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RESTORATIVE TECHNIQUES

Minsk BSMU 2018

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ
2-я КАФЕДРА ТЕРАПЕВТИЧЕСКОЙ СТОМАТОЛОГИИ

Л. Н. Полянская, А. Х. Хотайт

РЕСТАВРАЦИОННЫЕ ТЕХНИКИ

RESTORATIVE TECHNIQUES

Учебно-методическое пособие

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Подробно рассматриваются все этапы и особенности восстановления твердых тканей зубов с использованием современных композиционных материалов, стеклоиономерных цементов, амальгамы.

Предназначено для студентов 5-го курса медицинского факультета иностранных учащихся, обучающихся на английском языке.

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MOTIVATIONAL CHARACTERISTIC OF THE THEME

Total time: 70–90 minutes (seminar).

Direct restoration of tooth is a basic procedure in conservative dentistry. Today there are plenty of restorative materials on the market. The advances in the field of dental materials have changed the traditional concepts of restorative dentistry and resulted in the development of innovative preparation and filling techniques. To get precise and predictable results of work professionals should be familiar with modern restorative techniques and understand workflow in details. In that regard, it is important to summarize the information on the features of clinical use of various restorative materials. High level of knowledge on the subject will improve the efficiency of restorative treatment of hard tooth tissues.

The purpose of the seminar: to integrate knowledge about fundamentals of direct restorations of teeth using different types of the modern restorative materials.

The tasks of the seminar. The student should know:

1. Basic rules of preparing for the tooth restoration.
2. Steps of teeth restorations with resin-bonded composites (RBCs), glass-ionomer cements (GICs), dental amalgams.
3. Restorative techniques utilizing different types of filling materials.

Requirements for the initial level of knowledge. For full understanding of the topic the student must revise:

– from human anatomy: anatomical features of different groups of teeth;

– from histology, cytology, embryology: histological structure of enamel, dentine and cementum;

– from general dentistry: methods of preparation of dental hard tissues;

– from therapeutic dentistry: diagnosis and clinical features of caries and non-carious lesions, classification of dental restorative materials, rationale for choice, indications and contraindications for use of resin composites, GICs and dental amalgams.

Control questions from related disciplines:

1. Anatomical structure of the tooth.
2. Blood supply and innervation of teeth.
3. Histological structure of enamel, dentine and cementum.
4. Methods of preparation of hard dental tissues.
5. Indications and contraindications for use of different classes of direct restorative materials.

Control questions for the seminar:

1. Basic rules of preparing for the tooth restoration.
2. Modes, instruments and techniques of preparation of dental hard tissues.
3. Pulp protection.

4. Adhesive techniques.
5. Steps of tooth restoration using resin composite.
6. Steps of tooth restoration using GIC.
7. Steps of tooth restoration using dental amalgam.
8. Recommendations for the patients after direct restorative procedure.

BASIC RULES OF PREPARING FOR THE TOOTH RESTORATION

Oral hygiene. The patient must have satisfactory oral hygiene before advanced restorative procedures, otherwise failure is inevitable. As with any other adhesive bond, it is important that the surface of the substrate should be thoroughly cleaned. The surface of enamel is covered with a layer of pellicle and possibly a layer of plaque, calculus and stains as well. Such layers need to be removed before the etching process. Whereas a thin layer of pellicle may be stripped off by the acid, it is not possible to remove thick deposits of plaque in this way. If this cleaning is not done, restorative material will bond to the surface contaminants and not the enamel. Poor oral hygiene may also affect proper shade selection and the quality of isolation as gingival bleeding will not allow getting dry working field. Sometimes placing a well-contoured temporary restoration to resolve the gingival inflammation is a necessary first step.

Check of occlusion. Before starting preparation procedures it's useful to check occlusal contacts. The border of the cavity should not pass through the occlusal points as this will cause marginal defects. Margins of the restoration should be located either inwards or outwards of the occlusal points. In the latter case the layer of restorative material under occlusal contact should be not less than 2 mm.

Local anesthesia. When required, local anesthesia is given since it eliminates pain and discomfort of patient during treatment and makes the procedure more pleasant, effective and time saving for both the patient and the clinician. For the cavity preparation it's safer to use local anesthetics with low adrenaline concentrations (1 : 200,000 or less).

