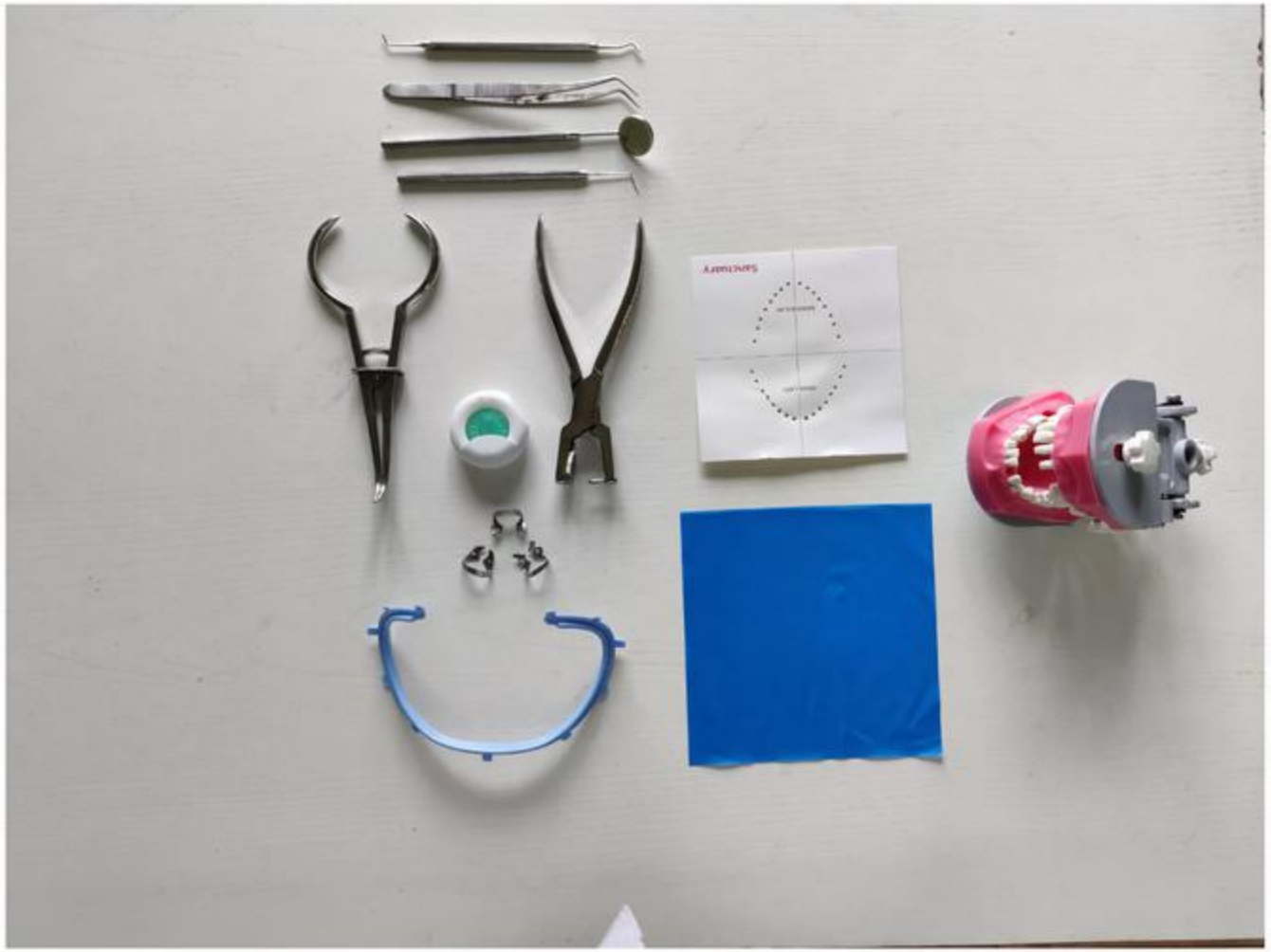
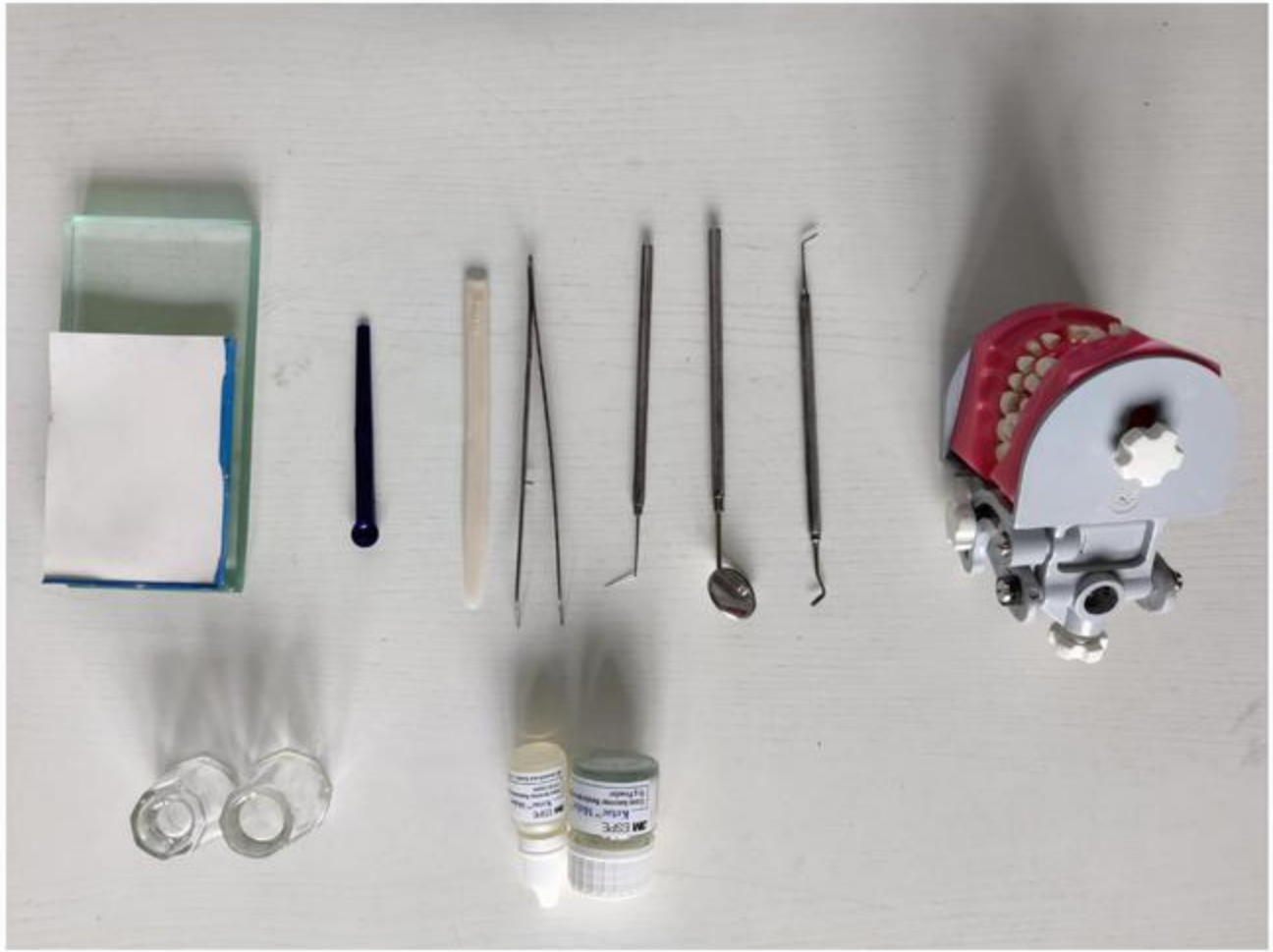
Rubber Dam Demonstration

