INTRODUCTION TO CONSERVATIVE DENTISTRY

DR TOM JM DIENYA

BDS(NBI), CIBRD(KASADA), MDSc-Endo(Mal), Cert. In Oral Implantology (Mal), Fellow of Academy of Dentsitry(USA),FICD(USA)

SPECIALIST ENDODONTIST,IMPLANTOLOGIST AND SENIOR LECTURER

Dept of Conservative Dentistry

University of Nairobi

E-Mail: tomdienya@uonbi.ac.ke or tomdienya@yahoo.com

BRANCHES

- GENERAL CONSERVATIVE DENTISTRY
- ENDODONTICS
- FIXED PROSTHODONTICS-CROWN AND BRIDGE
- ESTHETIC DENTISTRY
- IMPLANTOLOGY

Definition *(3 parts)*

1st part

- Art and science of the DIAGNOSIS, TREATMENT, and PROGNOSIS of defects of teeth that do not require full coverage restoration for correction.

2nd Part

- Treatment should result in the restoration of proper tooth form, function, and esthetics, while maintaining the physiologic integrity of the teeth in harmonious relationship with the adjacent hard and soft tissues.

3rd part

- All of which should enhance the general health and welfare of the patient

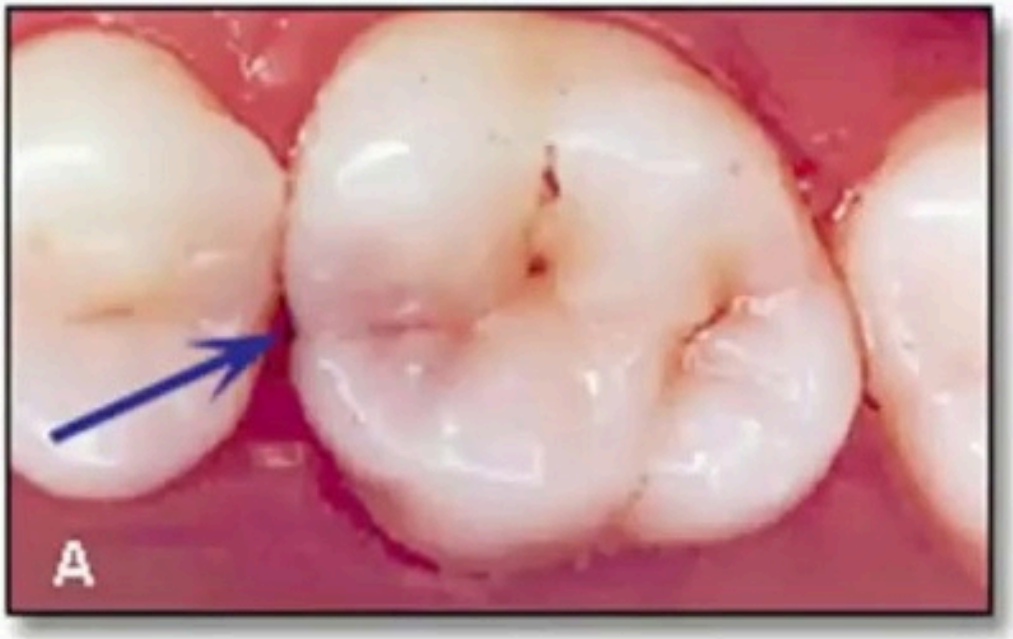
Operative Dentistry also known as Restorative Dentistry or Conservative Dentistry

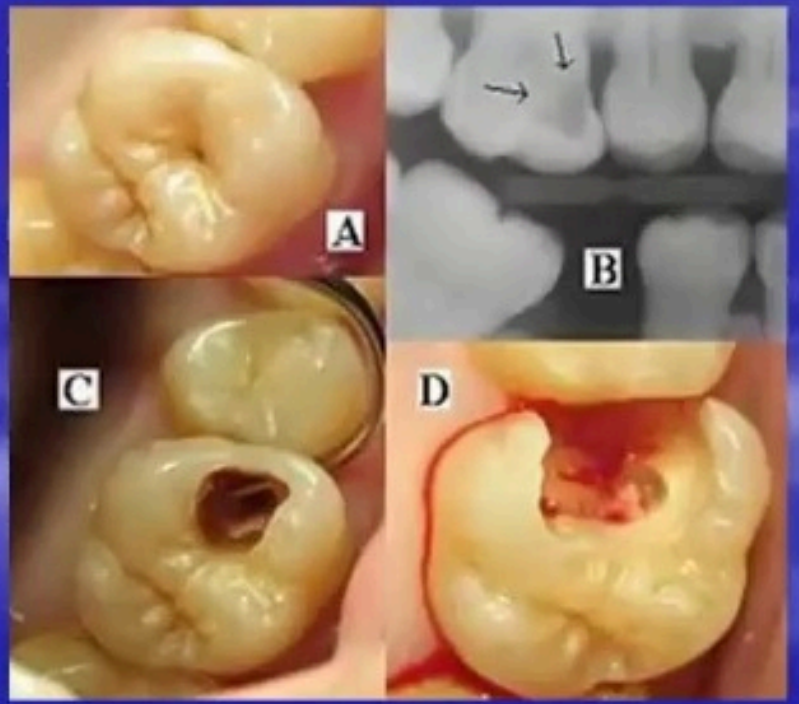
Indications for Operative Treatment

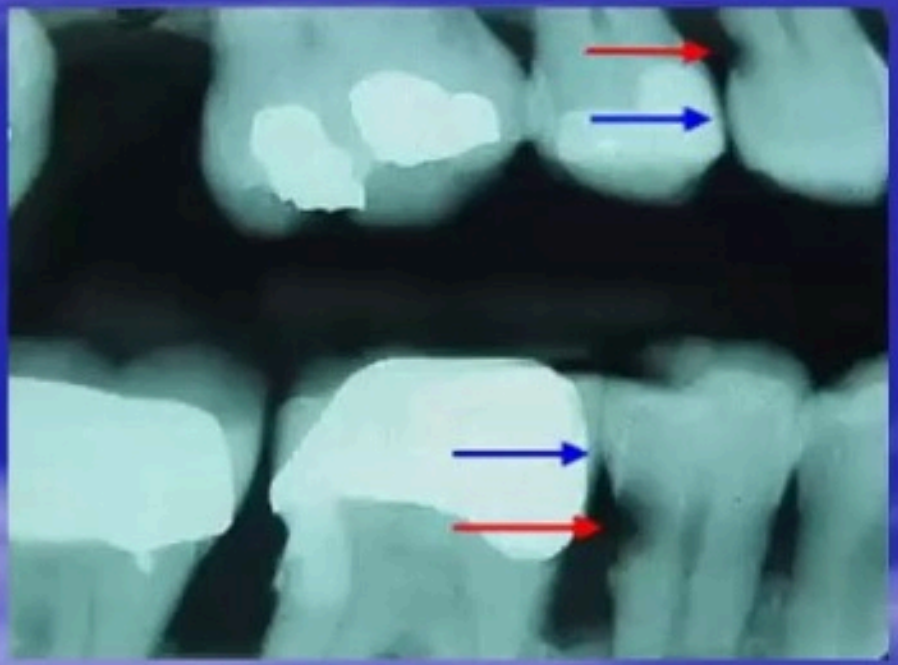
- Caries,
- Malformed, discolored, non esthetic, or fractured teeth,
- Wearing of teeth (attrition, abrasion, etc.)
- Restoration replacement or repair.