Cavity preparation. Adequate cavity preparation is one of the most important factors ensuring the effectiveness of restorative treatment. There are different methods of dental hard tissues preparation:

– mechanical — conventional use of handpieces, burs and hand instruments;

– chemomechanical — combination of gels (Carisolv) and hand instrumentation;

– kinetic — air abrasion technique, that uses a stream of small aluminum oxide particles, created using pressurized air;

– sonic —the use of diamond-coated tips oscillating at a high frequency;

– laser — the use of Er:YAG laser for thermomechanical ablation of tissues.

It should be noted that only mechanical preparation is universal for all types of cavities. Other methods have various restrictions or require a combined approach.

For high-quality preparation the proper choice of burs is essential. The main characteristic of a *diamond* bur is its abrasiveness. The information on color coding, grain sizes and indications for use of diamond burs are summarized in table 1.

Table 1

Color coding of abrasiveness and indications for use of diamond burs

Color code	Abrasiveness	Average grain size, μm	Purpose
Black	Very rough	180	For quick preparation
Green	Rough	135	For quick preparation
Blue (no color)	Normal	100–120	Universal
Red	Thin	50	Finishing
Yellow	Very thin	30	Polishing
White	Ultra thin	15	Final polishing

Diamond burs are not suitable for dentine preparation because they become deteriorated with organic substances, overheat the dentine and cause the formation of a thick smear layer.

Tungsten carbide burs have high cutting ability and are effective for the preparation of enamel, dentine, resin composites, dental amalgam and other materials.

Stainless steel burs are used at low speed and cut only dentine effectively (table 2).

Table 2

The choice of burs for preparation of cavities and restorative materials

Material	Burs		
	Stainless steel	Tungsten carbide	Diamond
Enamel	–	±	+
Dentine	±	+	±
Amalgam	–	+	±
Resin composite	–	+	+
GIC	–	+	+

+ recommended; ± possible; – not suitable.

D. W. Boston (2000) described a polymer bur that only removed softened and infected dentin and not normal dentin. The cutting elements of the bur were made of a softer polyamide/imide polymer material than the traditional carbide bur.

The mode of preparation is also important. *Enamel* preparation is performed using high-speed handpiecies with sufficient water cooling. *Dentine*

preparation is more efficient and safe at low speeds. All the burs used should be sharp, centered and sterile.

Hand instruments for cavity preparation are not widely used now due to the great improvements in rotary tools. The most popular ones are excavators, gingival margin trimmers and enamel knifes.

Isolation of the operating field. The use of rubber dam is the most reliable and effective method of moisture control in restorative dentistry. It eliminates saliva from the operating site, retracts the soft tissues and defines the operating field by isolation of one or more teeth from the oral environment. Usually rubber dam is used before starting preparation procedure.

If rubber dam is not used, operating field is isolated after cavity preparation. Relative dryness is achieved by using cotton rolls, dry tips, aspiration systems, tissue retractors, tongue guards, etc.

RESIN COMPOSITE RESTORATION TECHNIQUE

The main requirement for the resin composite use is precise compliance with manufacturer's instructions. Despite some variations in different products there are a number of general principles for their application.

1. Cleaning of a tooth surface. The cleaning procedure should be carried out by scrubbing for a few seconds with a slurry of pumice and water in a soft rubber cup or bristle brush. Prophylaxis pastes can also be used, but they shouldn't contain any oil or fluoride as this will compromise bonding efficiency. Proximal surfaces are cleaned with the dental floss. An alternative way to remove biofilm, stains and pellicle is air polishing technology (Air-flow). Once the surface has been cleaned, it should be thoroughly washed and dried to remove all the debris.

2. Shade selection. Shade taking is recommended before isolation and preparation steps as the dried surface of the tooth looks lighter. All color contrasts should be avoided (rubber dam, lipstick, gloves, etc.). The tooth surface must be clean and wet. Recommended lighting should replicate northern natural midday daylight.

The most convenient method of shade selection is the use of commercial shade guides (Vita Classic, Vitapan 3D Master). Tabs of similar *hue* are clustered into letter groups — A, B, C, D. *Chroma* is indicated by the numbers (from 1 to 4). *Value* is the characteristic of the tooth lightness.

