General rules for the preparation of carious cavities

Preparation of carious cavities involves instrumental treatment of hard tooth tissues in order to:

a) **excision of pathologically altered enamel and dentin tissues;**
b) **create the best conditions for fixing the filling material (inlays), restoring the anatomical shape, and, consequently, the function of the tooth.**

General rules for the preparation of carious cavities

Spherical bor(drill).

Depending on the direction of the mechanical force, various recess elements can be created.

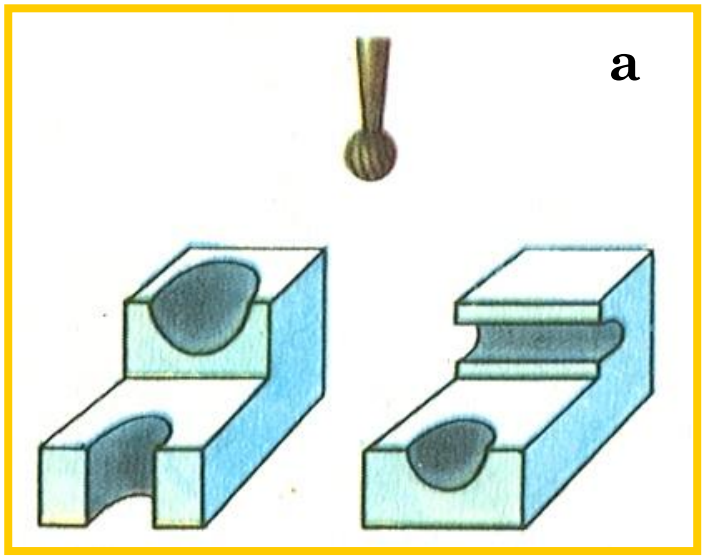
Thus, a spherical bor is used to remove the side walls of the carious cavity, necrectomy, to expand the mouths of root canals, trepanation round holes in the arch above the tooth cavity, etc.

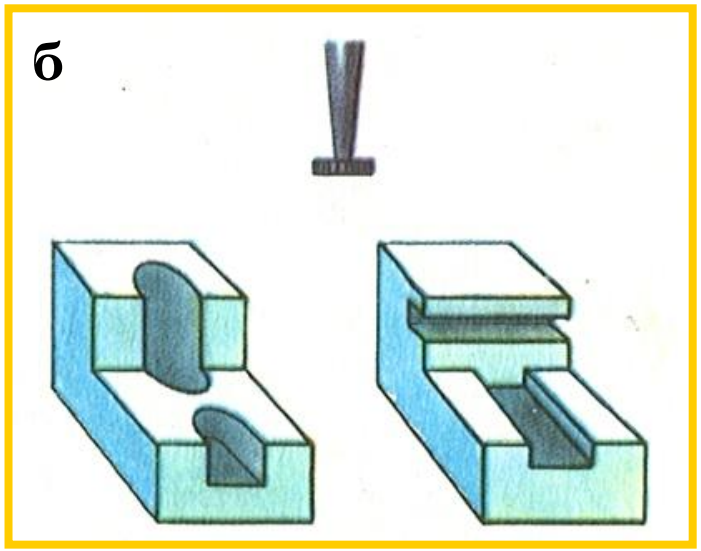
General rules for the preparation of carious cavities

Wheel-shaped drill.

The wheel-shaped drill(bor) is mainly used to create right angles in the area of the bottom of the formed cavity and linear support points.

The main forms of cavities created with the help of spherical (a) and wheel-shaped (b) bores



