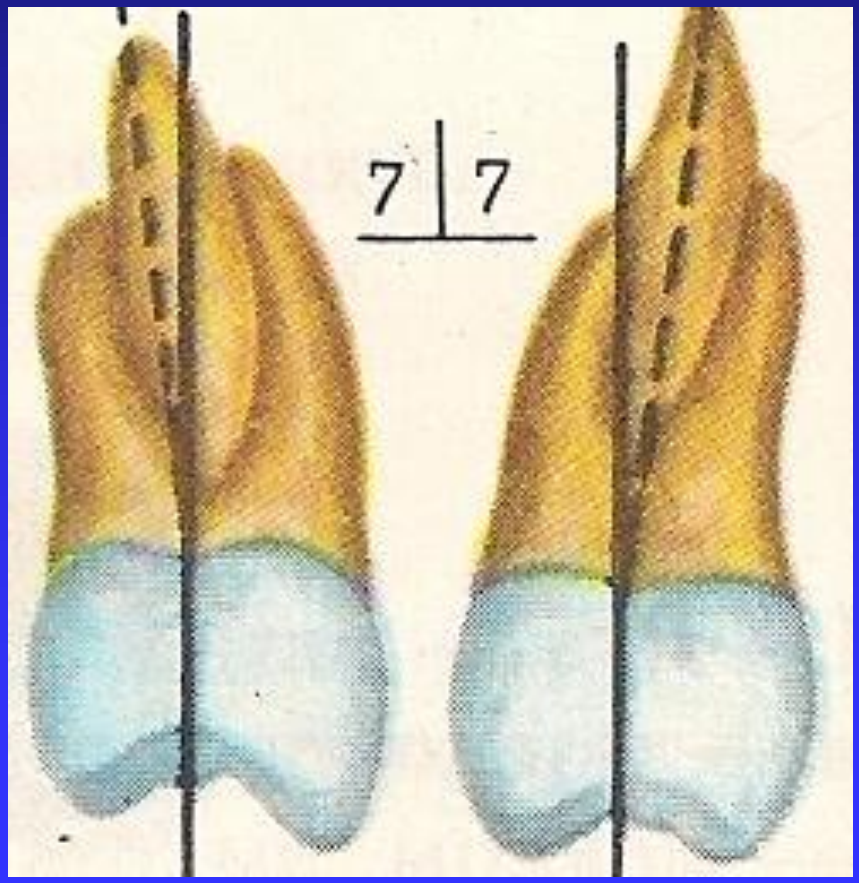




The sign of a declination of a root

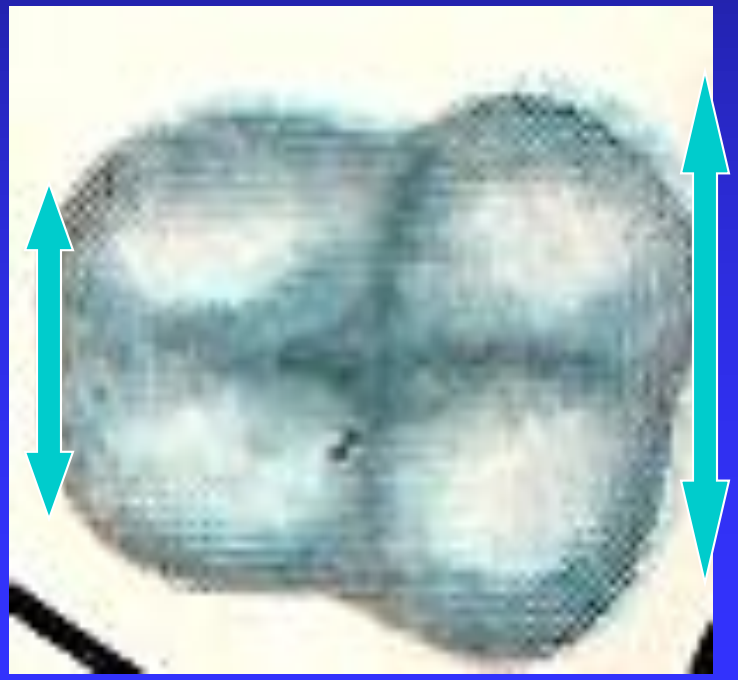
- means, that roots or its apexes are bent in a distal direction in relation to a long axis of teeth