At this step it's also important to plan the use and interaction of different opacities (dentin, enamel, body, translucent shades) of restorative material to get the natural esthetic result.

3. Check of occlusion.

4. Local anesthesia.

5. Isolation of operating field. This step is very important particularly for the resin composite restorations, because these materials are highly hydrophobic and adhesive technique requires absolutely dry working field. Rubber dam is the safest way to avoid contamination of the cavity with blood, saliva and gingival fluid.

6. Cavity preparation. Includes several steps:

– cavity access and outline form;

– cavity extension;

– necrectomy;

– cavity shaping;

– finishing of enamel margins.

Cavity access and outline form. Preparation starts with removal of all the weakened and unsupported enamel to get sufficient access to the cavity walls and to place the margins of preparation in a position to afford good finishing of the restoration. At this step diamond and carbide burs are used at high speed with adequate cooling.

Cavity extension. The principle "extension for prevention", introduced by G. V. Black, has changed now to "prevention of extension" due to fluoride-induced remineralization, advancements in instrumentation, restorative materials and adhesive techniques. Preparation margins can be extended only if they pass through the occlusal contacts.

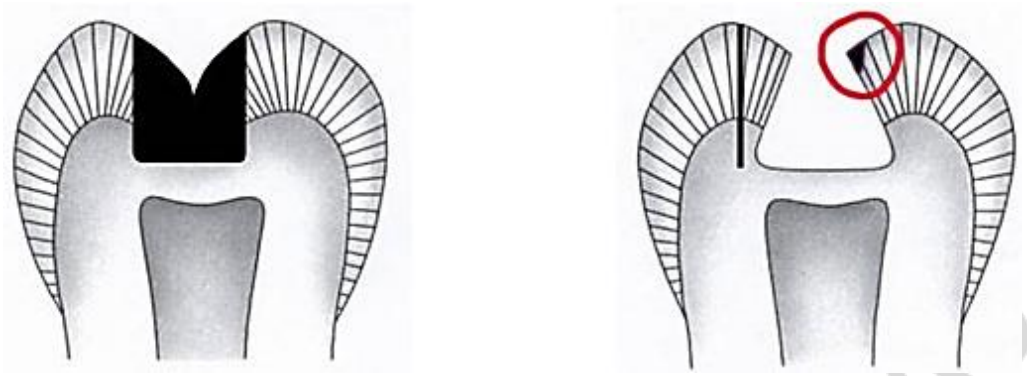
Necrectomy. This step means complete removal of all the softened and infected dentine from the cavity. For this purpose carbide and stainless steel round burs are used at low speed. In deep cavities excavators can also be useful.

Cavity shaping. External and internal outline contours of the cavity should be rounded with smooth transition lines between the bottom and cavity walls. When using adhesive technique preparation should be as conservative as possible.

Finishing of enamel margins. Finishing of the enamel margins should be done irrespective of the restorative material used. To remove marginal cracks, irregularities and fragmented enamel rods diamond burs (red label) and carbide burs (10–12 blades) are used.

Enamel bevel. Enamel bevel is prepared to increase the surface area of enamel rods for bonding. There is no need for beveling in small-to-medium size cavities of Class I and II since conservative 90-degree exits in central pits already expose many enamel rod ends. Large restorations do not expose many rod ends, so a short bevel (0.5 mm) preparation is recommended (figure 1).

In Class III, IV, V cavities long "wavy" bevel ≈2 mm is prepared on the vestibular surface of the tooth (figure 2). Oral surface needs only short beveling.