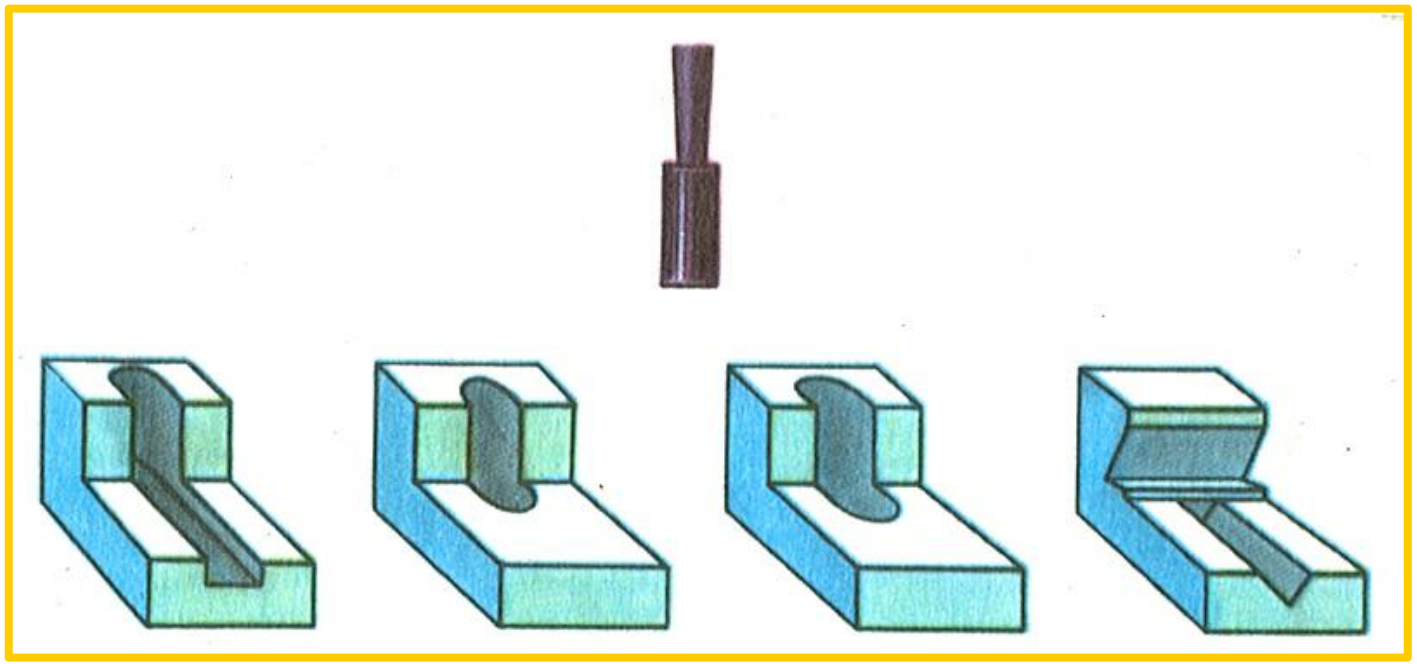


General rules for the preparation of carious cavities

Fissure bor(drill).

With the help of fissure bor(drill), cavities are opened and expanded, walls are treated, right angles are formed, a flat bottom is formed. With an inclined direction to the axis of the tooth, it is possible to create a support groove with walls converging at right angles.

The main forms of cavities created with the help of fissure bor(drill)



General rules for the preparation of carious cavities

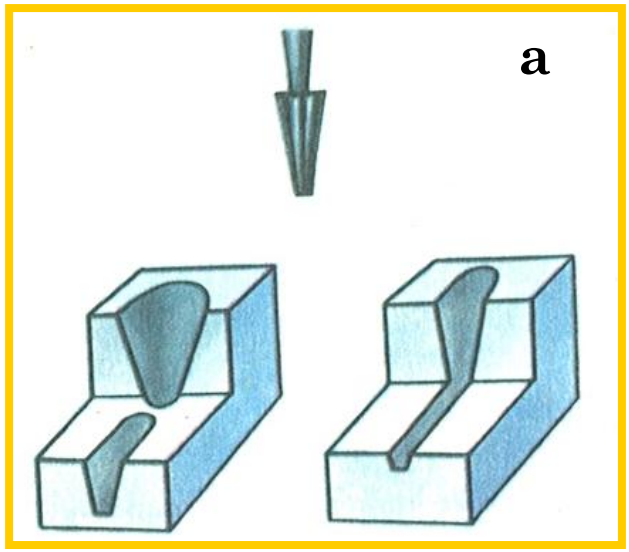
Cone drill.

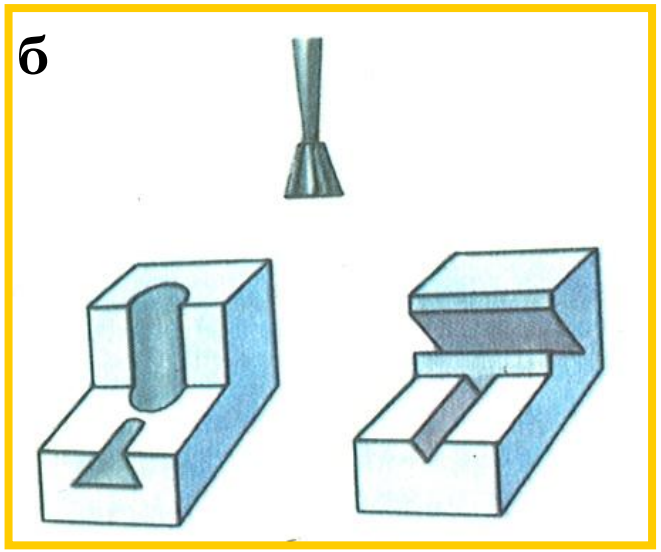
Cone drill is mainly used for opening and expanding the carious cavity by treating the walls of the cavity.

Reverse cone drill.

This drill is used to create a cavity with an expanded bottom, to form a lateral support groove in the cavity wall, sharp corners, a flat bottom.

The main forms of cavities created with the help of cone (a) and reverse-cone (b) drills





General rules for the preparation of carious cavities

Cutting dental instruments: burs, finiers, polishes, carborundum stones (circles) and heads-according to the nature of the working surface, the degree of impact on the hard tissues of the teeth and the abrasive ability are divided into::

- burs, with which the largest and coarsest chips are removed. These are burs with large cuts, the slope of their blades is directed towards the rotation of the boron itself. This group includes all metal burs cutting action:
- diamond tool and carborundum stones relieve smaller chips as they have a more subtle (small) surface with sharp edges; their effect on the fabric more gentle:
- finery and polishers due to the fine-grained or smooth working surface is not cut, but only grind and Polish the surface.

General rules for the preparation of carious cavities

The purpose of local conservative treatment of dental caries is to remove pathologically altered tissues and restore the anatomical shape and function of the tooth, which also ensures the suspension of the carious process.

The main methods of caries treatment (with the exception of the initial one) are currently excision of the affected areas of enamel and dentin with the help of rotating bores and the creation of a cavity shape in which the filling material would be securely fixed.

The preparation of the carious cavity consists of precise manipulations within an extremely small area and includes a number of successive stages that are performed with drills of various shapes.