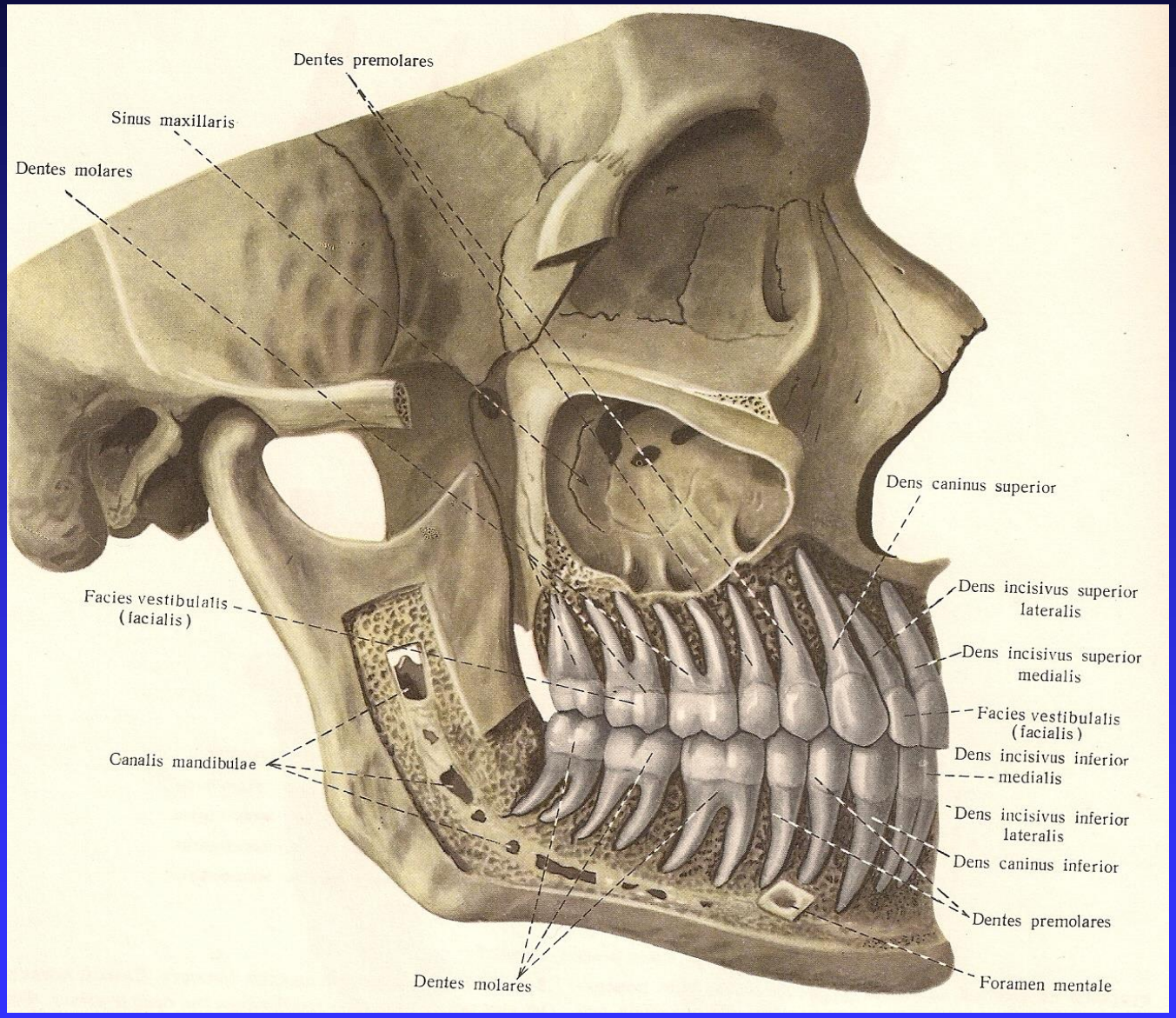


Sign of contact surfaces

- means, that medial contact surface of a crown is more wide than distal contact surface. This sign is continuation of sign of curvature of a crown.



Belonging of the tooth.



Clinical teeth formula

- **Palmer Notation Method**
- The Palmer Notation Method is a system used by dentists to associate information to a specific tooth. It continues to be the preferred method used by dental students and dentists through out the United Kingdom. It is the most wide spread teeth formula in Ukraine, Russia and other countries.
- It was originally termed the "Zsigmondy system" after the Hungarian dentist Adolf Zsigmondy who first developed the concept in 1861.
- Dentition is designated by the following formula:

Clinical teeth formula

$$\frac{8 - 1 \mid 1 - 8}{8 - 1 \mid 1 - 8}$$

The permanent teeth is designated in the Arabian digits, deciduous - Roman digits.

Permanent teeth	Deciduous teeth
1- central incisor	I - central incisor
2- lateral incisor	II - lateral incisor
3- canine permanent	III - canine
4,5 – premolars	IV, V - molars
6,7,8 - molars	

Clinical teeth formula

$$\frac{V - I \mid I - V}{V - I \mid I - V}$$

- Above a horizontal line records the teeth of the top jaw, under a line - of mandible.
- To the left of a vertical line the teeth of the right half of jaw, at the right - left is designated.
  In other words, doctor as if looks on the patient through this formula, imposing it on his face.

- For definition of a belonging of a separate tooth use association of vertical and horizontal lines as an angle with the indicating of number of a tooth, for example:

$\underline{1|}$; $\underline{|3}$; $\underline{|IV}$;

Teeth formula by FDI and WHO

- This system, developed by the Fédération Dentaire Internationale (FDI), World Dental Federation notation is also known as ISO-3950 notation.
- It was offered by Congress International Dental Federation (FDI) in 1971 in Bucharest. It is used internationally by dentists around the world. Its function is to associate information to a specific tooth. The FDI system uses a two-digit numbering system in which the first number represents a tooth's quadrant and the second number represents the number of the tooth from the midline of the face.
- The notation is relatively simple, because designate the teeth without additional sings and symbols, which simplifies its using in Computer typing for the further processing of the information. The human teeth are symmetrically arranged in the mouth. Each quadrant of the mouth has 8 different teeth that are mirrored horizontally and vertically to the other quadrants.

Teeth formula by FDI and WHO

It has offered two-place system of a designation of teeth.