Pit and fissure caries

Rampant smooth surface caries


A


A
B
C
D



Attrition in Anterior Teeth

Crevical Abrasion

Fig. 1: Attrition

Attrition in Posterior Teeth

Procedures

Procedures commonly done are

- Direct restoration – Amalgam, Composite resin, GIC.
- Indirect restoration – Inlay, onlay, crowns (base metal, precious metal, porcelain fused to metal, or metal free ceramic)
- Veneers – Direct or indirect

- Direct Restoration – After tooth preparation, the restoration is placed in a moldable stage in the prepared tooth to recreate normal contours.

***Adv**. – easy to place, less time consumed, and cost effective.*

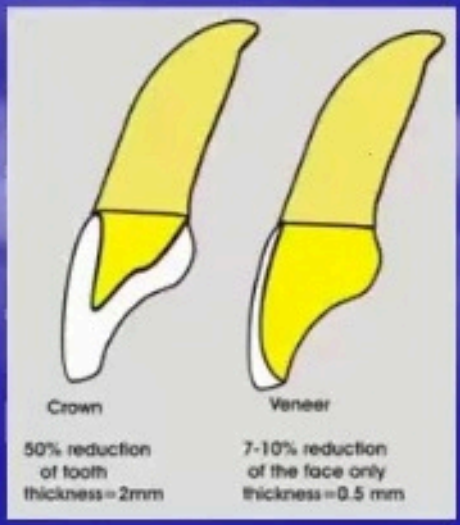
***Disadv.** – compromised mechanical properties*

- Indirect Restoration- After tooth preparation, it involves making of impression, pouring of cast, die preparation, wax pattern, investing, casting, finishing, polishing and cementing (or luting) of restoration. (restoration is fabricated outside and cemented to prepared tooth)

Adv.- *provide better mechanical properties and stress distribution*

Disadv.- *time consuming, expensive, and more technique sensitive*


Veneer


Crown
50% reduction
of tooth
thickness=2mm
Veneer
7-10% reduction
of the face only
thickness=0.5 mm

Cavity Preparation

Is the mechanical alteration of a defective, injured or diseased tooth to receive a restorative material that re-establish a healthy state for the tooth, including esthetic correction where indicated and normal form and function.

- Purpose of cavity preparation

- To remove carious or diseased portion of tooth and to avoid further progression or recurrence of it.

- Caries might have progressed in an irregular shape, but one must prepare the tooth in an appropriate shape to obtain best mechanical properties of restorative material

- How is cavity preparation done

- With diamond or TC burs attached to hand held device called hand piece at high speed (200000 rpm) for gross cutting.

- With finishing burs attached to slow speed hand piece (30000 – 40000 rpm) or hand cutting instruments for finer adjustments

Change in concept

Tooth preparation originally adhered to the concept of ‘extension for prevention’, but increased knowledge of preventive methods, advanced clinical techniques, and improved materials now have provided a more conservative approach to the restoration.

Pre clinical Operative Dentistry

Is a branch of operative dentistry wherein practical training is given in cavity preparation and restoration of teeth with various materials in dummy models in simulated oral environment

Clinical procedures for Operative Treatment

Steps in operative/ restorative procedures

1. Evaluate the tooth to be restored
2. Obtain local anesthesia
3. Determine the type of moisture control to be used during the procedure:
    1. Cotton roll (partial Isolation)
    2. Dental rubber dam (complete isolation)

Steps in operative/ restorative procedures

4. Prepare the tooth for the restoration
   - rotary instruments
   - hand instruments
5. Determine the type of dental materials to be used
6. Apply dental material

Steps in operative/ restorative procedures

7. Burnish, carve or finish the dental material
8. Check the occlusion of the restoration
9. Finish and polish the restoration