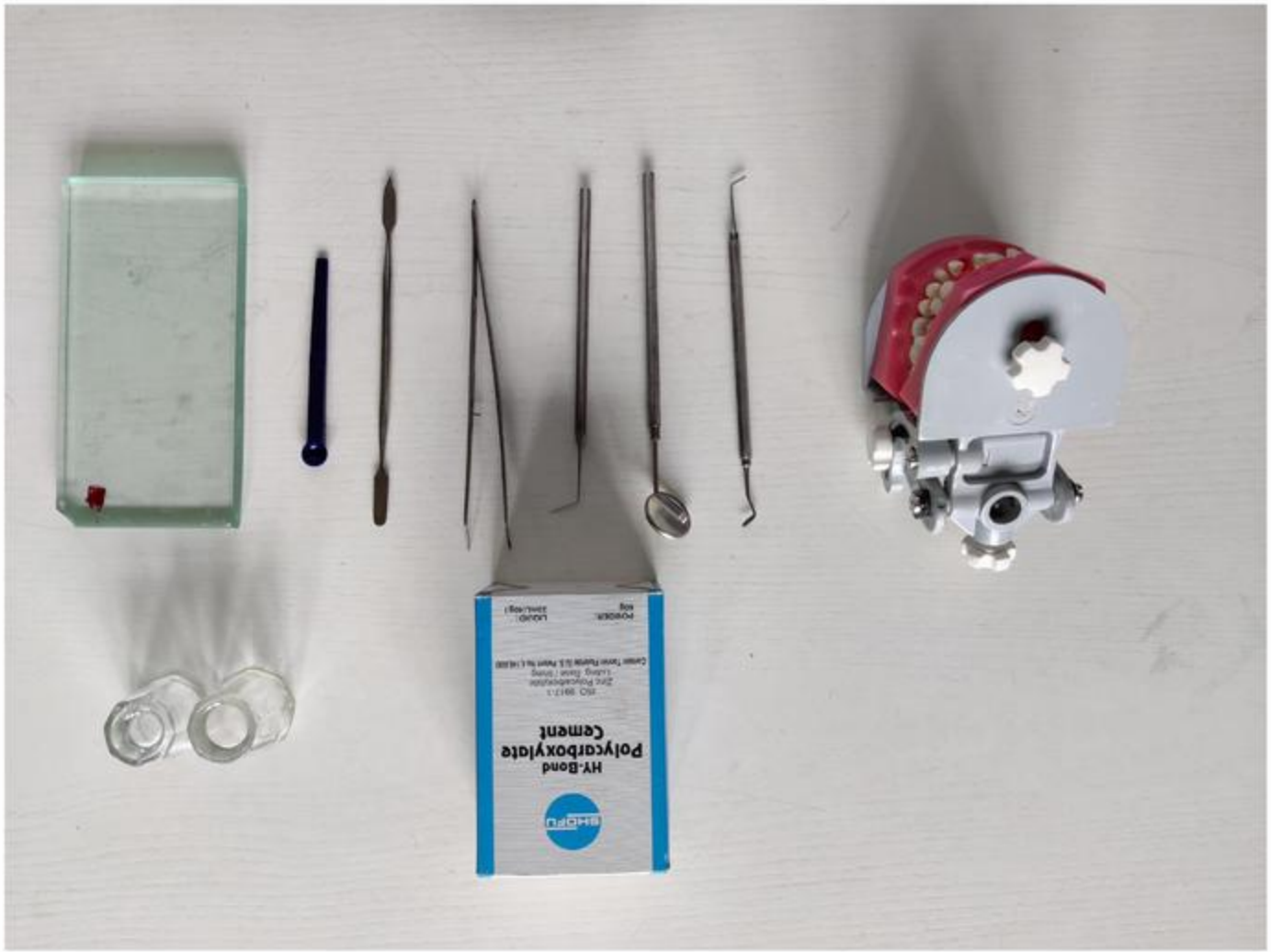


GIC Demonstration



Zinc Phosphate Demonstration

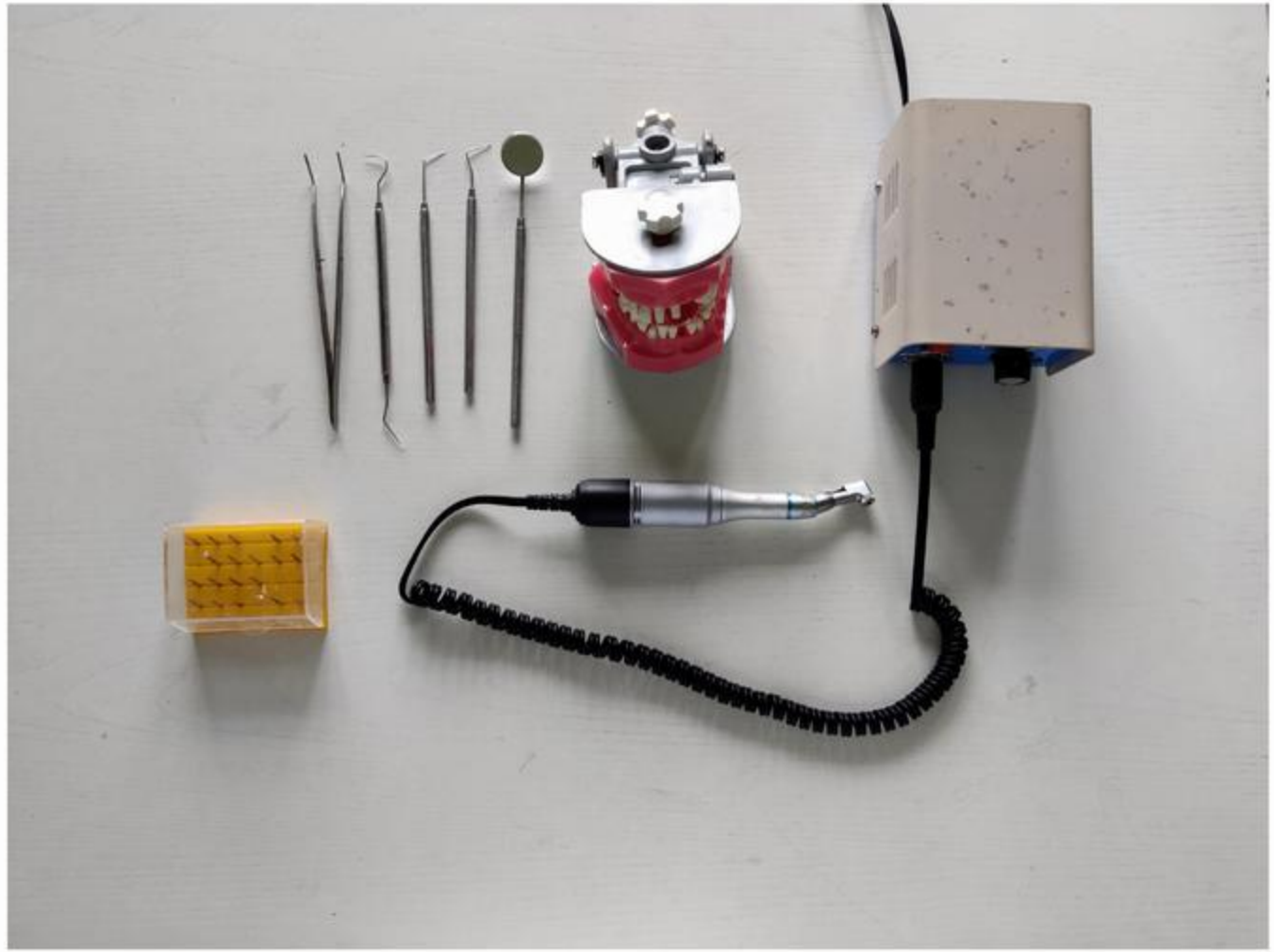
Polycarboxylate Demonstration



Zinc Oxide Eugenol Demonstration

Silver Amalgam Alloy Demonstration

Cavity Preparation demonstration



Composite Restoration Demonstration

Demonstration on Typhodont

Demonstration Under Microscope

Demonstration on Patient

Posters - UG

Silver amalgam

SILVER AMALGAM

AMALGAM : This is an alloy of mercury with any other metal.