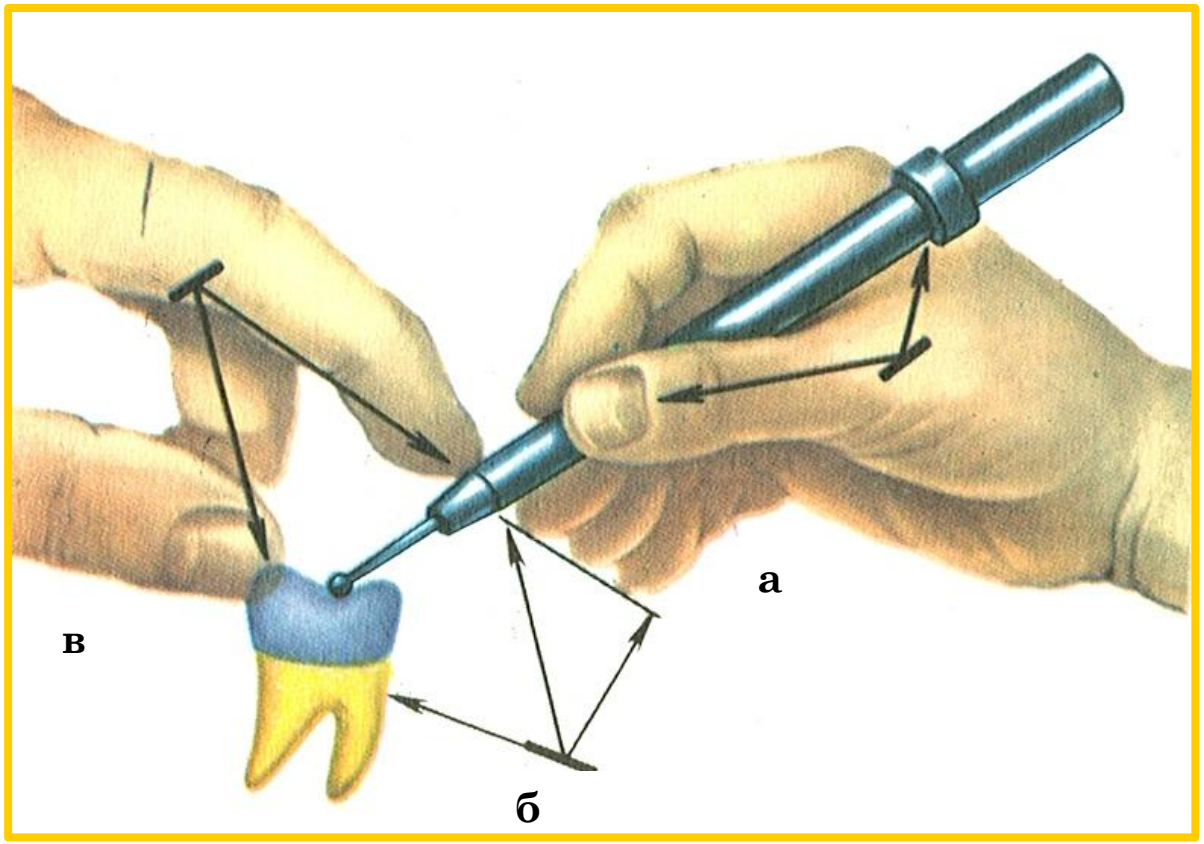
In order to reduce the soreness that occurs as a result of irritation of the tooth receptors, and more accurate work in the intended area, a number of methodological conditions should be observed.

One of the most important rules for the preparation of hard tooth tissues is the reliable fixation of the doctor's hand holding the tip.

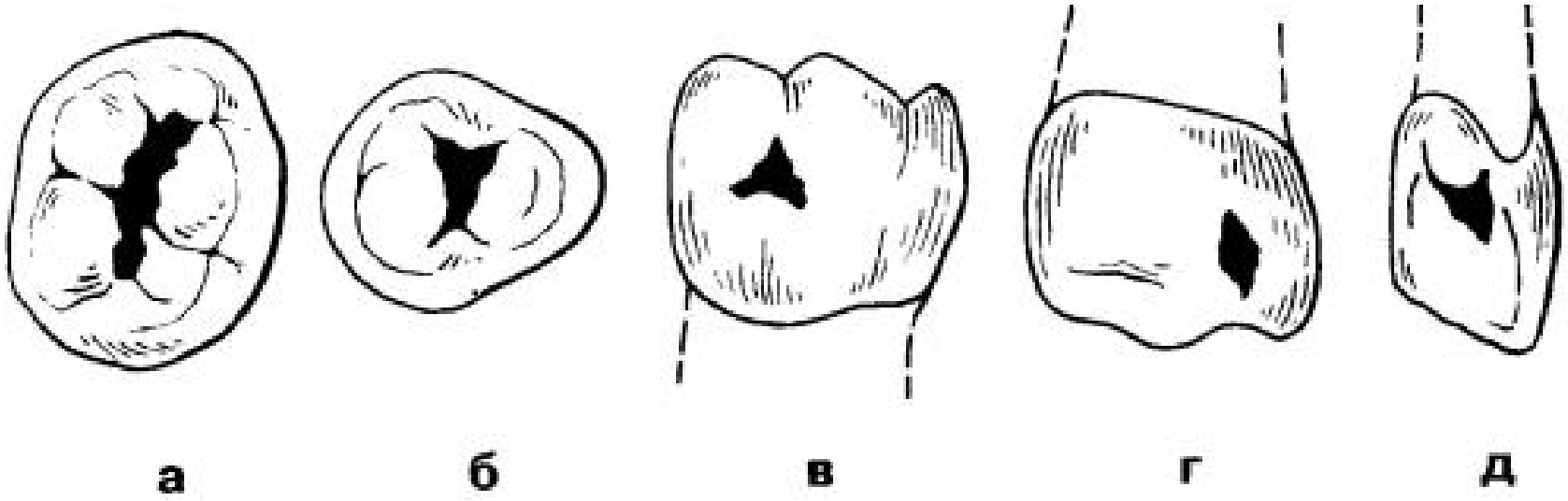
The preparation of the carious cavity should be carried out taking into account the topographic relations of the carious focus and the tooth cavity and end within the apparently unchanged hard tissues of the tooth.

reverse three possible points of support of the hand with the tip during the preparation of the tooth.