- Both jaws are divided into 4 squares, which are designated in digits 1 square | 2 squares
  4 squares | 3 squares

Serial number of each tooth add to number of a square. So:

18,17,16,15,14,13,12,11 21,22,23,24,25,26,27,28

48,47,46,45,44,43,42,41 31, 32,33, 34, 35, 36, 37,38

Teeth formula by FDI and WHO

- The deciduous teeth is designated not Roman, but Arabian digits (1-5), but numbers of squares is others

5 square | 6 squares

8 squares | 7 squares

55 54 53 52 51 61 62 63 64 65

85 84 83 82 81 71 72 73 74 75

- Advantage of new system of expression of the tooth formula, in comparison with standard, is the opportunity of mild transferring of a designation on the computer text for the further processing of the information.

Universal Numbering System (used in U.S)

- The Universal Numbering System is a simplified method of identifying teeth that is approved and adopted by the American Dental Association (**G. Gunningham** (1883).
- All teeth of a constant occlusion designates in digits from 1 up to 32.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17

- The deciduous teeth is designated in the similar order by the letters of English alphabet

A b c d e f g h i j

T s r q p o n m l k

Classification of carious cavities by Black

1 class – cavities in natural fissures on a chewing surface of molars and premolars, and also in blind fosses of incisors and molar teeth;

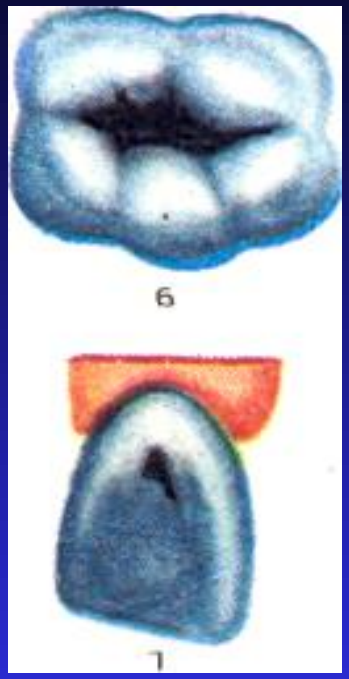
2 class – on contact surfaces of molars and premolars;

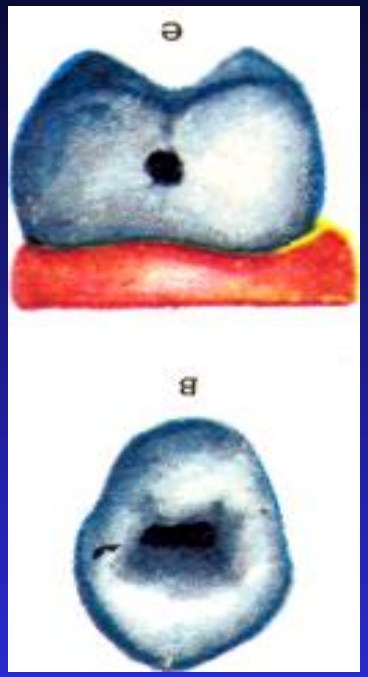
3 class – on contact surfaces of incisors and canines without disturbance of integrity of an angle and cutting edge of a crown;

4 class – on contact surfaces of incisors and canines with disturbance of integrity of an angle and cutting edge;

5 class – in area of neck all groups of dents.

Classification of carious cavities by Black





1 class

cavities in natural fissures on a chewing surface of molars and premolars, and also in blind fosses of incisors and molar teeth

Classification of carious cavities by Black

2 class

on contact surfaces

of molars and premolars

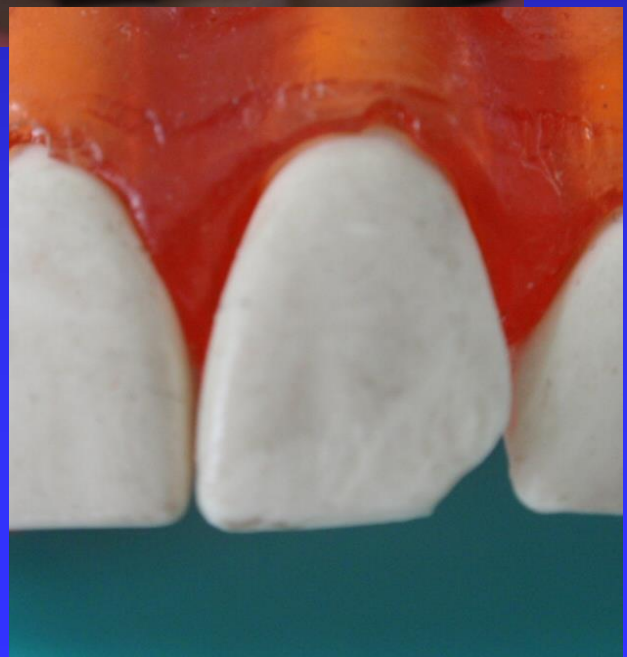
Classification of carious cavities by Black

3 class

on contact surfaces

of incisors and canines without disturbance of integrity of an angle and cutting edge of a crown

Classification of carious cavities by Black



4 class

on contact surfaces

of incisors and canines

with disturbance of integrity

of an angle and cutting edge

Classification of carious cavities by Black

5 class

in area of neck

all groups of dents

Preparing principles

Anaesthesiological.

Dentophobia (fear of a tooth pain) – is basic reason for patients to suffer and postpone visitation to the doctor-stomatologists.