DENTAL AMALGAM: This is an alloy of mercury with silver, tin & varying amount of copper , zinc & other minor ingredients.

DENTAL AMALGAM ALLOYS: This are silver –tin alloys with varying amount of copper, zinc & any other metal.

Classification of dental amalgam alloys:

1. NUMBER OF ALLOYED METAL
   - a. Binary: contain silver & tin
   - b. Ternary: contain silver , tin & copper.
   - c. Quaternary: contain silver, tin , copper & zinc
2. PARTICLE SHAPE OF THE ALLOY
   - a. Irregular: in the form of spindle or shavings.
   - b. Spherical: have a smooth spherical shape
   - c. Spheroidal: spherical with irregular surfaces
3. COPPER CONTENT
   - a. Low copper : copper – 2%to6%
   - b. High copper: copper-12%to30%
4. ZINC CONTENT
   - a. Zinc containing: zinc- 0.01% to1%
   - b. Zinc-free -<0.01% zinc
5. UNMIXED OR ADMIXED
   - a. Single composition: each particle has same chemical composition
   - b. Admixed: physical blend of lathe-cut & spherical particle
6. PRESENCE OF NOBLE METAL
   - a. Noble metal alloys: small amount of palladium or gold
   - b. Non-noble metal alloys-do not contain any noble metals.

PROPERTIES OF AMALGAM

1. DIMENTIONAL CHANGES : excessive delayed expansion can occur if a zinc containing amalgam is contaminated by saliva or moisture during trituration or condensation. Delayed expansion can start 3 to 5 days after the restoration is placed & continus for several months.
2. STRENGTH : silver amalgam exhibits good compressive strength &poor tensile& shear strength
3. CREEP : it refer to the progressive permanent deformation of the set amalgam under dynamic loading during function
   Low Cu amalgam exhibit high creep rate of over 2.5%
   High Cu amalgam exhibit <0.2% creep rate.
4. RIGIDITY : compared to low copper amalgams high copper amalgams are more rigid .
5. THERMAL PROPERTIES : THE linear CTE of amalgam is 2.5 times more than tooth.
6. CORROSION RESISTANCE : amalgam restorations undergoes tarnish & corrosion in the oral environment
   Low Cu amalgam –corrosion is due oxidation of gamma 2 phase
   High Cu amalgam –corrosion is due to Eta phase
7. BIO COMPATIBILTY : biocompatibility of amalgam is related to the toxicity of mercury & belief that mercury create toxic reaction in patients.

COMPOSITION OF ALLOYS

ALLOY	Ag	Sn	Cu	Zn	Hg
LOW COPPER	65-70%	26-28%	2-5%	0-2%	0%
ADMIXED	40-70%	26-30%	13-30%	0-1%	0%
UNI COMPO SIONAL	40-60%	22-30%	13-30%	0%	0-5%

POST RESTORATION STEPS

A. Do not chew or bite on the treated tooth until you have had it restored by your dentist.
B. Be sure to brush and floss your teeth as you normally would.
C. Contact your endodontist right away if you develop any symptoms.
D. Patient should not eat any thing for 2 hours & patient should not eat any thing hard for 24 hours same side of restored tooth.

ADVANTAGES OF AMALGAM

1. Ease of use
2. High compressive strength
3. Excellent wear realstance
4. Favorable long term clinical results
5. Economic
6. Can be bonded to tooth structure
7. Self sealing ability

DISADVANTAGES OF AMALGAM

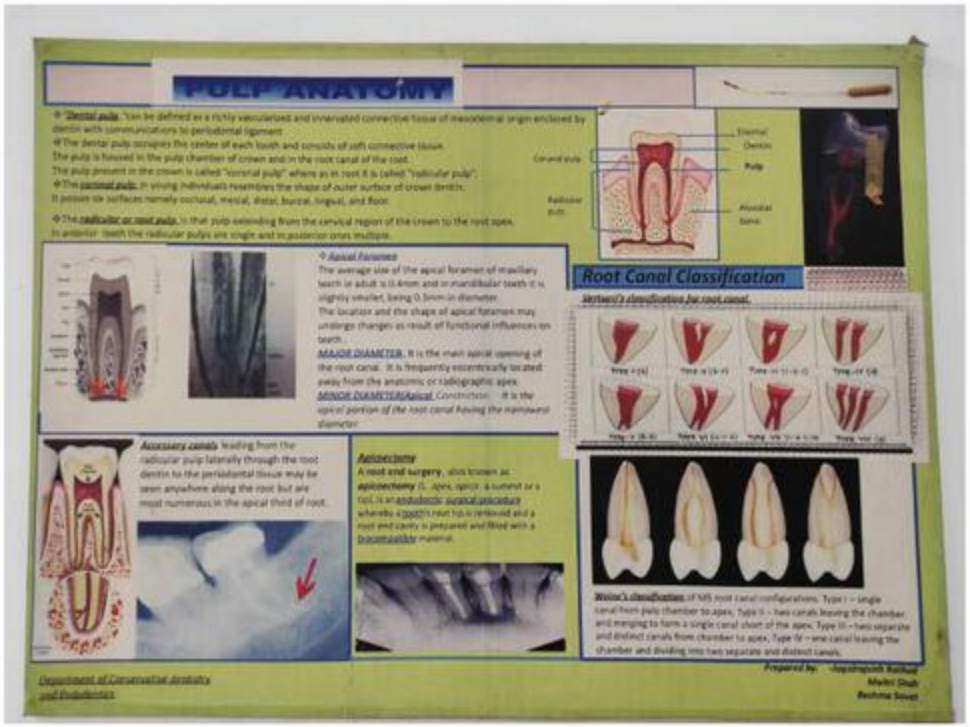
1. Lack of esthetics
2. Less conservative
3. Non-insulating
4. Corrosion & galvanism
5. Lack of reinforcement of weakened tooth structure
6. Difficulty in restorating proper anatomy