1. Evaluate the tooth to be restored

Diagnostic phase

a. Clinical examinations

Percussion, pain

Deep caries

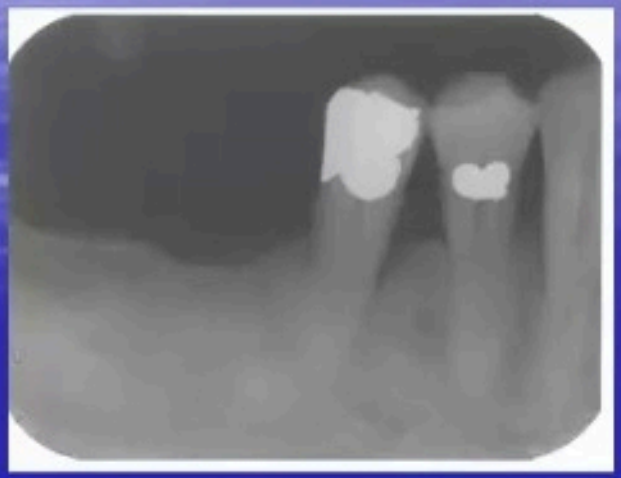
b. Radiographic examinations

- Periapical radiograph
- Bitewing

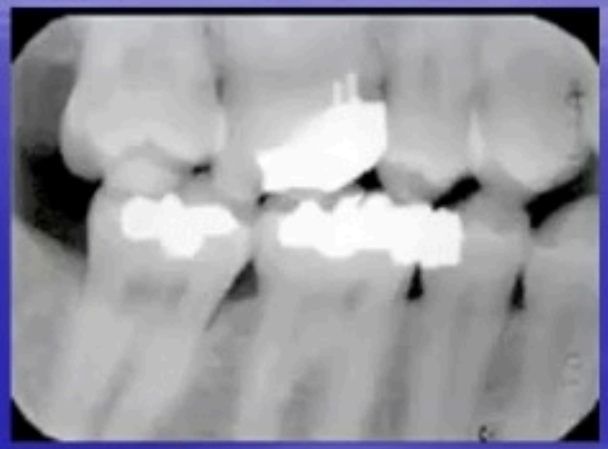
c. Vitality test

a. Clinical examination

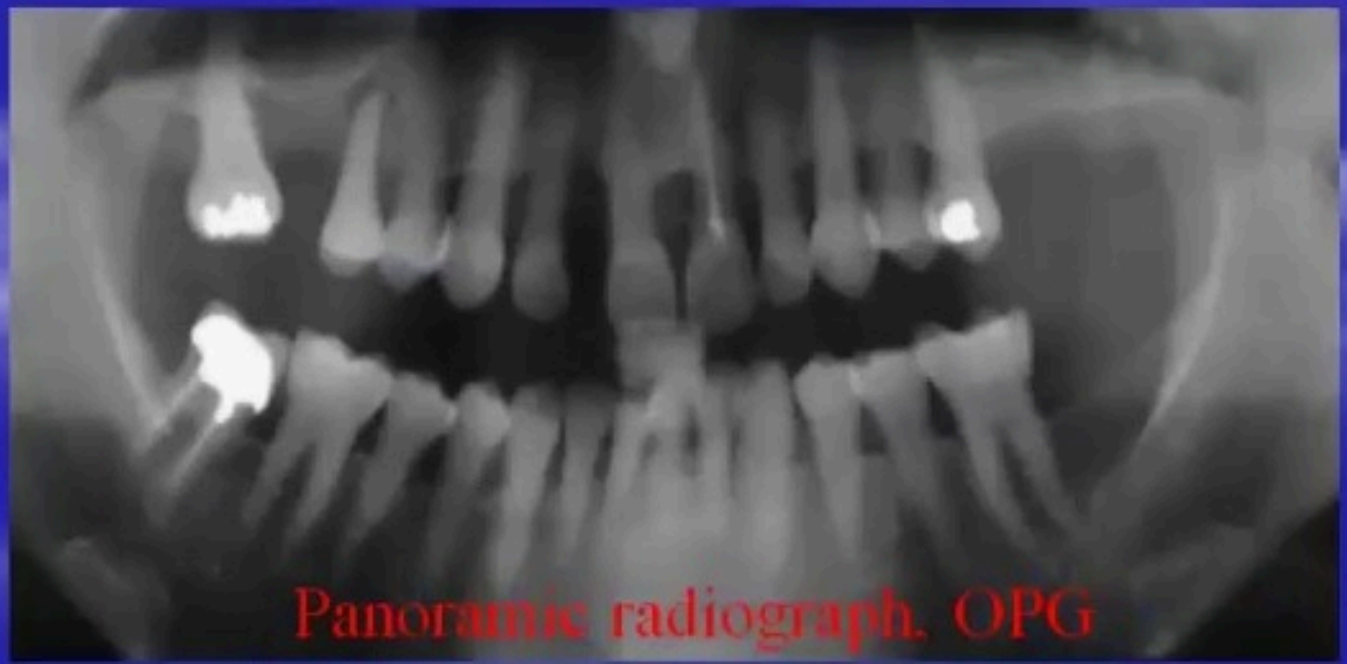
b. Radiographic examination



Periapical

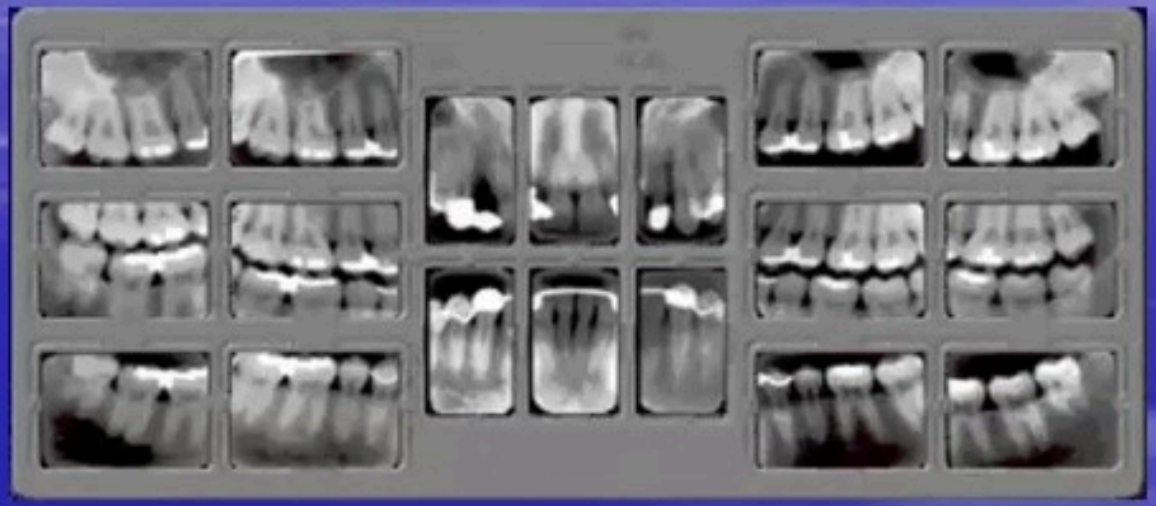


Bitewing



Panoramic radiograph. OPG

Radiographic examination



- Full mouth intra oral radiographs
- Bitewings+ periapicals

c. Vitality test

- Electric pulp tester(EPT):

tests the vitalty of the Pulp by passing low electric current throw the tooth → pain