Anaesthesiological

Dentophobia (fear of a tooth pain) – is basic reason for patients to suffer and postpone visitation to the doctor-stomatologists.

Regimen of preparation are protective measures, allowing to exclude the adverse factors, which is caused a pain:

1) vibration;

2) pressure upon hard tissues of tooth;

3) an overheat or a frigorism of hard tissues of tooth.

The vibration cause – unsteadily fixed burs in handpiece, let out the bush. Pressure arises at work slowly-rotating blunt tool (repeatedly sterilized steel burs) .

The work by usual stomatological handpieces with rate of 10-30 thousand per minute renders pressure upon hard tissues of tooth about 1000 g. Turbine hand pieces (rate of 300-500 thousand per minute) put pressure about 10 g.

Preparation rules:

1) acute burs with high cutting ability (an enamel - diamond burs, dentin-hard-alloy);

2) not vibratile handpieces where burs are densely fixed;

3) on maximum high speed;

4) intermittent comma-shaped movements;

5) to apply water cooling;

6) in deep c/c in order to avoid a frigorism and a trauma of a pulp it is better to apply middle-sized burs on low rate.

The principle of biological expediency

was offered by I. G. Lukomsky (1948), provides full excision of patholologically variated dentine and an enamel and sparing attitude to healthy fields of tooth.

A principle by Black is used before, which recommended to prepare a carious cavities up to so-called immune zones (cusps, equator, transferring of one surface into another), i.e. to those fields on which caries educes extremely seldom. It led to excision of the big area of hard tissues of tooth.

Observing this principle, we remove all deminiralized dentine, hanging enamel which does not have legs on a dentine. But cusps, places of transferring of one surface into another, bonds between cusps (enamel platens) which functionally intensify a tooth, we conserve.

Principle of technical rationality and retention

consists in individual selection of instruments, burs depending on localization, the dimensions (size) of c/c, a tissue which is exposed to the excision, the differentiated choice of procedure of preparing, filling material.

The burs dimension should be less than a c/c that will allow to work as it separately on each side.

The principle of preserving the integrity of adjacent teeth, periodontium and oral tissues

At preparation of cavities, especially located in the pericervical areas of the tooth (usually II, V classes by Black), it is necessary to perform all manipulations carefully to avoid mechanical or chemical injury of the mucosa, interdental papillae, gums margin. In addition, injury of the mucosa, especially contact caries cavities, is necessary to avoid a damaging of adjacent teeth enamel using certain matching accessories and techniques.

The principle of visualization and comfort of work

- This principle is based on the fact that the good doctor must see what he does. Better standards of visual control and providing the comfort the different ergonomic methods, appliances and devices are promoted comfort work:
- The ergonomic position of the dentist and patient;
- Work "with four hands";
- The use of efficient aspiration system (saliva ejector "vacuum cleaner" multi-septor);
- Sufficient illumination of the working field: the correct location and direction of light, work handpieces with backlighting, more light in working field;

Creating conditions for aesthetic tooth restoration

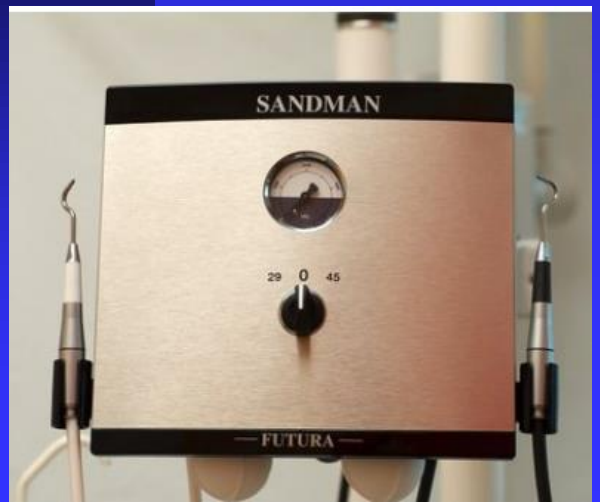
- Modern composite materials allow not only recover, but even improve the aesthetic properties of the tooth. The main characteristics are its colors, transparency, reflection and refraction of light. Therefore, the preparation of cavities, especially in front teeth, should be further guided by the requirements of aesthetics: completely remove of pigmented dentin; treat the enamel to ensure adequate reflection and refraction of light on the edge of restorative material with tooth tissues; remove areas that impair the aesthetic result of restoration (such as enamel cracks).

Methods of preparations

- **Mechanical** method – using of dental handpieces, burs and hand instruments. This way of preparation is the widest and popular. This method of preparation is used both in classical method and alternative methods of preparation such as tunnel preparation, micro-preparation etc.
- **Chemical-mechanical** method– using of system which destroy tissues damaged by decayed process and then is removed with hand instruments. As an example of chemical-mechanical system of decayed preparation is “Carisolv” (Sweden), which includes two gels and set of special hand instruments.

Methods of preparations

- **Pneumokinetic or air-abrasive** method uses in stomatology to realize the sand-blasting method of hard surfaces treating. It is used to treat fissures before sealing to remove deep pigmentation of enamel on preparing of small caries cavities and to prepare surfaces to be applied with adhesive composite system.



Methods of preparations

- **Water-abrasive method** of minimally invasive intervention is approved and recommended by FDI in 2002, then gained a wide practical use. This method is to direct on tooth tissues through special handpieces of reactive spray of aerosol containing water and an abrasive agent. Inclusion of water in the process is minimized dust and increases cutting efficiency compared to air abrasion. Aluminum oxide powder (27, 29, 53 mm) or sodium bicarbonate with a particles size of 25-100 microns - stable, non-toxic, inert substances are used for water-abrasive teeth preparation.