A ***B***

Fig. 1. Enamel preparation in Class I and II cavities (R. Hickel, 2006):
A — many exposed enamel rod ends (no beveling); *B* — not exposed enamel rod ends in wide cavities or undermined enamel (short bevel 0.5 mm)

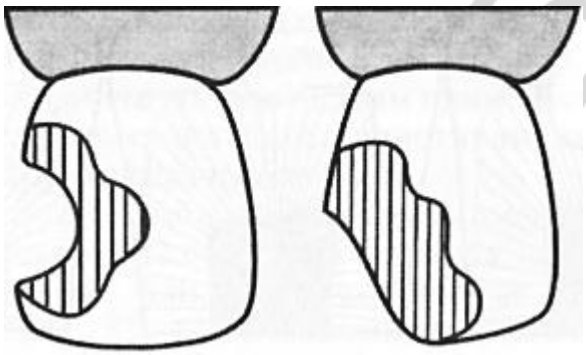


Fig. 2. Long flat "wavy" bevels on the vestibular surfaces of frontal teeth (A. V. Salova, 2003)

7. Cavity cleaning. It's important to remove all the debris from the preparation, especially on the margins, otherwise deposits left on them consequently dissolve, resulting in microleakage which further can result in secondary caries. Cleaning of preparation can be done by using water or 2 % chlorhexidine. It's not recommended to use hydrogen peroxide (inhibits resin polymerization) or eugenol (compromises adhesion). Drying of the cavity can be done using air.

8. Pulp protection. If the thickness of deep dentin is less than 1 mm pulp protection is recommended. There are several options to protect the pulp:

– to use GIC liner/base;

– to apply calcium hydroxide to those areas of preparation in which there is the potential for pulp exposure and then cover it with GIC;

– to cover the bottom of the cavity with Biodentine (Septodont);

– to use mineral trioxide aggregate (MTA).

If the restoration should be finished at one appointment it's preferable to use resin modified GIC (RMGIC) as it sets quickly and has better adhesion to resin composite.

9. Application of adhesive system. Selected bonding system is applied according to the manufacturer's instructions.

Use of total etch&rinse systems. For simultaneous etching of both enamel and dentin phosphoric acid gel (20–40 %) is used. The sequence of the procedure:

– start application of the etching gel to enamel;

– let the gel act on enamel for 15 s;

– extend the etching gel onto dentine;

– let the gel react for another 15 s (not longer to avoid disintegration of the collagen fibers);

– carefully rinse off the etching gel for 15–30 s;

– do not dry excessively. Restrict the use of compressed air to just remove gross excess of water from the cavity with shot air blasts;

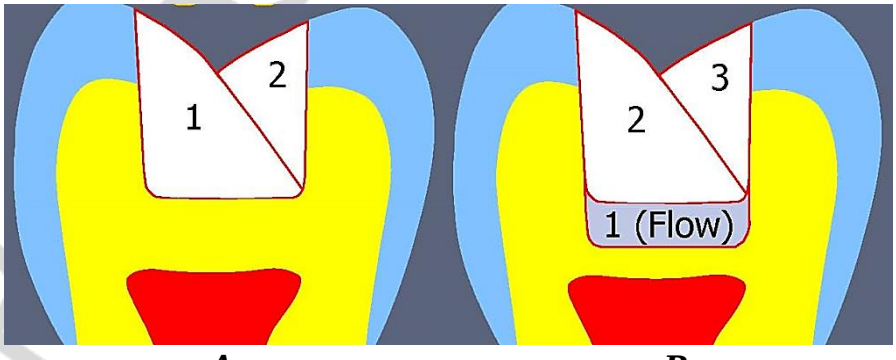
– apply the primer and adhesive (or one-bottle primer-adhesive) according to the manufacturer's instructions;

– light cure.

Use of self-etch systems. When using these systems there is no need for separate etching, rinsing and drying steps. In two-step systems self-etch primer is applied first to both enamel and dentine, gently scrubbed for 20 s and air-dried to evaporate the solvent. Then adhesive is applied and light cured. In all-in-one adhesives a self-etch primer-adhesive is applied in a single step.

Use of universal adhesive systems. These adhesives work well with either the total-etch, self-etch or selective-etch (only enamel is etched with phosphoric acid) technique.

10. Cavity filling. There are different techniques to fill the preparation. Most of light-cured resin composites are applied incrementally in thin layers (not more than 2 mm). Dentists use incremental placement techniques for a variety of reasons: cure depth of the composite, management of shrinkage stress, more precise manipulation of the restorative to ensure adaptation, creating multi-shade restorations. Oblique layers are used to reduce polymerization stress (figure 3, *A*). To improve internal adaptation flowable composite/compomer can be placed to the bottom of the cavity (fig. 3, *B*).