- a-in the fingers of the right hand;
- b-on the chin and teeth of the patient;
- c-with the fingers of the left hand (tooth tip).



Preparation of the carious cavity of the first class according to Black



Cavities of the 1st class
a - the masticatory surface of the molar,
b-the masticatory surface of the premolar,
c-the vestibular surface of the molar,
g-the lingual surface of the molar, d
-the lingual surface of the incisor

Basic principles and sequence of local treatment of caries in class I carious cavities

Anesthesia.

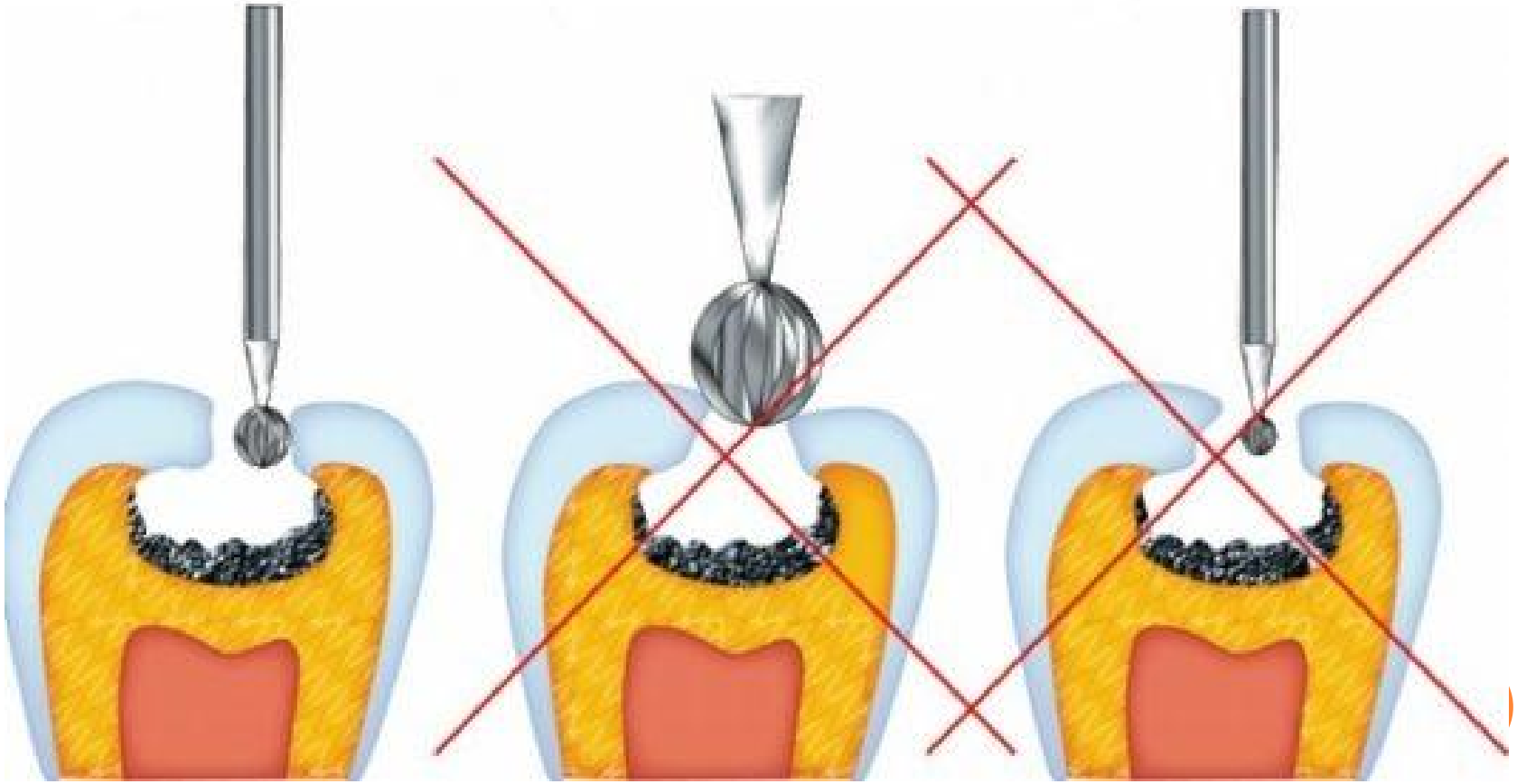
The dental practice has a fairly large selection of medicines and methods for preventing and eliminating pain: premedication, electro-anesthesia, the use of application tools, local anesthesia, general anesthesia, etc.

Opening of the carious cavity.

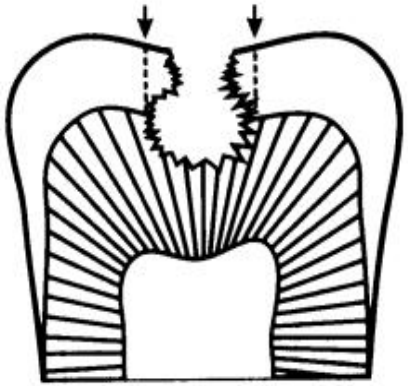
The stage of opening the carious cavity involves the removal of such overhanging enamel edges that do not have a dentin support under them, which is accompanied by the expansion of the narrow entrance hole into the carious cavity. At this stage, it is advisable to use cylindrical (fissure) or spherical bores of a small size in accordance with the size of the entrance hole of the carious cavity or even slightly smaller.