Methods of preparations

- **Acoustic** method provides the use of sound, ultrasound handpieces and special jets with diamond coating of work part.

Methods of preparations

Laser method – noncontact method of preparation suggests the use of laser rays for preparation of caries cavities and hard tissues of tooth. Device consists of three main components: light generator certain power and frequency, optical fiber and laser handpiece which equipped with cooling system “water – air”. The mechanism of preparation is following: laser works in impulse mode sending about 10 rays every second. Every impulse has strict energy. The laser ray falling on hard tissue evaporates thin layer of about 0,003mm.

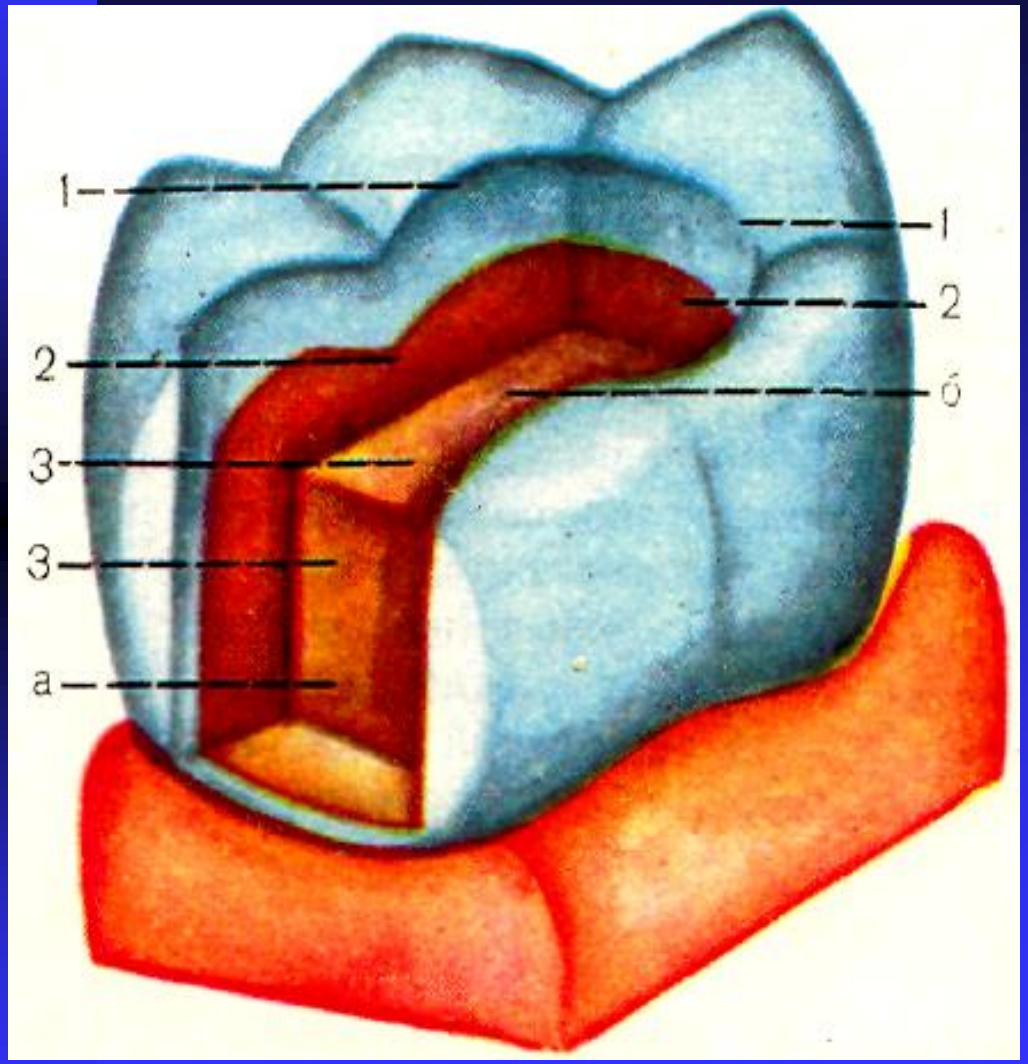
Basic elements of a carious cavities

There are simple (on one surface of tooth) and complex (traps some surfaces) c/c .

In complex cavities distinguish one or several basic cavities and the additional area. The basic cavities is formed in the place of localizations of a carious lesion and its dimension is defined by a degree of prevalence of a caries decay. An additional cavities are formed by force, excision of intact tissues of an enamel and a dentine, for the purpose of masticatory stress allocation.

In a carious cavities there are: edges, sides and a bottom. The edge is a border separating an inlet opening and c\c from surfaces of tooth. The bottom – is formed by surface or several surfaces which are reversed to a pulp of tooth. Sides of a c/c are called according to surfaces to as which they are reversed: lingual, vestibular, medially-contact or distal-contact.

Basic elements of a carious cavities



a – the basic c/c;

b – the additional platform;

1 – edges of c/c;

2 – walls of c/c;

3 – a bottom of c\c.