- Compare the reading with the opposing or adjacent normal tooth

2. Obtain local anesthesia

Anesthetic Gel

Gauze

Syringe

Cotton tip

Anesthetic solution= carpule

Needles
Short
Long

local anesthesia kit

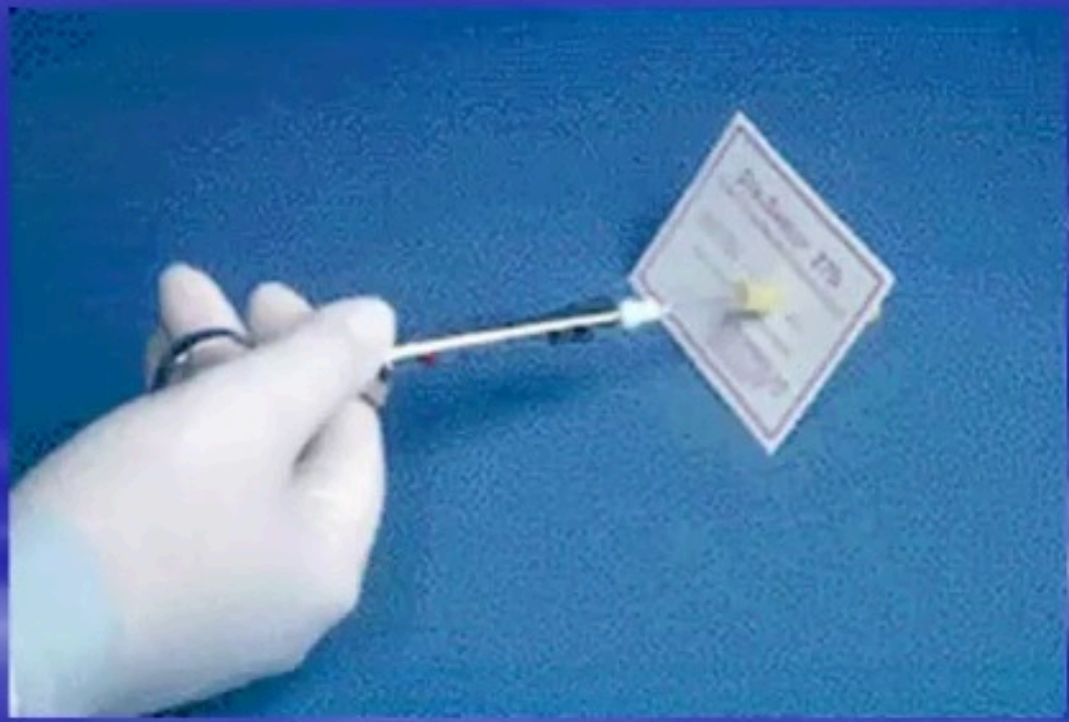
2. Obtain local anesthesia

- Upper teeth
- Infiltration

- Lower teeth
- Nerve block

After local anesthesia

Sharping container



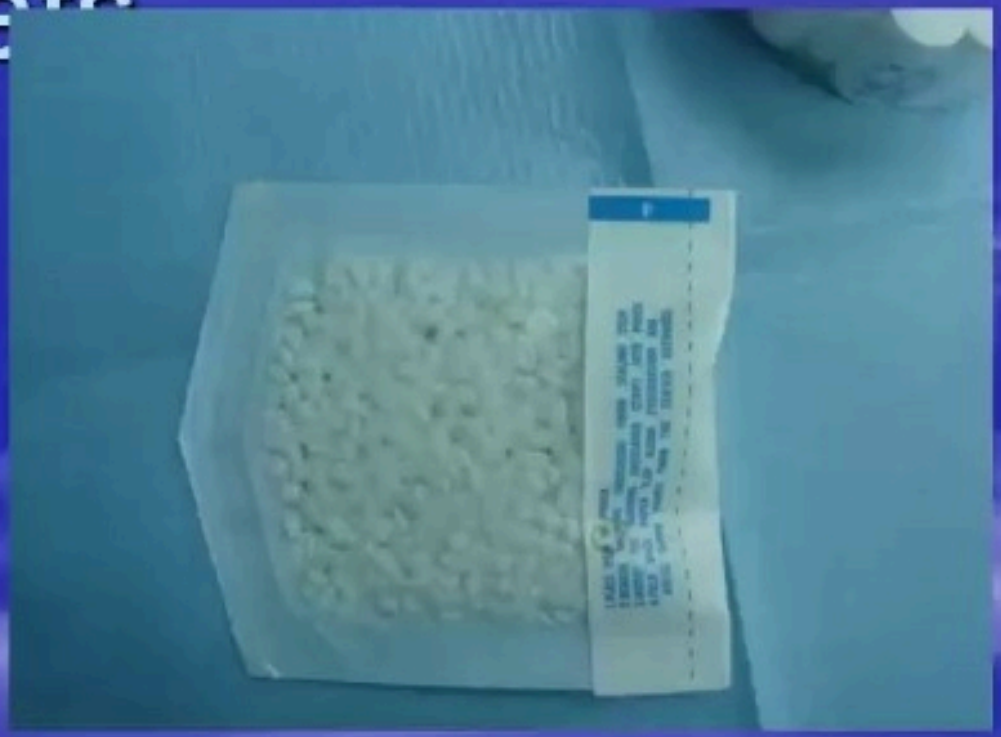
Cardboard needle cap-holding device makes recapping needles safer

Never leave the patient after local anesthesia

3. Moisture control

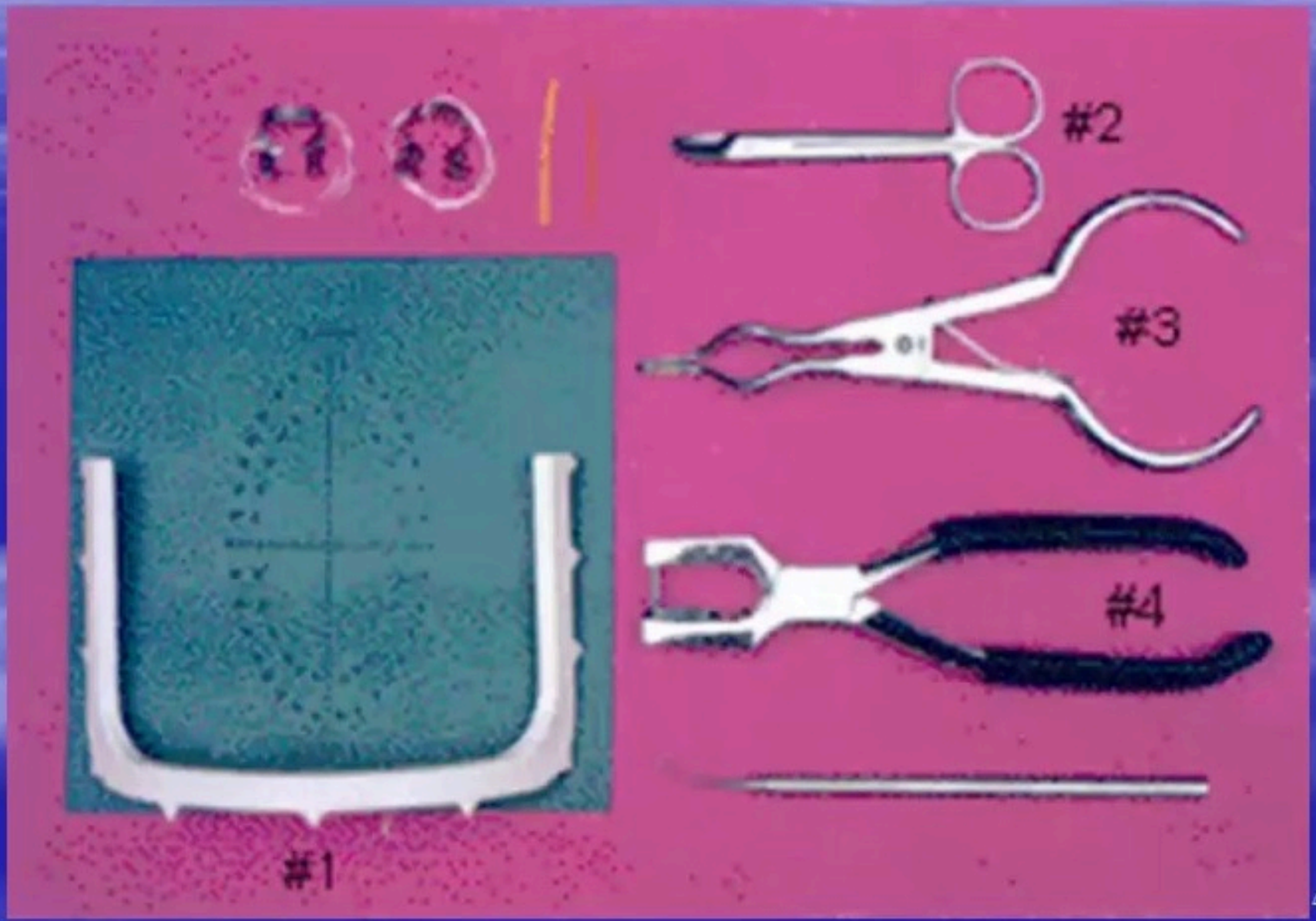
A. Cotton rolls
B. Cotton pellets
C. Gauze
D. Dental rubber dam
E. Saliva ejector
F. High-volume oral evacuator tip