Opening of the carious cavity

Selection of drill for the opening of the carious cavity:



OPENING OF THE CARIOUS CAVITY



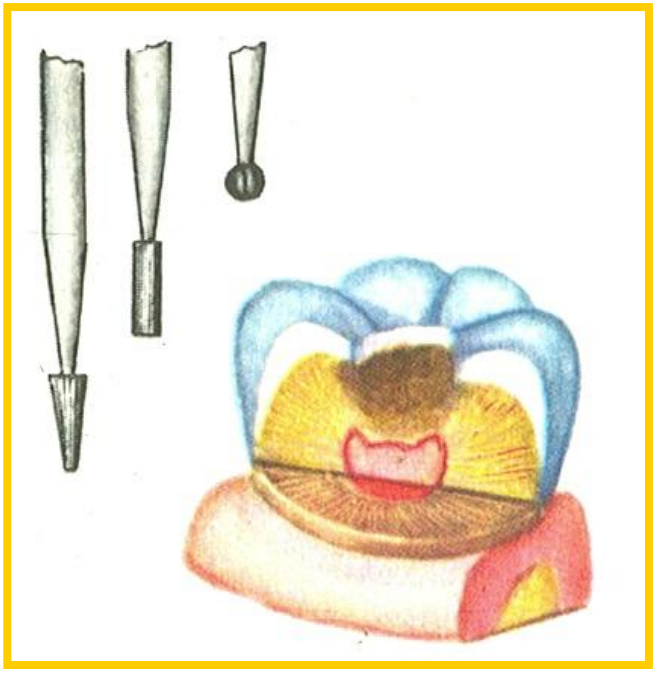
spherical bor(drill)

fissure bor

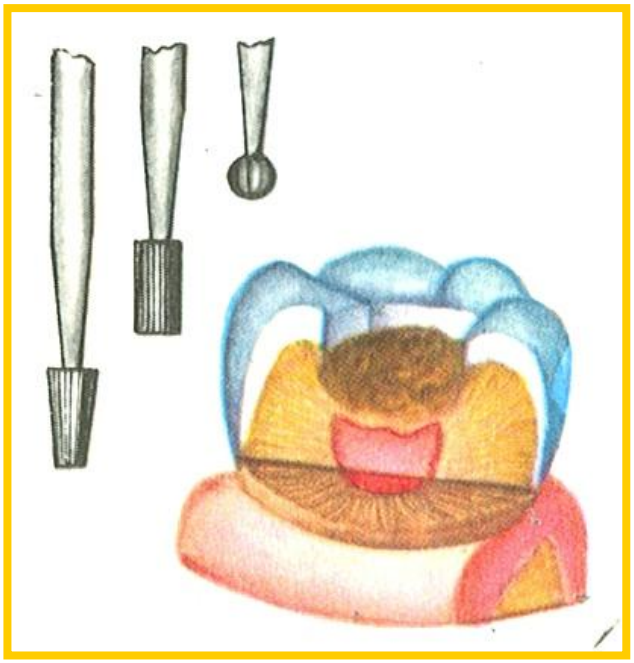
Expansion of the carious cavity.

With the expansion of the carious cavity, the edges of the enamel are leveled, the affected fissures are excised, sharp corners are rounded off. Expand the cavity with fissure bores of medium and large size.

Stages of preparation of the carious cavity



opening of the cavity



expansion of the cavity

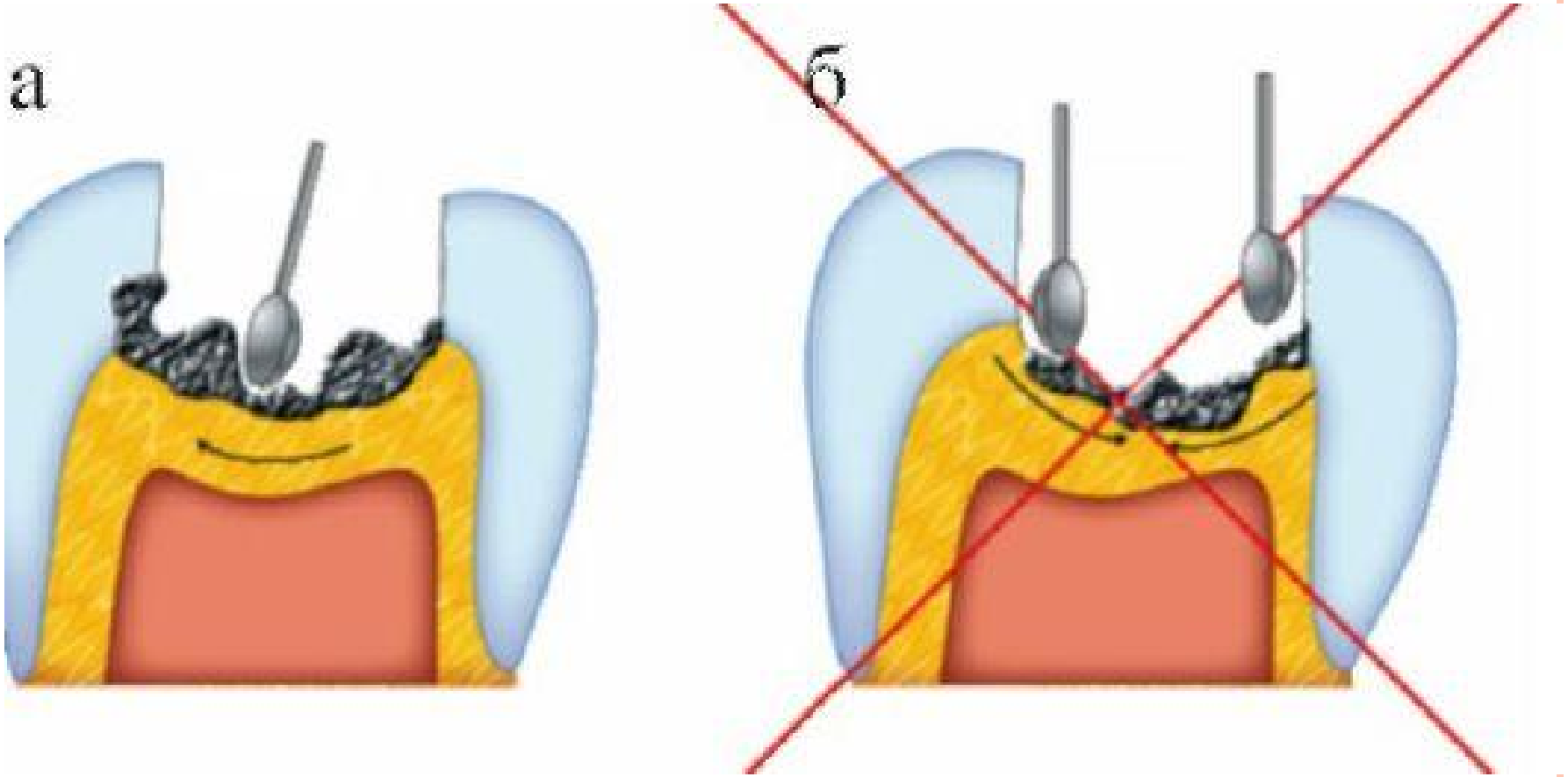
Necrectomy.