Stages of classical preparation of carious cavities of various classes

Preparing (from Latin. praeparare – to prepare) is an operative excising of patholologically variated tissues of tooth for the purpose of the stoppage of the further progress of carious process, creation of conditions for reliable fixing of a seal, restoration of the anatomical form and function of tooth.

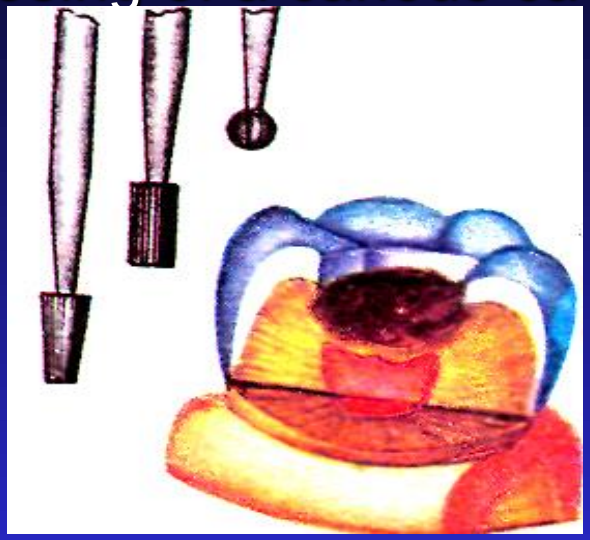
Stages:

1. Disclosing of a carious cavities;
2. A necretomy;
3. Formation of a carious cavities.

Stages of preparing of a carious cavities

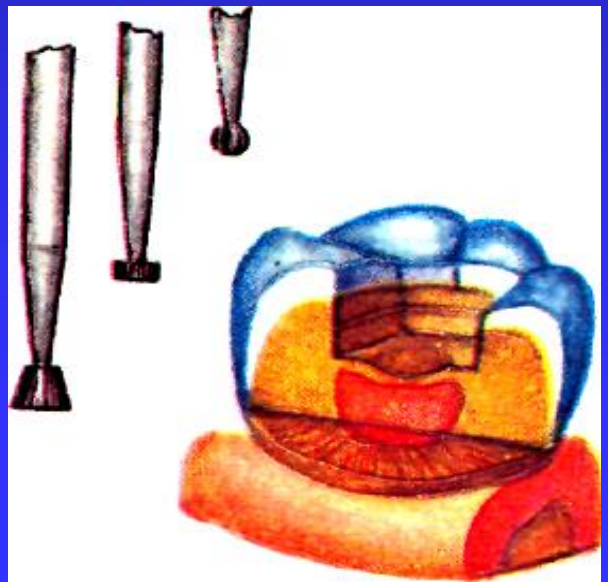
C/c before preparing

Disclosing of a carious cavities



Necretomy

Formation c/c



Disclosing of a carious cavities

provides creation of good access to the basic c/c, excising of hanging edges of an enamel.

1 and 5 classes – disclosing is carried out from affected surfaces (masticatory, buccal, oral).

Disclosing of a carious cavities

Variants of localization of c/c of the 2 class:

- 1) below equator;
- 2) on equator;
- 3) above equator.

If the next tooth is present, disclosing is made from a chewing surface (which very often happens not damaged).

3 and 4 classes-open c/c from an oral surface. If the vestibular surface is involved, disclosing is made through it.

If the next tooth is absence, c/c of 2, 3, 4 classes open directly from a contact surface.

Disclosing of a carious cavities

III and IV classes by Black

Necretomy of a carious cavities

– full excision from a c/c of dead tissues (basically a dentine) and products of their disintegration.

It is made by means of excavator a and hard-alloy ball-shaped and other burs. Softened dentine is removed by excavator. And, in not deep c/c its acute edge introduce into a dentine on an axis of tooth (upright), taking out a thick dentine layers.

At deep cavities, considering a tangential direction of dentine fibers and opportunity to open a pulp cavity, the dredge should be directed on the slant (to in parallel bottom of a carious cavity), taking out thin layers of a dentine. A necretomy is concluded by burs in view of topography of a pulp cavity.

How to learn:
are the stayed hard tissues struck or healthy?

The healthy enamel has white (but not chalk-like) colour and natural lustre. The healthy dentine has white-yellow colour, dense at probing.

Formation of a carious cavities

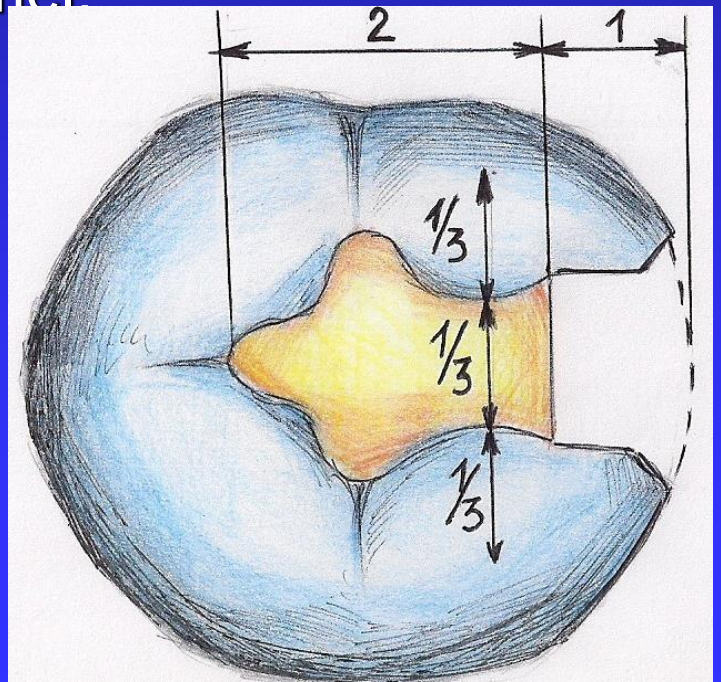
provides creation of the best conditions for bracing of a filling stuff. Rules :