A. Cotton rolls B. Cotton pellets



C. Gauze

D. Dental Rubber Kit

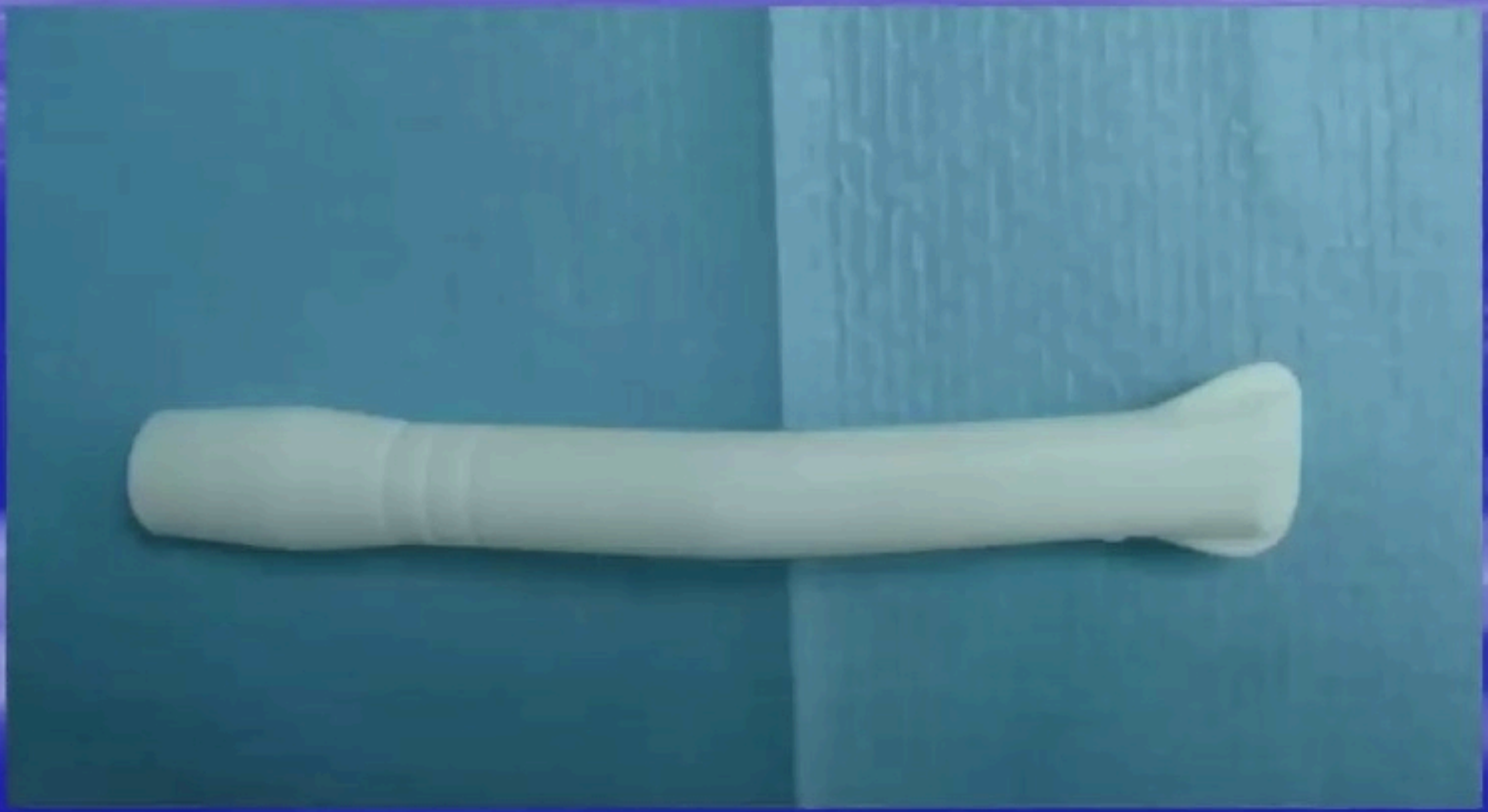


D. Dental Rubber dam

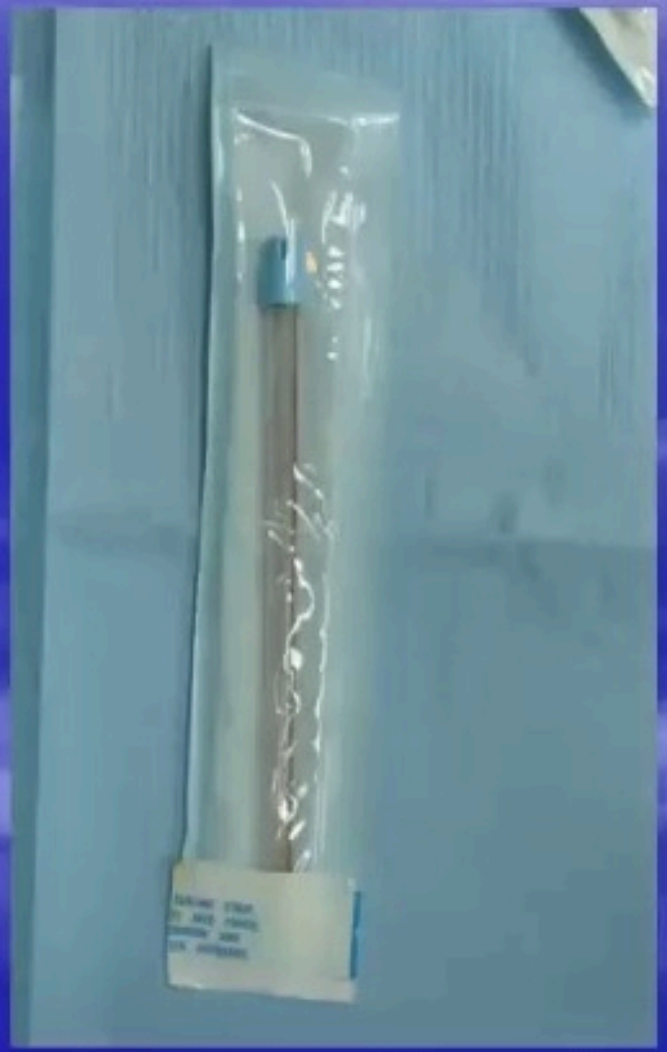
Rubbere dam over the area to isolate the tooth, keep it clean and free of saliva during the dental procedure

E. Saliva ejector

F. High-volume oral evacuator tip



The difference??



