COMPOSITE RESTORATION
IN CAVITY CLASS I. II. V. VI. CASES
• Class I. Caries affecting pit and fissure, on occlusal, buccal, and lingual surfaces of posterior teeth, and palatal of maxillary incisors.
• Class II. Caries affecting proximal surfaces of molars and premolars.
• Class III. Caries affecting proximal surfaces of centrals, laterals, and cuspids.
• Class IV. Caries affecting proximal including incisal edges of anterior teeth.
• Class V. Caries affecting gingival 1/3 of facial or lingual surfaces of anterior or posterior teeth.
• Class VI. Caries affecting cusp tips of molars, premolars, and cuspids.
BLACK CLASSIFICATION
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**Class I:** lesion involving the fissures and pits of premolars and molars, foramen coecum of maxillary 2nd incisor
BLACK CLASSIFICATION

Class II.: lesion involving at least one proximal surface of premolars and molars
BLACK CLASSIFICATION

Class V.: lesion at the neck of the crown
BLACK CLASSIFICATION

Class VI.: lesion involving the cusp of premolars and molars
PRINCIPLES OF CAVITY PREPARATION

• The outline form/extension of the preparation should be dictated by the size and the location of the lesion

• Conservation of tooth structure
THE IMPORTANCE OF C FACTOR

- Is a ratio of bonded surfaces to the unbonded, or free, surfaces in a tooth preparation
- The higher the C-factor, the greater is the potential for bond disruption from polymerization effects
- The least favorable situation: I. V. cavities, bonded/anbonded ration is 1/5
REDUCTION OF SHRINKAGE

The internal stresses can be reduced in restorations subject to potentially high disruptive contraction forces by using at Class I.:

1. incremental additions to reduce the effects of polymerization shrinkage
2. a stress-breaking liner
3. „soft-start” polymerization
CONSEQUENCE OF POLIMERIZATION SHRINKAGE: GAP FORMATION
CLASS I. RESTAURATION

Class I. restoration with a C factor of five (five bonded one unbonded surface) is at high risk of bond disruption associated with polimerization shrinkage, as class V.
CLASS I. RESTAURATION

Minimal extended lesions

- We use the "bulk" technique

At big extensioned lesions

- At big extensioned lesions we are using multilayer technique. The increment should only be approximately 1 to 2 mm in thickness
CLASS I. RESTAURATION

Horizontal placement technique for small cavities

Oblique placement technique:

- The first increment is horizontally placed at a cervical wall.
- The second increment is obliquely placed contacting the buccal and axial walls and the previously cured increment.
- The third increment is obliquely placed, filling the preparation.
HORIZONTAL PLACEMENT TECHNIQUE
OBLIQUE PLACEMENT TECHNIQUE
ACID-ETCHING: KEY ELEMENT OF THE COMPOSITE FILLING PROCEDURE

The result of acid-etching is the demineralization of peritubular and intertubular dentin structure.
STEPS OF RESIN COMPOSITE RESTORATION PROCEDURE

1. Application of acid
2. Application of primer
3. Application of bond
4. Layering of resin composite
5. Finishing, polishing procedures
ACID-ETCHING OF HARD TISSUES

Application of 37 % acid

Blue colored gel
PRIMER

Bifunctional molecules which are able to connect to the dentin structures and copolymerize with the resin used for the restoration
The fluid resin contains hydrophobic monomers. The bonding copolymerizes with the primer molecules and penetrates into dentine tubules, forming resin plugs.
DENTIN-ENAMEL ADHESIVE SYSTEMS
MICROSCOPIC APPEARANCE OF THE PRIMER APPLICATION ON THE SURFACE OF DENTIN
MICROSCOPIC APPEARANCE OF APPLICATION OF PRIMER AND BOND
MICROSCOPIC APPEARANCE OF THE POLYMERIZED PRIMER AND BOND
PARTS OF THE RESIN-COMPOSITE RESTORATION

- Colour selection
- Isolation of the operating field with rubber dam
- Etching hard tissues
- Placing components of resin composite restoration
- Finishing, polishing procedures
CLASS II. RESTAURATION

Dual sized cavity

- **Rubber dam isolation**: provide adequate access for tooth preparation. If the restoration will involve all of the contact area or / and extend sublingually, insert wedge in the gingival embrasure after dam application.

- **Matrix application**: an ultrathin metal matrix band is preferred, because it can be contoured better than a clear polyester
CLASS II. RESTAURATION

Medium sized cavity

- Rubber dam isolation
- Matrix application
- Occlusal cavity is smaller than the tooth buccolingual width 1/3: horizontal technique
- Occlusal cavity is bigger than the tooth buccolingual width 1/3: oblique technique
- When the approximal box is at the contact point: horizontal technique
CLASS V. RESTAURATION

- If the margin of the cavity ends at enamel you can use composite for restoration.
- If the gingival margin is close to the root surface you should use composites with adhesive technique open or closed sandwich technique.
CLASS VI. RESTAURATION

- No anesthesia is required because the fault is entirely in enamel
- Should be as small in diameter and as shallow in depth as possible
- Stains that appear through the translucent enamel should be removed, otherwise they may seen after the composite restoration is completed
POSTERIOR OSSUSAL COMPOSITE RESTORATION (CLASS I.)
BUCCAL CERVICAL
COMPOSITE RESTORATION
(CLASS V.)
FINISHING, POLISHING
OF
COMPOSITE RESTORATION
THANK YOU FOR YOUR ATTENTION!