At this stage, the affected enamel and dentin are finally removed from the carious cavity. The volume of necrectomy is determined by the clinical picture of caries, the localization of the carious cavity, its depth. When performing a necrectomy, it should be borne in mind that in the area of the dentinoemal junction in the zones of the interlobular and periculpar dentin, there are very sensitive areas to mechanical irritation.

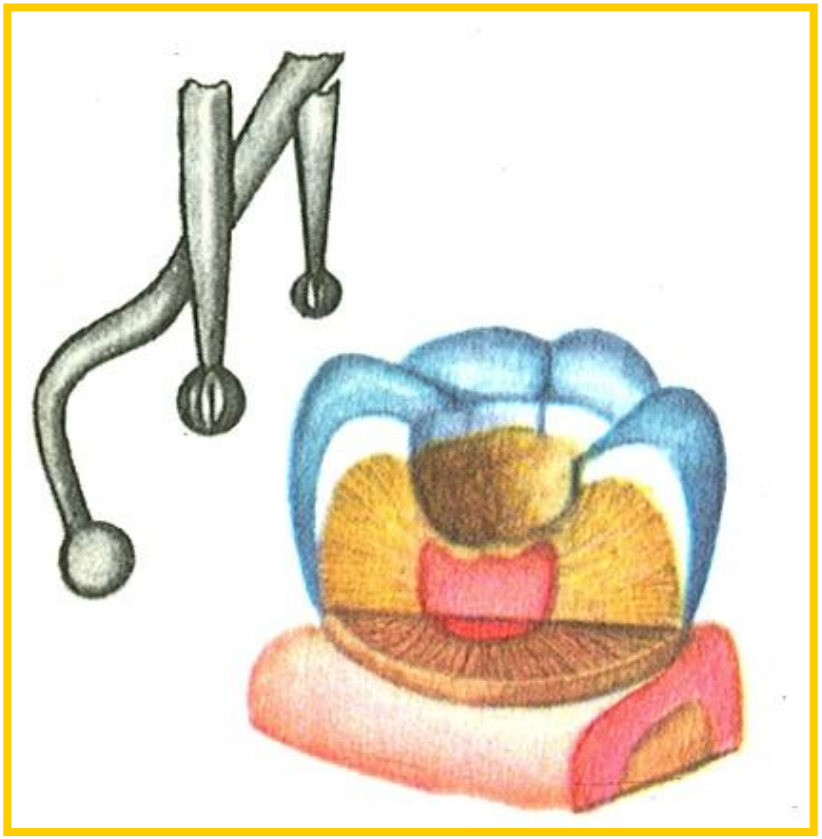
Necrectomy is performed using excavators or spherical bores. The use of reverse-cone or fissure boron during the treatment of the bottom of the cavity with deep caries is excluded, since it is possible to open and infect the pulp of the tooth.

Necrectomy.

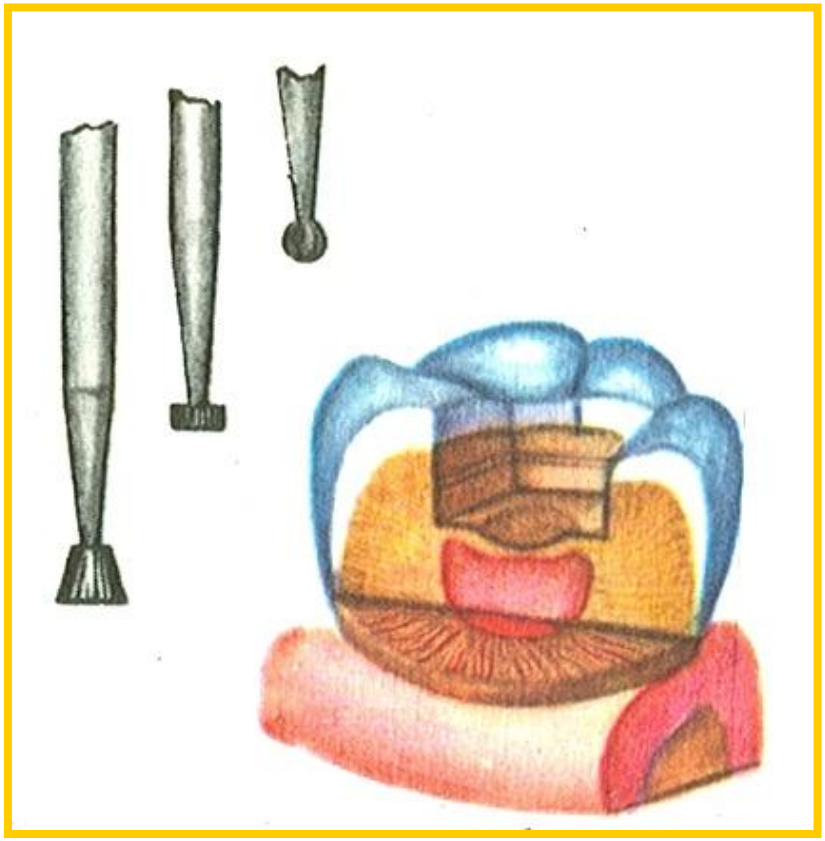
Removal of softened dentin by an excavator from the bottom of the carious cavity:



color-dye application for detection of incompletely removed dentin



necrectomy



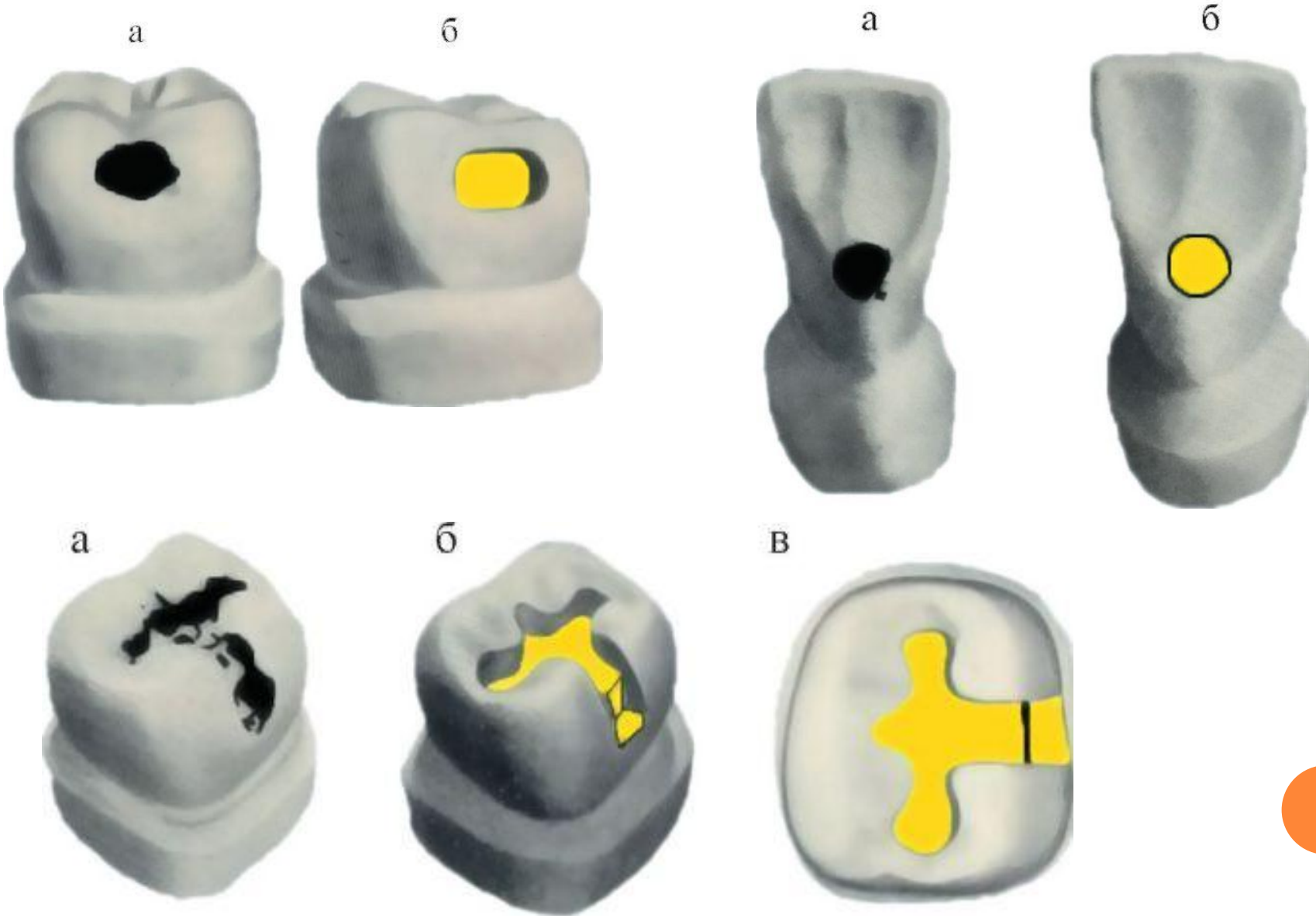
cavity formation

Formation of a carious cavity.

The purpose of this stage is to create favorable conditions that promote reliable fixation and long-term preservation of a permanent seal.

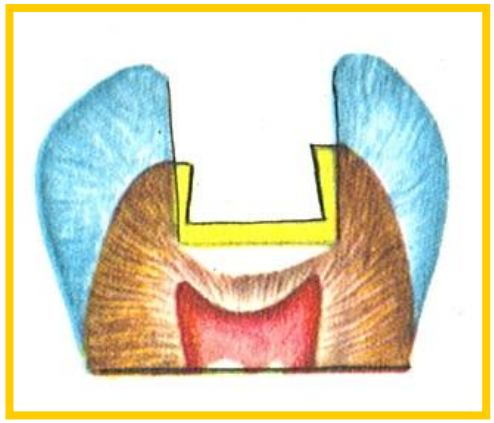
For better fixation of the seal in the better preserved walls of the cavity, it is necessary to create support points in the form of grooves, depressions, notches or form a cavity with a gradual narrowing towards the entrance hole. When forming a cavity, reverse-cone, spherical, wheel-shaped bores are used.