Suction tips

Saliva ejector
= low volume suction

High-volume oral evacuator
=high volume suction

4. Prepare the tooth for the restoration

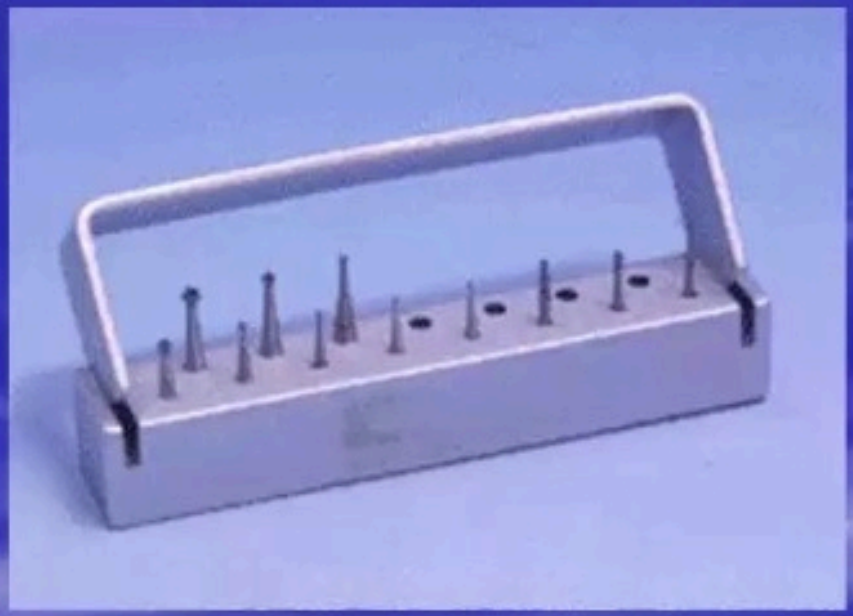
- Rotary instruments
- Hand instruments

Rotary instruments

HIGH SPEED HAND PEICE

LOW SPEED HAND PEICE

Burs holder



Hand instruments

5. Determine the type of dental materials

a. Amalgam

b. Composite

c. Glass ionomer

- Contains Fluoride/ Release Fluoride in the Oral cavity.
- White /light gray in color.
- Bond to the tooth structure.

d. If no time, or deep caries you can apply temporary filling

6. Apply the dental material

Amalgam

- Alloy of mercury and one or more other metals.
- Contents:
  - Silver
  - Tin
  - Copper
  - Zinc

a. Application of amalgam

Amalgam capsule

Amalgamator

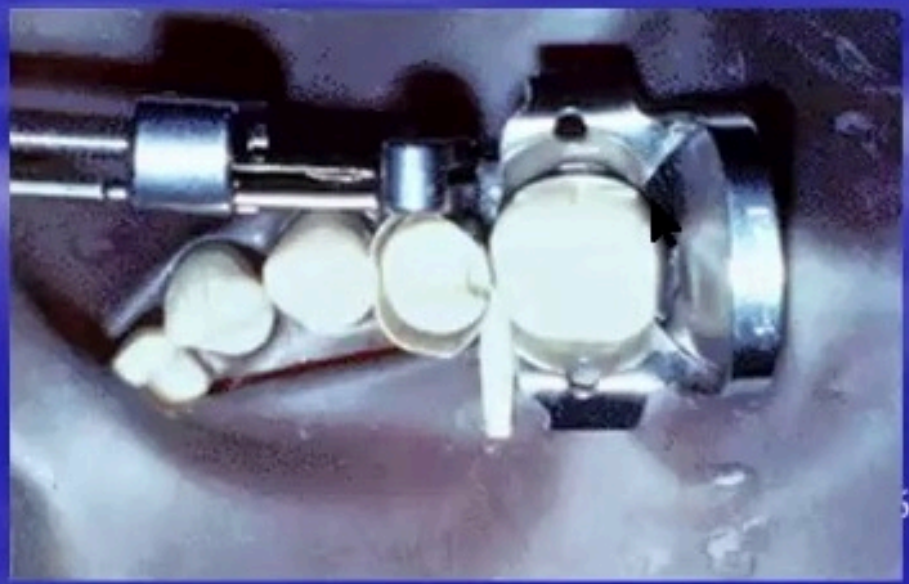
a. Application of amalgam

Amalgam carrier

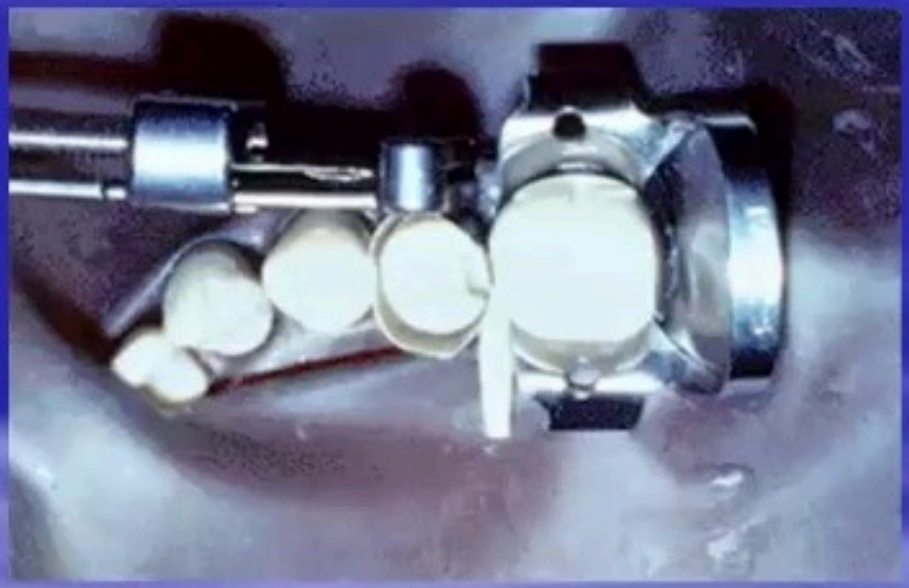
Dappen dish

Application of amalgam

- Amalgam condenser
- Burnisher
- Matrix
- Retainer
- Wedge



APPLICATION OF AMALGAM



The **matrix** replaces the missing wall of the tooth while the restorative material is being placed.