Prepared by :
1. AKIL DESAI
2. DIPA DESAI
3. KINJAL DESAI

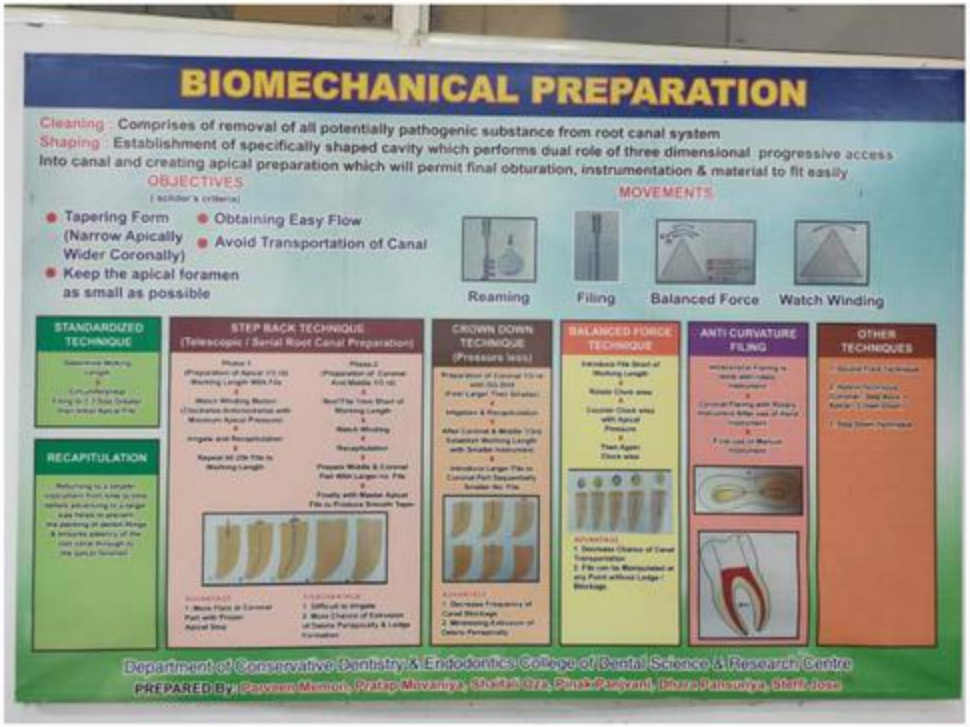
DEPARTMENT OF CONSERVATIVE DENTISTRY & ENDODONTICS

Control of pain during operative procedure

Pulp anatomy



Biomechanical preparation



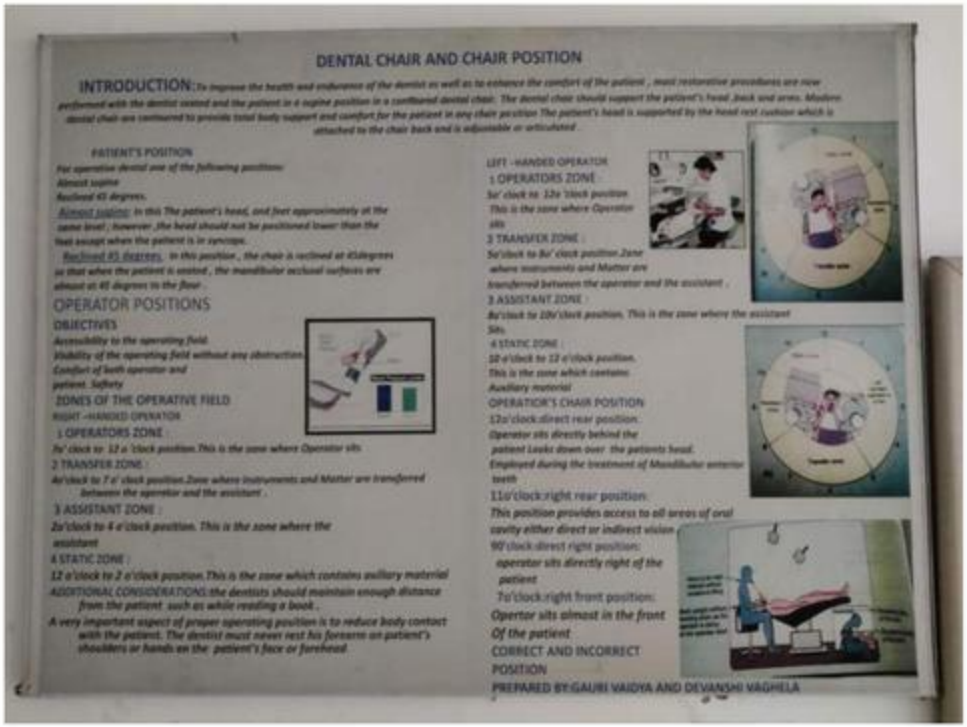
Complex amalgam restoration

Composite resin

Pulp protection

Glass ionomer cement

Dental chair and chair position



DENTAL CHAIR AND CHAIR POSITION

INTRODUCTION: *To improve the health and endurance of the dentist as well as to enhance the comfort of the patient , most restorative procedures are now performed with the dentist seated and the patient in a supine position in a contoured dental chair. The dental chair should support the patient's head ,back and arms. Modern dental chair are contoured to provide total body support and comfort for the patient in any chair position The patient's head is supported by the head rest cushion which is attached to the chair back and is adjustable or articulated .*

PATIENT'S POSITION

For operation dental one of the following positions:

Almost supine

Reclined 45 degrees.

Almost supine: In this The patient's head, and feet approximately at the same level ; however ,the head should not be positioned lower than the feet except when the patient is in syncope.

Reclined 45 degrees: In this position , the chair is reclined at 45degrees so that when the patient is seated , the mandibular occlusal surfaces are almost at 45 degrees to the floor .

OPERATOR POSITIONS

OBJECTIVES

Accessibility to the operating field

Visibility of the operating field without any obstruction

Comfort of both operator and patient. Safety

ZONES OF THE OPERATIVE FIELD

RIGHT –HANDED OPERATOR

1 OPERATORS ZONE :

9a' clock to 12 o 'clock position.This is the zone where Operator sits

2 TRANSFER ZONE :

4a'clock to 7 o' clock position.Zone where instruments and Matter are transferred between the operator and the assistant .

3 ASSISTANT ZONE :

2a'clock to 4 o'clock position. This is the zone where the assistant

4 STATIC ZONE :

12 o'clock to 2 o'clock position.This is the zone which contains axillary material

ADDITIONAL CONSIDERATIONS:*the dentists should maintain enough distance from the patient such as while reading a book .*

A very important aspect of proper operating position is to reduce body contact with the patient. The dentist must never rest his forearm on patient's shoulders or hands on the patient's face or forehead

LEFT –HANDED OPERATOR

1 OPERATORS ZONE :

5a' clock to 12o 'clock position

This is the zone where Operator sits

3 TRANSFER ZONE :

8a'clock to 8a' clock position.Zone where instruments and Matter are transferred between the operator and the assistant .

3 ASSISTANT ZONE :

8a'clock to 10a'clock position. This is the zone where the assistant Sits.

4 STATIC ZONE :

10 o'clock to 12 o'clock position.

This is the zone which contains Auxiliary material

OPERATIOR'S CHAIR POSITION

12o'clock direct rear position:

Operator sits directly behind the patient Looks down over the patients head.

Employed during the treatment of Mandibular anterior teeth

11o'clock right rear position:

This position provides access to all areas of oral cavity either direct or indirect vision

90'clock direct right position:

operator sits directly right of the patient

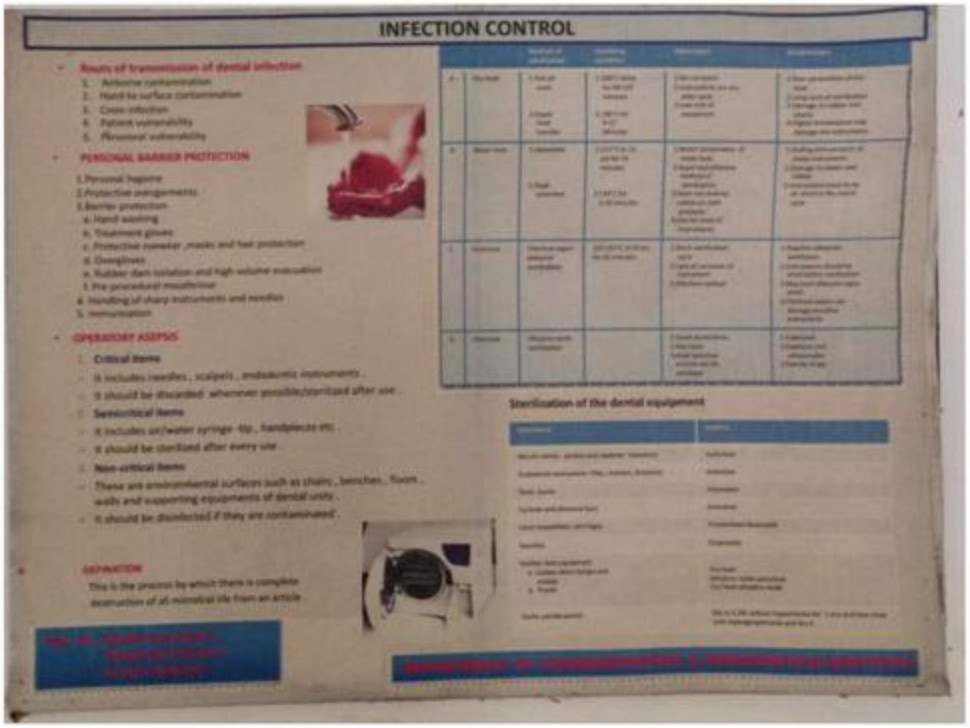
7o'clock right front position:

Opertor sits almost in the front Of the patient

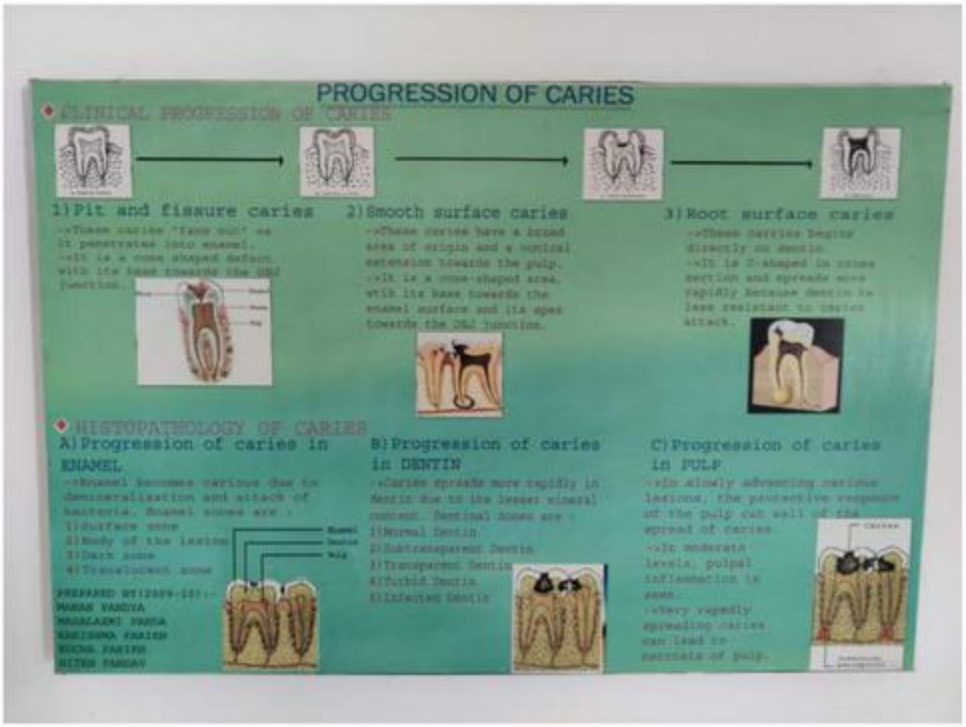
CORRECT AND INCORRECT POSITION

PREPARED BY:GAURI VAIDYA AND DEVANSHI VAGHELA

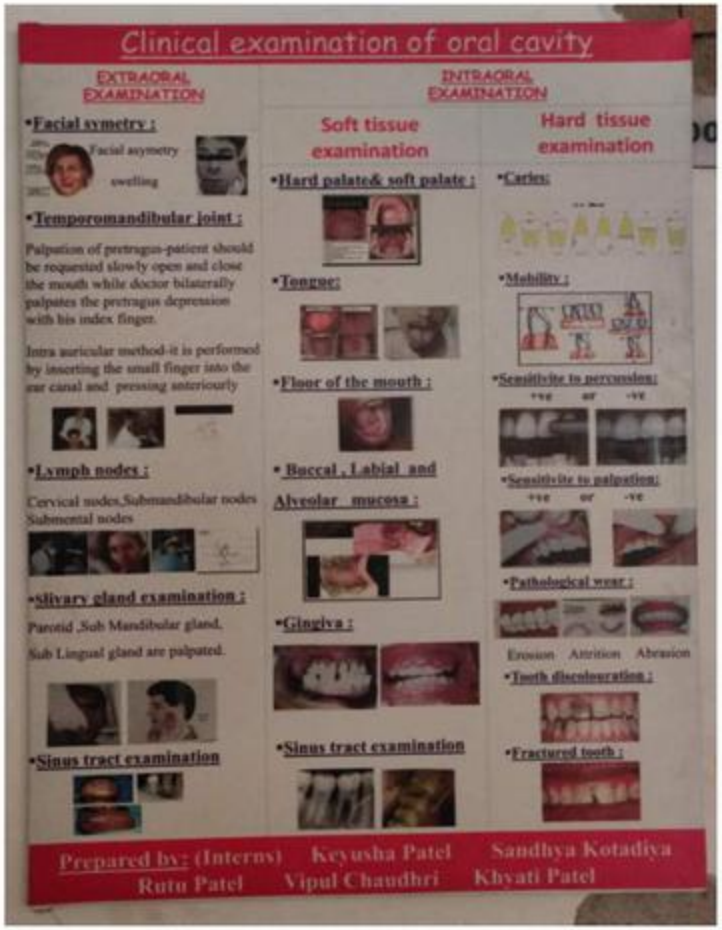
Infection control



Caries progression

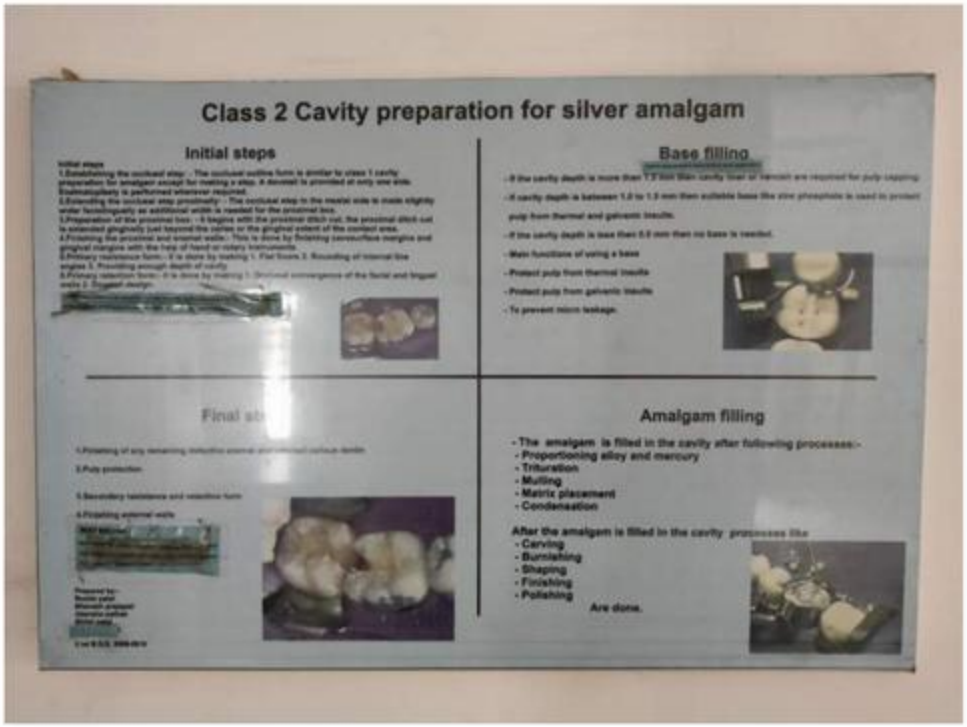


Clinical examination of oral cavity

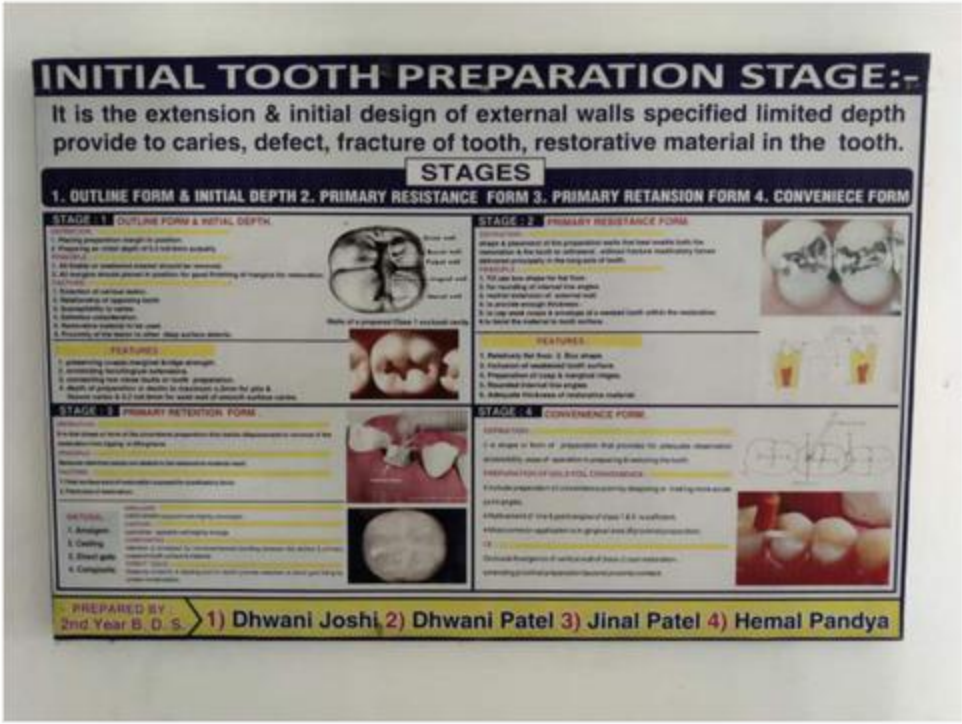


Principal of tooth preparation

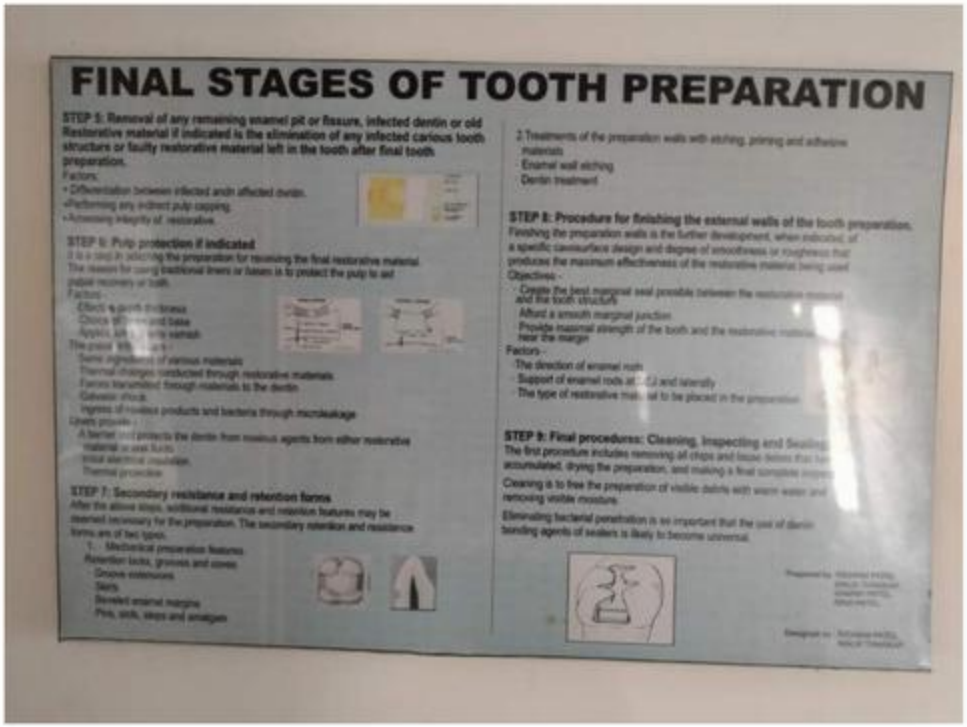
Class ii cavity preparation for amalgam



Initial tooth preparation stage

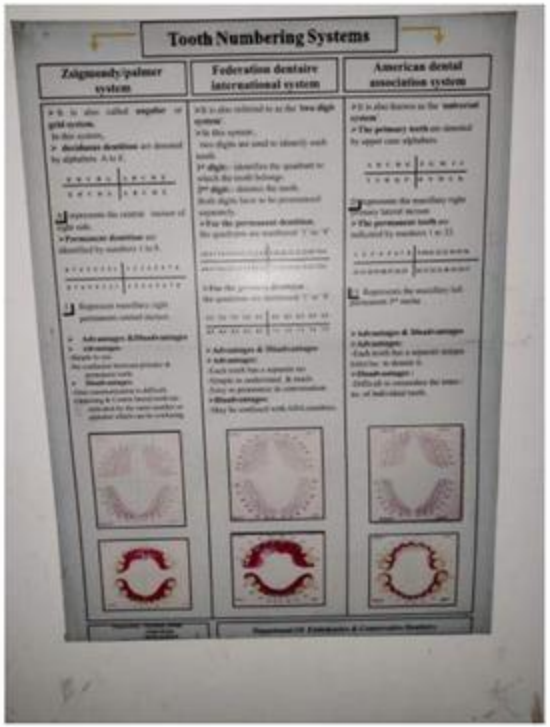


Final stages of tooth preparation

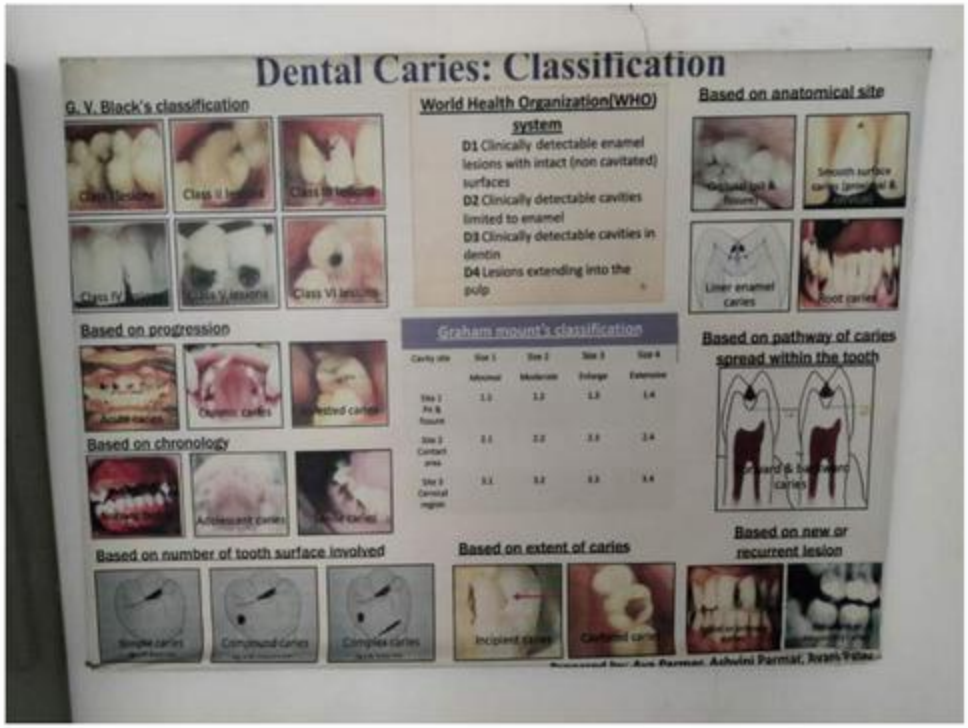


Disposal of biomedical waste

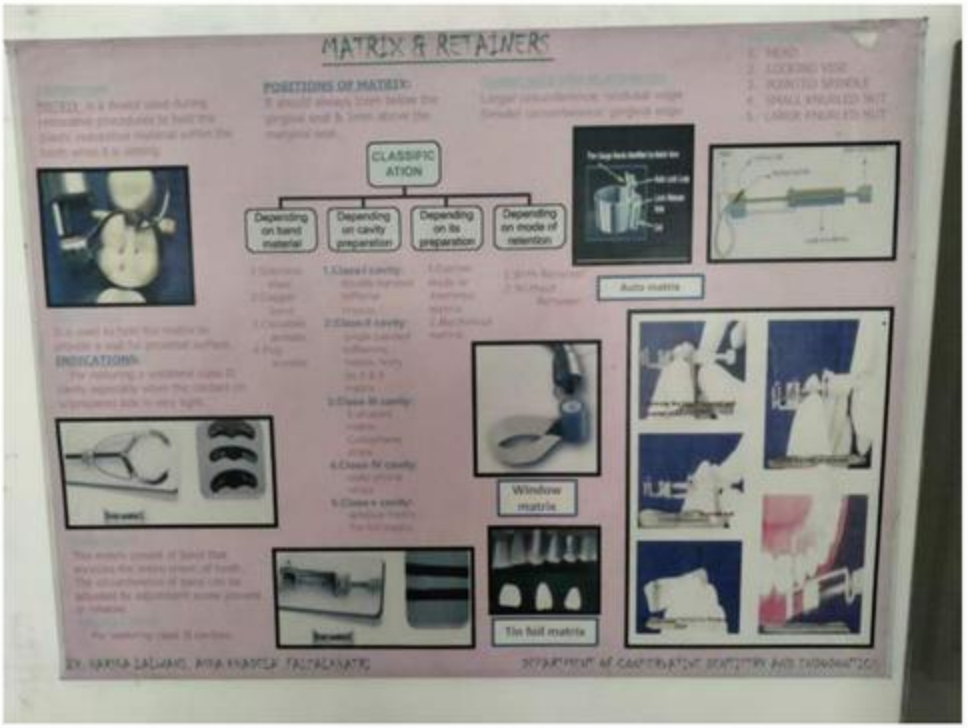
Tooth numbering systems



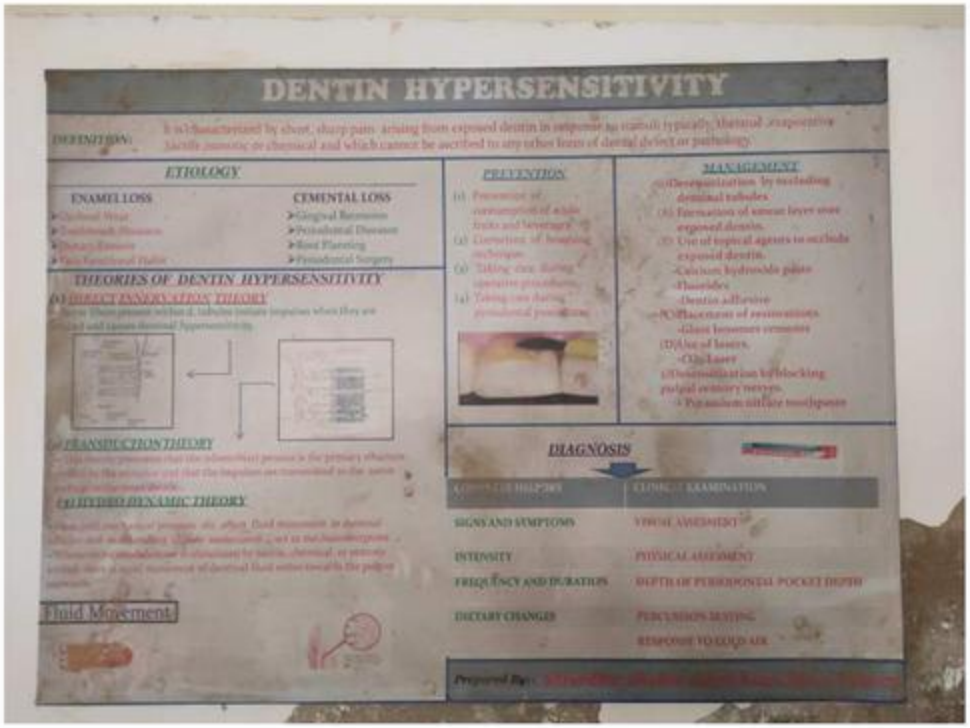
Dental caries - classification



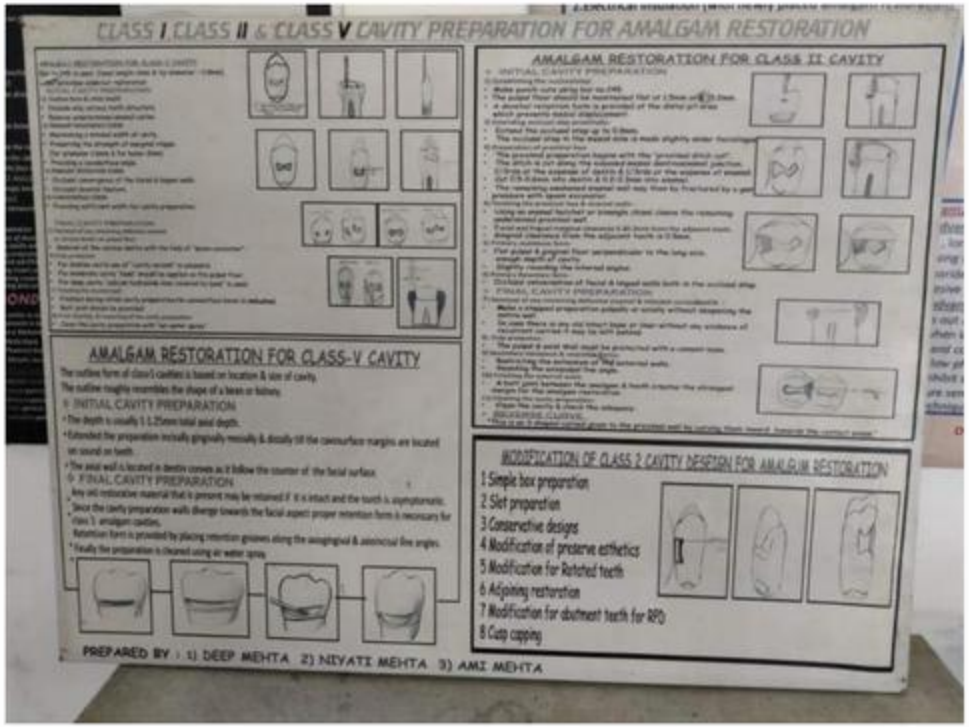
Matrix and retainers



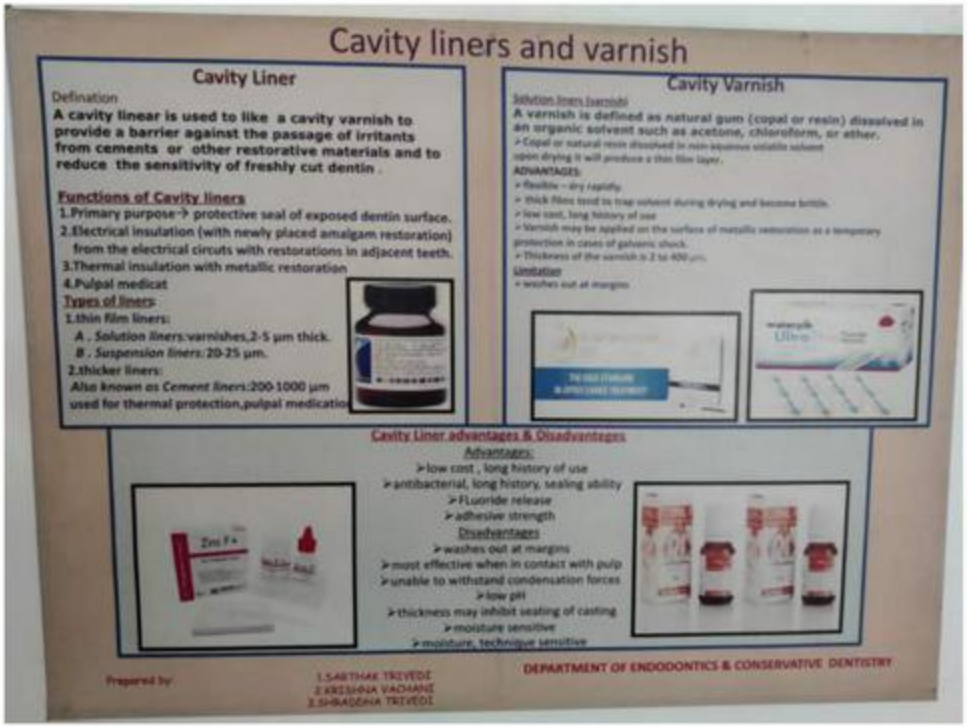