A ***B***

Fig. 3. Layering techniques:
A — oblique layers; *B* — C-b-F technique (composite bonded to flowable)

In very large preparations a build-up base with GIC ("sandwich-technique") will reduce the volume of shrinking composite, thus reducing the risk of enamel cracking.

On the other hand, incremental placement is considered time consuming and tedious, especially in posterior teeth. Increments may increase the potential of voids and the risk of contamination. Bulk fill composites allow filling the cavity in larger increments (up to 4–10 mm). The thing to remember is the flowable bulk-fills should be covered with the layer of sculptable composite.

The rules of light curing:

– inspect and clean the light curing unit (LCU) before use to ensure it is on the correct setting, good working order, and free of defects and debris;

– follow the light exposure times and increment thickness recommended by the resin manufacturer. Increase your curing times for increased distances and darker or opaque shades;

– position the light tip as close as possible (without touching) and parallel to the surface of resin composite being cured;

– stabilize and maintain the tip of the LCU throughout the exposure;

– always use the appropriate "blue-blocking" glasses or a shield to protect your eyes as you watch and control the position of the curing light.

11. Finishing and polishing. This step is carried out to adjust occlusion and anatomical shape of the tooth, ensure ideal marginal adaptation of the material, remove oxygen-inhibited layer and obtain surface gloss close to that of enamel. Recommended instruments: fine diamond and tungsten carbide burs, rubber tips, flexible discs, abrasive impregnated brushes, strips, polishing pastes.

12. Fluoride application. All the tooth surfaces adjacent to the restoration are protected with fluorides to enhance remineralization. Colorless fluoride varnishes are used.

GLASS-IONOMER CEMENT RESTORATION TECHNIQUE

All the GICs, represented on the market, belong to one class of materials in terms of their chemical composition, so the basic rules of their clinical application are the same.

1. Cleaning of a tooth surface. Microbial biofilm is removed from the tooth surface with rubber cup / brush and polishing paste.

2. Shade selection. This step is carried out only for the esthetic GICs.

3. Check of occlusion.

4. Local anesthesia. Steps 3 and 4 are performed in accordance with the above principles.

5. Cavity preparation. The steps of cavity preparation for GIC restoration are similar to those for RBC restoration. The only exception is that enamel is finished but not beveled.

6. Isolation of operating field. In contrast to RBCs, GICs are less sensitive to the moisture. Nevertheless, excess moisture can promote the leaching of calcium and aluminum ions, which ultimately affects the physical properties of the material. In most cases, it is sufficient to isolate the working field by means of adsorption rolls and aspiration systems.

7. Cavity cleaning.

8. Pulp protection. If the cavity is very deep and there may be a micro-exposure of the pulp, then it is recommended that a calcium hydroxide lining is placed on the pulpal aspects of mechanically prepared cavities prior to the insertion of the GIC. In all other cases when there is a residual dentine layer, dentine bridge formation will occur without any additional pulp protection.

9. Cavity conditioning. Chemical adhesion is available between the GIC and the underlying tooth structure, provided that the smear layer and other debris have been removed first by conditioning with 10 % poly(acrylic) acid for 10–15 seconds. This is a relatively mild acid that will partially dissolve the smear layer without demineralizing of the remaining dentine and without opening up dentinal tubules. There are two additional advantages in using this particular material for conditioning the dentine. Firstly, since it is the same acid that is utilized in the glass-ionomer itself, any residue inadvertently left behind will not interfere in the setting reaction. Secondly, it will modify the surface tension and therefore enhance the wettability of the tooth surface. This leads to pre-activation of the calcium and phosphate ions in the tooth structure, rendering them more available for ion exchange with the GIC.

In some modern GICs (Ketac Universal, Vitrebond, etc.) conditioning step is unnecessary and can be omitted. In RMGIC Vitremer conditioning also is not performed, but special acidic primer is used to modify the smear layer and wet the tooth surface. This primer is applied with a brush for 30 s, then air dried and light cured.