The **retainer** holds the matrix securely in place around the tooth. It is placed next to the facial surface of the tooth with the slot side toward the gingiva.

The **wedge** is placed from the lingual side near the gingiva to hold the matrix securely against the tooth and to restore the natural contour of the tooth.

Composite

- Resin composites
- Bond to the tooth structure by Bonding agent
- Superior aesthetic properties and to health concerns about the mercury in dental amalgams
- Have found increasing application in the repair and rebuilding of teeth.
- Chemical cure or light cure restoration.

Composite kit

- Shade guide
- Acid etchant
- Bonding material
- Composite

Composite

i. Select the shade
ii. Dry the tooth
iii. Acid itchant
iv. Wash
v. Dry
vi. Bonding
vii. Light cure
viii. Composite in layers 2mm

Application of Composite

Acid itchant

Dry the tooth

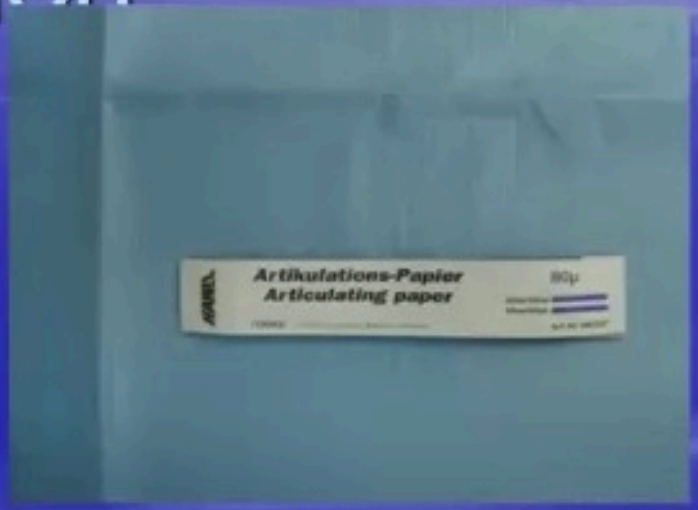
Light cure

Application of Composite

7. Burnish, carve or finish the dental material

8. Check the occlusion of the restoration

- Articulating paper
- High speed hand piece
- Diamond bur



High point removal

9. Finish and polish the restoration

- Amalgam

- Composite finishing strips

efore placement of the restorative materi

- Base: placed in deep cavities to provide pulp protection and insulation
- Cavity liner: protects the pulp from irritation and encourages healing
- Bonding agent: retention of the composite

efore placement of the restorative materi

- **Cavity base**: placed in deep cavities to provide pulp protection and insulation

  e.g. Glass ionomer cement

  Zink oxide eugenol cement
- **Cavity liner**: protects the pulp from irritation and encourages healing

  e.g. Dycal= under amalgam, composite

  Varnish= under amalgam ONLY
- **Bonding agent**: retention of the composite

Cavity liners

Varnish under Amalgam

Dycal under amalgam or composite

Teeth numbering systems

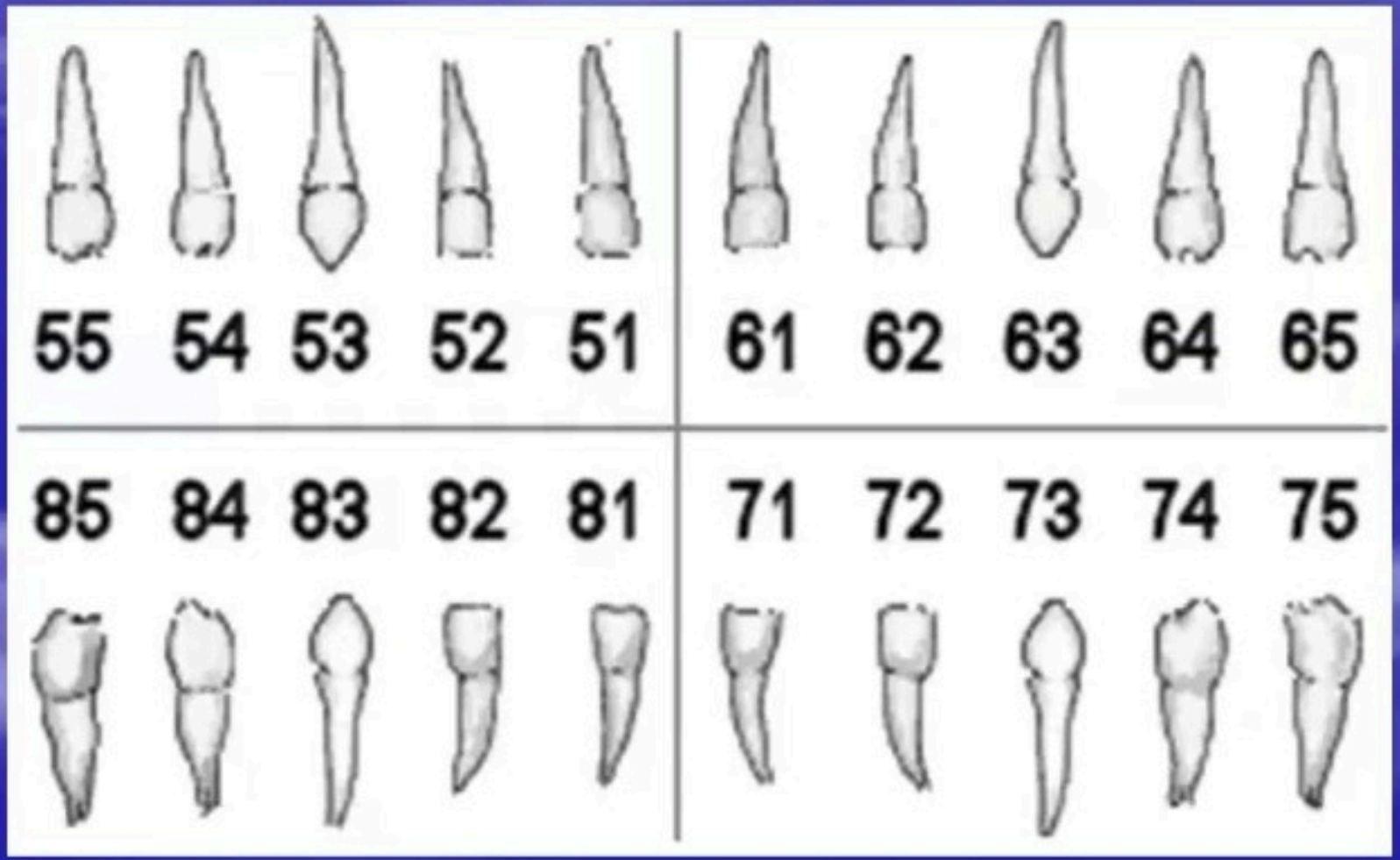
Universal Numbering System	International Standards Organization Numbering System
The permanent teeth are numbered from 1 through 32.	This is a two-digit system with the numbers pronounced separately.
The primary teeth are lettered from A through T.	The first digit identifies the quadrant. The second digit indicates the tooth within that quadrant.