Dentin hypersensitivity



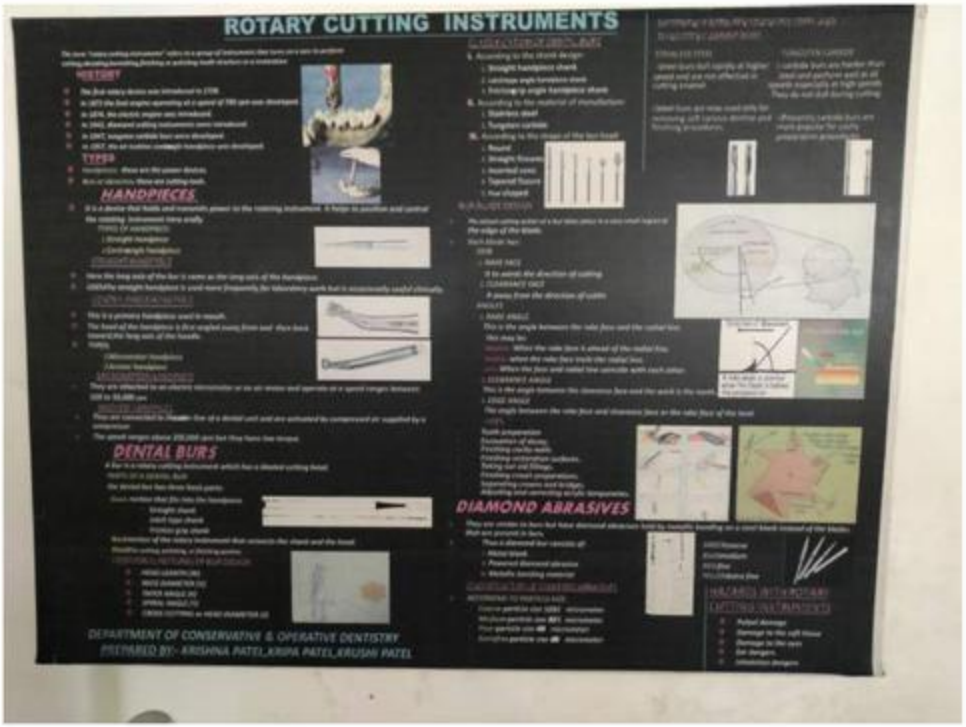
Class I, class ii & class v cavity preparation for amalgam



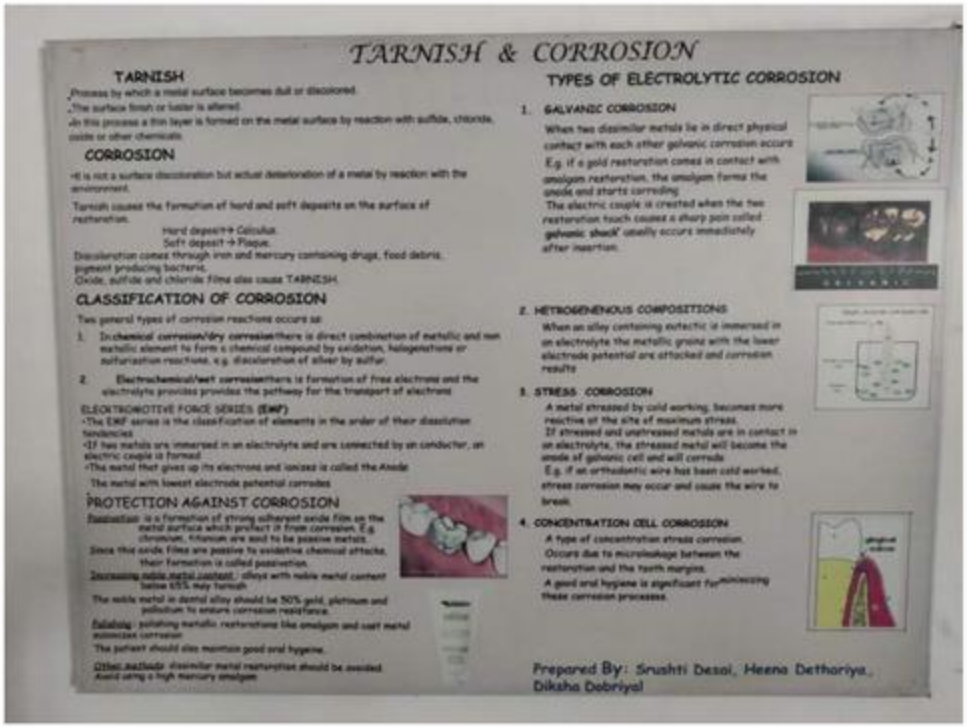
Cavity liners and varnish



Rotary cutting instruments



Tarnish and corrosion



TARNISH & CORROSION

TARNISH

- Process by which a metal surface becomes dull or discolored.
- The surface finish or luster is altered.
- In this process a thin layer is formed on the metal surface by reaction with sulfide, chloride, oxide or other chemicals.

CORROSION

- It is not a surface discoloration but actual deterioration of a metal by reaction with the environment.

Tarnish causes the formation of hard and soft deposits on the surface of restoration.

Hard deposit → Calculus
Soft deposit → Plaque.

Discoloration comes through iron and mercury containing drugs, food debris, pigment producing bacteria.
Oxide, sulfide and chloride films also cause TARNISH.