10. Mixing of GIC. The powder-liquid ratio should carefully follow manufacturer's instructions as it has a significant bearing on ultimate physical properties of the material:

– when it is recommended, shake the bottle of powder, and then use the spoon supplied for that particular material;

– level off the powder in the spoon on the lip of the bottle;

– to dispense the liquid accurately turn the bottle horizontally first and allow the liquid to flow into the spout. Then turn vertically and dispense a drop that is free of air bubbles;

– immediately incorporate one half of the powder with the spatula, mix this in as rapidly as possible. In 10 seconds add the remaining powder and continue mixing with a rolling motion;

– by 30 second the mix must be complete. Any continuation of handling will begin to break up the newly forming polyacrylate chains and weaken the ultimate material.

The use of capsulated materials is strongly recommended because this simplifies dispensing and mixing and increases the reliability of the end-result.

11. Placement of GIC. Material is placed into the cavity with either hand instrument, disposable syringe or a capsule. Contamination with saliva should be avoided. The material should be allowed to set for the required time. RMGICs are used in 2 mm layers or in bulk (e.g. Vitremer) and light cured.

12. Protection of GIC. Auto cure esthetic GICs (type II.1) are slow to set and require immediate protection from the oral environment in order to minimize water uptake and dissolution. The maintenance of water balance for at least 24 hours is strongly recommended for this particular group, because it allows optimum development of esthetics. Right after cavity filling the surface of the material is sealed with special varnish or light-activated unfilled bonding resin. It's recommended to delay final finishing of these restorations for at least one day.

All other types of GICs will be resistant to water uptake after setting and require protection from dehydration only (after finishing).

13. Finishing of the restoration. Because of the rapid-setting chemistry, restorative reinforced GICs and RMGICs can be contoured and polished as soon as they have set hard. Finishing is carried out using fine diamond or 12-bladed tungsten carbide burs. This should be carried out in the presence of a copious supply of water to avoid dehydration. Polishing can be performed with the range of abrasive discs and rubber cups again in the presence of water. Application of low-viscosity resin glaze over the final surface will fill the porosities and protect the material from dehydration. Care must be taken not to leave an excess of glaze, so forming a ledge or overhang.

DENTAL AMALGAM RESTORATION TECHNIQUE

1. Cleaning of a tooth surface. Dental plaque is removed from the tooth surface with a rubber cup / brush and polishing paste. In this case, the presence of fluoride or oil in the paste formulation is not of fundamental importance.

2. Check of occlusion.

3. Local anesthesia. Steps 2 and 3 are performed in accordance with the above mentioned principles.

4. Cavity preparation. Since dental amalgam has no adhesive qualities, it requires proper cavity design to provide macromechanical retention.

The shape of the preparation should resemble a box with a flat floor. This helps the tooth to resist occlusal masticatory forces without any displacement.

To provide adequate thickness of amalgam the minimum occlusal depth of the cavity should be not less than 1.5 mm.

For better retention buccal and lingual walls are prepared with occlusal convergence (from 2 to 5 %).

The presence of sharp internal line angles concentrates stress at these sites, which increases the risk of fracture of both the tooth and the filling (figure 4). So such sharp angles are avoidable, and rounded internal surfaces should be the aim.