Cavity formation

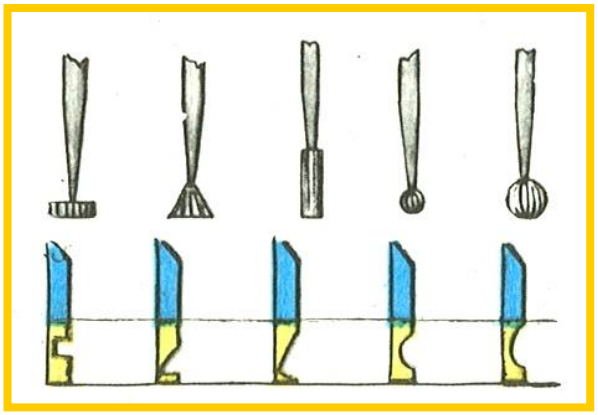


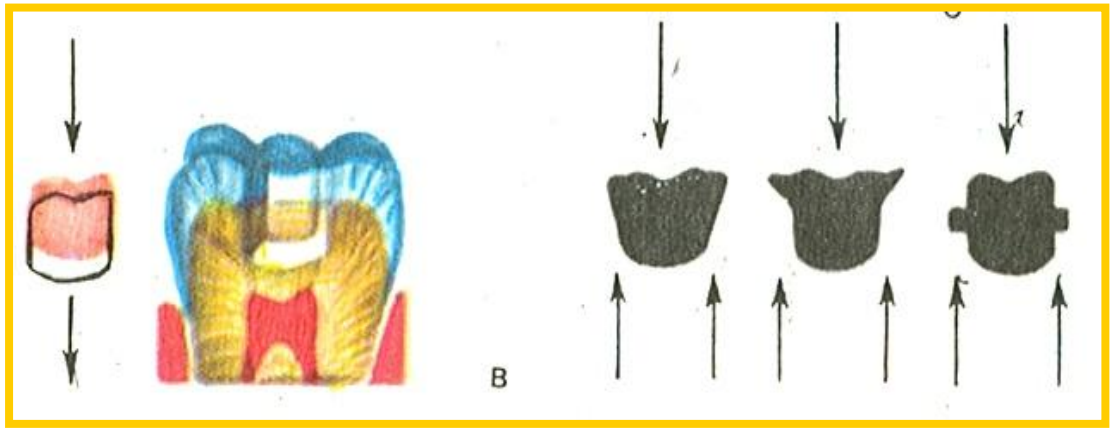
Types of support and fixing points for caries of the 1st class

cavities formed in the wall



created by the edges of the cavity





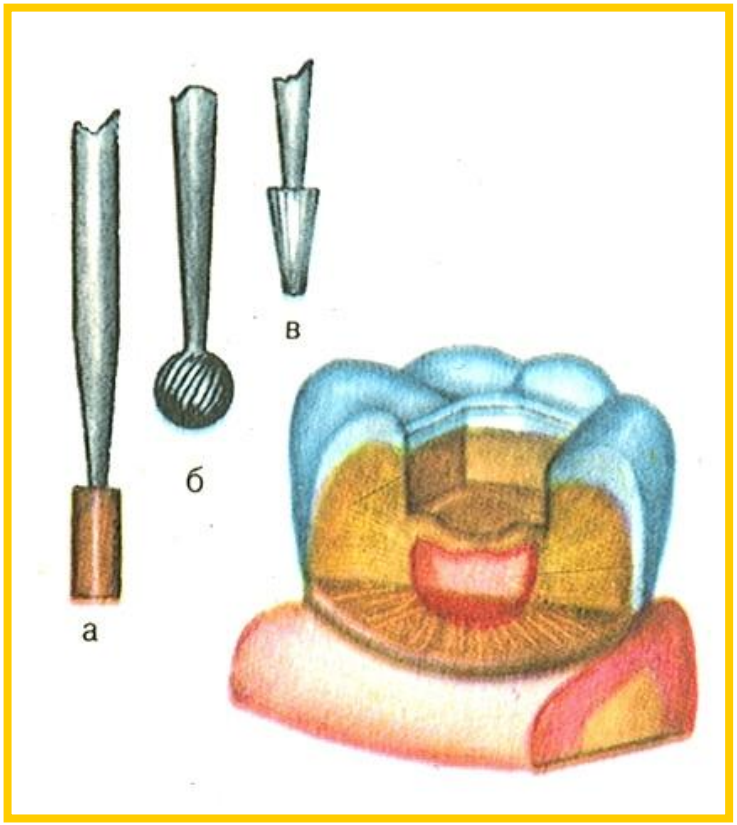
the scheme of displacement of the seal in the absence of reference points

Smoothing (finishing) of the enamel edges.

The duration of maintaining a permanent seal is largely determined by the correct implementation of the stage of smoothing the edges of the enamel.Smoothing the edges of the enamel is made with carborundum stones. At the same time, the formation of a bevel (fold) at an angle of 45 degrees along the edge of the cavity is provided. The resulting fold, like the head of a nail, protects the seal from axial displacement under the action of chewing pressure. The edge of the enamel after smoothing should be smooth and have no notches.

It should be emphasized that when filling with amalgam, the fold is formed to the full depth of the enamel, with a metal tab-in the surface layer of the enamel, and when using polymer materials, the fold is not needed, the edges of the enamel are only smoothed. Smoothing the edges of the enamel at an angle is necessary for materials that do not have adhesion.

Finishing of enamel edges



a — fissure boron;
b-finir;
c-carborundum stone

Thank you for your attention!