FDI two-digit tooth numbering system

Teeth numbering chart for adult teeth

FDI two-digit tooth numbering system

Teeth numbering chart for primary teeth



Teeth numbering systems
ISO, FDI

Tooth #16 : Upper Right 1st Molar

Tooth #46: Lower Right 1st Molar

Tooth #25: Upper Left 2nd Premolar

Tooth #34: Lower Left 1st Premolar

Tooth #11: Upper Right central incisor

Tooth #32:.....

Tooth #23:.....

Tooth #44:.....

Classification

- Class I
- Class II
- Class III
- Class IV
- Class V
- Class VI

Class I

Class II

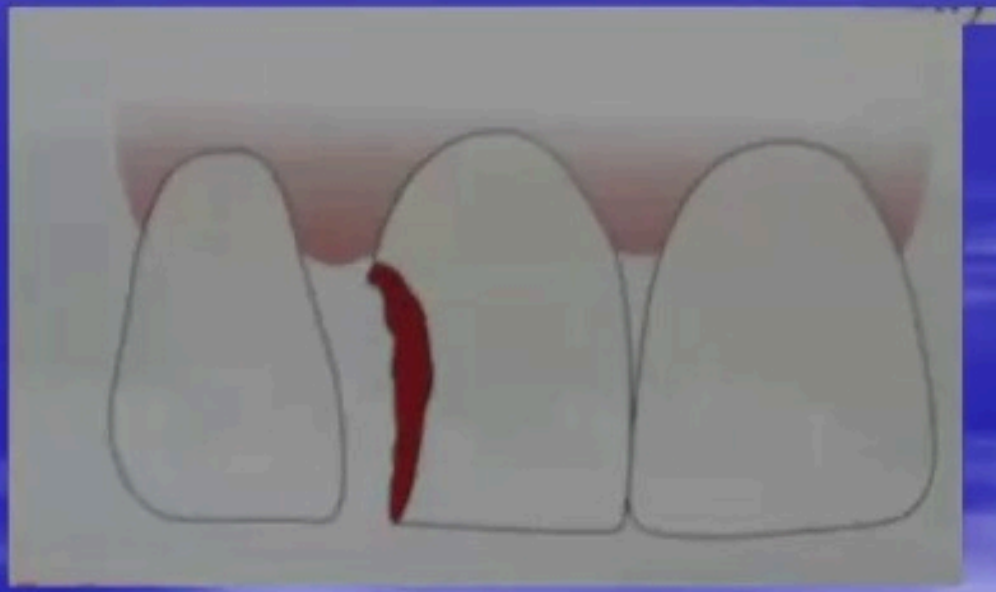
Occluso-distal

Occluso-mesial

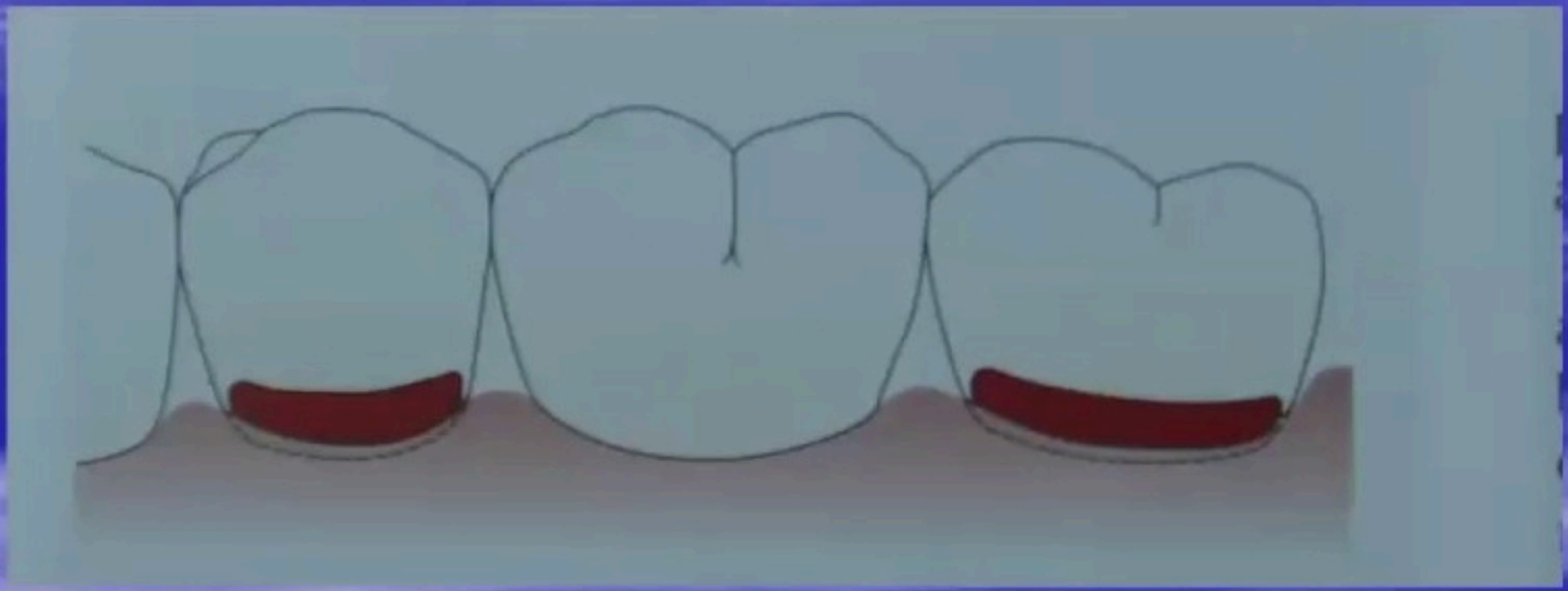
Occluso-mesio-distal
MOD

Class III

Class IV



Class V



Composite, Glass ionomer, amalgam


THANK YOU!