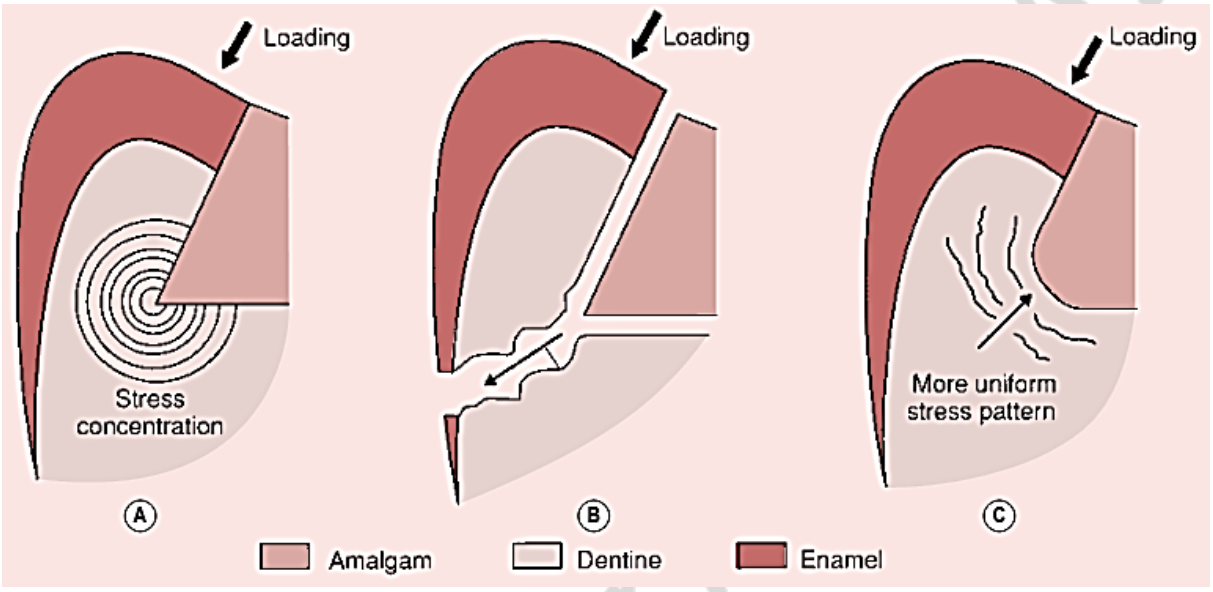


Fig. 4. Internal line angles:
A — a sharp internal angle concentrates stress; *B* — this may lead to a cusp fracture under heavy occlusal loading; *C* — tensile stresses can be considerably reduced by creating rounded line angles

Marginal breakdown is less likely to occur with cavo-surface angles greater than 70°, as this avoids thin wedges of the amalgam. The practice of cutting perpendicular cavity walls on the occlusal aspect of the cavity is conducive to producing an acute margin angle for the amalgam. Changing the angle for the whole of the cavity wall is not possible, as this may cause the cavity outline to come close to the pulp horn or to perforate it. An acceptable method of overcoming this problem is to confine the sharp angulation to the enamel only (figure 5).

Thin cusps should be cut and capped with amalgam to prevent their fracture. For better retention occlusal dovetail can be prepared. The last step of preparation is finishing of enamel margins without beveling.

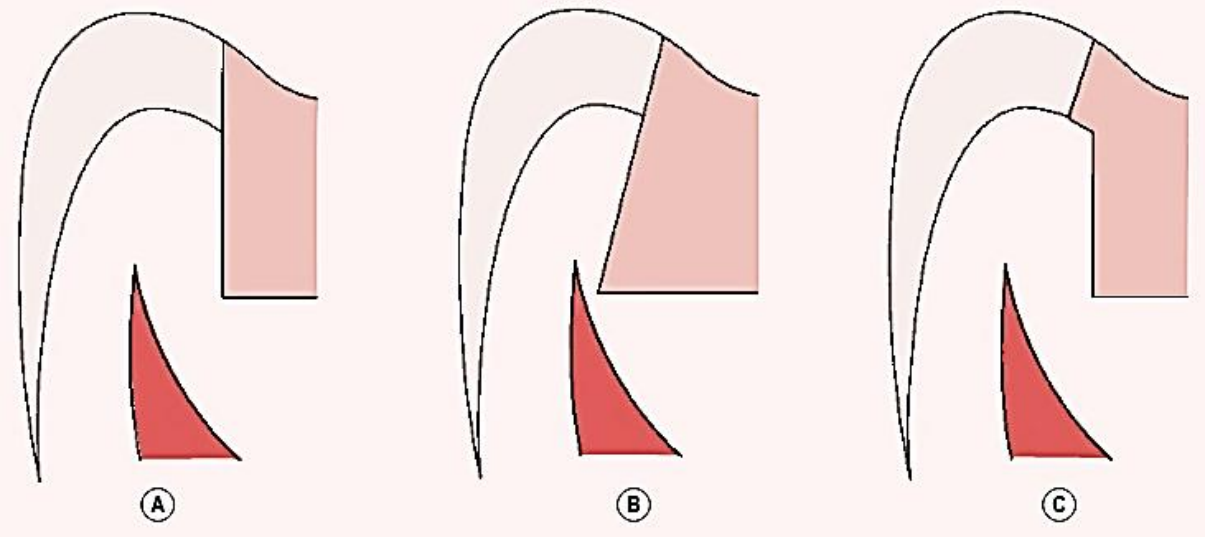


Fig. 5. Cavo-surface angle:
A — an acute margin angle in the restoration that will lead to marginal fracture and should be corrected; *B* — the cavo-surface angle is now closer to the ideal but may give rise to a pulpal exposure; *C* — adjustment is confined to the enamel without increasing the outline form