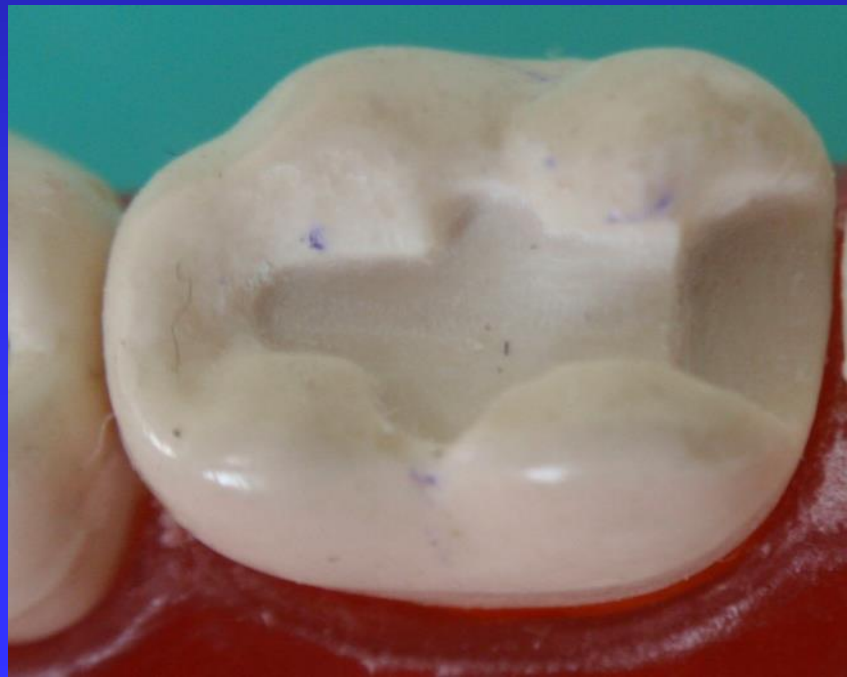
- The form of the basic cavity – box shaped, i.e. sides should be steep, form with a bottom at straight angle (90°). Especially it is important at formation near gum walls;
- The bottom flat or curved, retries a pulp cavity;
- Building of additional fixative formations in the form of sulcus, notches, a fold, additional platform.

The purpose of building of the additional platform in c/c of 2, 3, 4 classes – masticatory stress allocation.

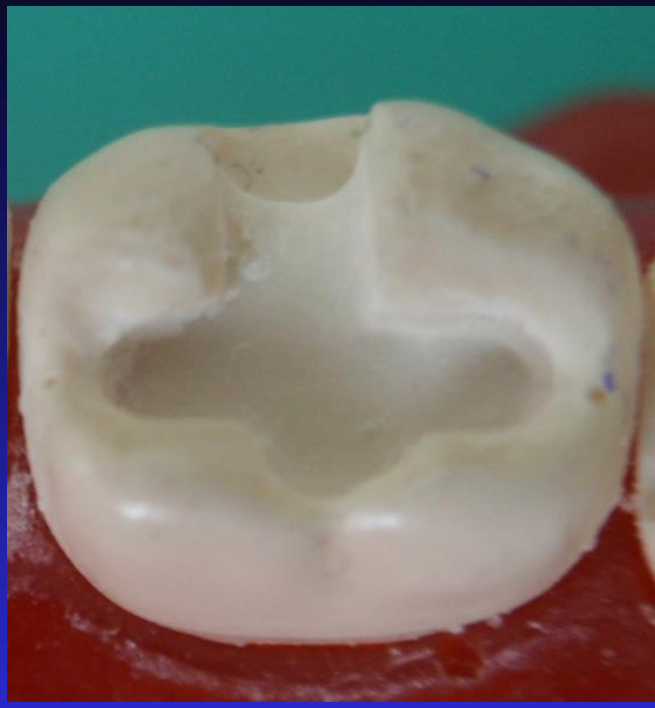
Demands to the additional platforms:

- To have the box shaped form;
- Width = to width of the basic cavity or 1/3 of the distance between the tops of chewing cusps;
- Length: reaches to middle (1/2) a chewing surface or 1/3 of the palatal;
- Depth: on 0,5 – 1 mm more low a border dentine-enamel;

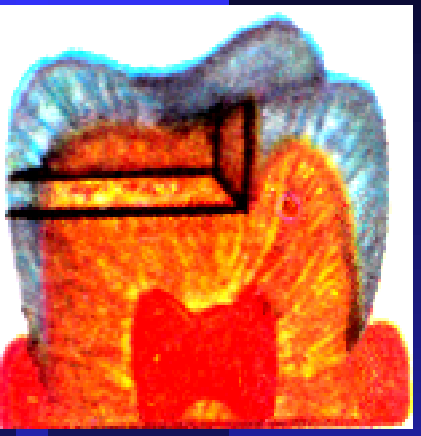


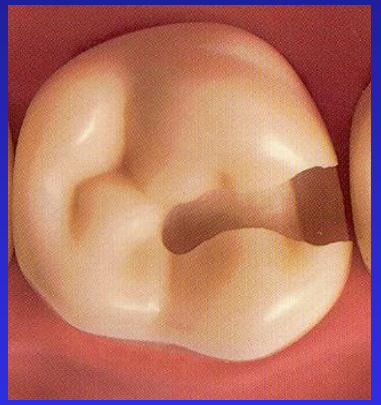


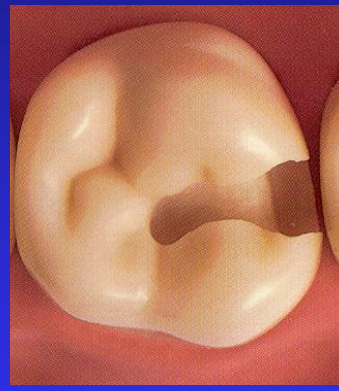
Type of formation c/c of 1 class

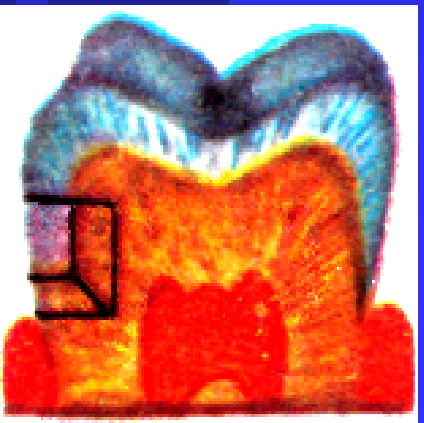


Type of formation c/c of 2 class









Type of formation c/c of 3 class

Type of formation c/c of 4 class

Type of formation c/c of 5 class

Features preparation of carious cavities sub composites

- Sparing preparation with possible formation cavities of the wrong form;
- Excision of all enamel and dentine which are variated in colour in c/c of 3, 4 classes;
- Rounding of edges of a cavity in order to avoid a filling abruption at polymerization;
- Creation of a volume fold – an enamel bevel under an angle 45 °, instead of the additional area for the purpose of augmentation of the area of contact of a composite with an enamel, masking of a line of transferring an enamel-composite; (in c/c of 2 and 4 classes where is the small area near gum walls additional points of fixation are necessary).

Preparation of carious cavities sub composites

M.I.-therapy (micropreparation) – Minimal Intervention Treatment – the minimum invasive treatment.

Principle: it is removed only deminiralized an enamel, with conservation of the hanging edges which do not have under self a leg from a dentine. An inlet opening abandon as possible smaller. The cavity of the bulb-shaped (pear-like) form is formed and is "filled in" by GIC.

Procedure positive sides:

1) if the inlet opening in a carious cavity is smaller, than the filling will serve longer;

2) GIC is a base for the "free" enamel which do not have under self a dentine;

3) GIC warns development of the secondary caries.

4) the enamel which is strong, durable and steady against influence aggressive factors of oral cavity is as much as possible conservated.

Tunnel preparation

is an operative access through a chewing surface in a carious cavity on a contact surface with conservation of a marginal enamel. The procedure was offered by P.Hunt (1984 y.) and G.Knayt.

Indications: carious cavities of 2 class by Black of middle depth with the minimum lesion of contact enamel, located on - and below contact point.

Disclosing of a carious cavity is carried out through intertubercular (intercusp) fissure (a triangular fossa) on a chewing surface and the form reminds a tunnel. Not only demineralizated dentine but also an enamel in range of "entrance aperture " is exposed to necretomy .

Tunnel preparation

It is necessary to try to leave dentine enough under marginal enamel for resistance to masticatory stresses.

Disadvantages:

1) restriction of indications in the minimum dimension of the enamel which have remained after tunnel preparation – 2 mm;

2) danger of casual dissecting of a pulp cavity;

3) fracturing in a proximal enamel.

Advantages:

1) conservation of an intact marginal enamel;

2) reduction of duration of restoration (1 class instead of 2 classes)

3) reduction of risk of marginal flaking of restoration.

Slot preparation

- (from Eng. slot – fissure, crack) - a method of minimally invasive intervention used in small decayed lesions of 2nd class by Black on the distal contact surfaces of molars, where the distance between the affected tissues and marginal roll is less than 2,5 mm.
- Access is through a marginal ridge, saving it, where it is possible, removing only fragile demineralized tissues (Mount and Ngo 2000).

Slot preparation

Batecave (batcave) preparation

- It is method of minimally invasive intervention is used for decayed cavities of any location (often on occlusal surfaces, as a rule, molars with small and medium-decayed lesions that spread under the cusps). Batcave preparation involves internal preparation of cavity with a narrow entrance and maximum preservation of enamel.

Batecave (batcave) preparation

ART-procedure (Atraumatic Restorative Treatment) – noninvasive regenerative treatment which means filling of carious cavities without preparation and with application GIC.

Technique of carrying out: purification of a carious cavity is made by a dredge, the cavity is dried up and filled with GIC .

Positive sides:

- Absence of painful sensations at the patient;
- possibility of application in the regions, situated away from a civilization;
- The low price of procedure.

Indications to application: for children (milk teeth), for inhabitants of poor regions; unprivileged circles of population; refugees; emigrants.


THANKS FOR ATTENTION!