6. Isolation of operating field. Dental amalgam is less sensitive to the moisture compared to other restorative materials. Routinely rubber dam is not used. The working field is isolated with cotton rolls and aspiration systems.

7. Pulp protection. In very deep lesions calcium hydroxide cement must first be placed in the deepest parts of such a cavity. This will encourage the formation of reparative dentine and help to remineralize the carious dentine.

As the thermal conductivity of dental amalgam is very high dentinal surface should be covered with a varnish or a liner. An appropriate option is the use of GICs due to their chemical adhesion, good biological and physical properties. Adhesive systems indicated for this purpose (e.g. Optibond FL, Amalgam Bond, One Step, Clearfil Liner Bond 2V, etc.) can also be used.

8. Trituration of the amalgam. Modern dental amalgam is manufactured in preproportioned capsules. Adequate trituration is essential to ensure a plastic mix and thorough amalgamation. The trituration time that is needed is dependent on both the type of the alloy being used, and the dispensing and mixing systems. The sign of a well-mixed amalgam is a shiny, homogeneous mass that adheres together.

9. Amalgam insertion and condensation. Amalgam is placed into the cavity in small portions using amalgam carrier. The most important requirements for the condensation technique are that as much excess mercury should be removed as possible, that the final restoration will be non-porous and that optimum marginal adaptation is achieved. The important components in condensation are the use of maximum force, the use of suitably sized condensers in relation to the cavity size, the use of multiple and rapid thrusts, and

the placement of small increments. With spherical alloys small loads should be applied by larger condensers.

10. Carving, occlusion check and burnishing. Amalgam should not be carved until it is sufficiently firm. For adequate carving, it is preferable to overpack the preparation and then carve it to the margins. Carving causes removal of mercury rich surface layer. The carving instruments should have a discoid blade design. The largest instrument is used first, followed by smaller instruments. During carving, movement of the instrument should be parallel to the margin, and the edge of the blade should be perpendicular to the margins, to avoid ditching of the metal and to minimize the overlay.

Occlusion check with articulating paper is done so as to remove any areas left high in the final restoration. Carving is done until the teeth are in their pre-restoration occlusion.

Then burnishing is performed with a suitable size of burnisher to bring the smoothness to shiny appearance. It helps in reducing the surface roughness and improving marginal integrity.

11. Finishing and polishing. This step is usually done at least 24 hours after placement of the amalgam. The most commonly used rotary instruments are tungsten carbide finishing burs, silicone polishers (brown and green), brushes and polishing pastes. Polishing may not be essential for restorations with high-copper alloys because they have a tendency of self-polishing.

RECOMMENDATIONS FOR THE PATIENTS AFTER RESTORATION OF TEETH

Recommendations should be individual, depending on the diagnosis, clinical features, treatment techniques and restorative materials used.

– after local anesthesia it is recommended not to eat until the sensitivity is completely restored;

– composite restorations should not contact with the colorants (tea, coffee, tobacco, lemonade, red wine, colored juices and berries, lipstick, etc.) within 24 hours;

– a follow-up appointment to check the esthetic restoration is made in 7–10 days;

– after GIC or amalgam restoration the patient should not eat hard food during the first day;

– it’s important to re-instruct the patient about individual oral hygiene and define the frequency of preventive visits.

In conclusion, it’s worth noting that along with the desire to use new materials and achieve esthetic results, one should not forget that restoration of the tooth is primarily a therapeutic manipulation. The dentists should not underestimate the importance of all technological steps of the work.

Furthermore, restoration can only restore the tooth, but does not eliminate the cause of the disease. Therefore, when planning caries treatment, individual prevention should not be neglected.

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