CLASSIFICATION OF CORROSION

Two general types of corrosion reactions occurs as:

1. In **chemical corrosion/dry corrosion** there is direct combination of metallic and non metallic element to form a chemical compound by oxidation, halogenations or sulfurization reactions, e.g. discoloration of silver by sulfur.
2. **Electrochemical/wet corrosion** there is formation of free electrons and the electrolyte provides provides the pathway for the transport of electrons

ELECTROMOTIVE FORCE SERIES **(EMF)**

- The EMF series is the classification of elements in the order of their dissolution tendencies
- If two metals are immersed in an electrolyte and are connected by an conductor, an electric couple is formed
- The metal that gives up its electrons and ionizes is called the Anode

The metal with lowest electrode potential corrodes

PROTECTION AGAINST CORROSION

Passivation is a formation of strong adherent oxide film on the metal surface which protect it from corrosion. E.g. chromium, titanium are said to be passive metals.

Since the oxide films are passive to oxidative chemical attacks, their formation is called passivation.

Increasing noble metal content : alloys with noble metal content below 65% may tarnish

The noble metal in dental alloy should be 50% gold, platinum and palladium to ensure corrosion resistance.

Polishing: polishing metallic restorations like amalgam and cast metal minimizes corrosion

The patient should also maintain good oral hygiene.

Other methods: dissimilar metal restoration should be avoided.
Avoid using a high mercury amalgam

TYPES OF ELECTROLYTIC CORROSION

1. **GALVANIC CORROSION**

When two dissimilar metals lie in direct physical contact with each other galvanic corrosion occurs

E.g. if a gold restoration comes in contact with amalgam restoration, the amalgam forms the anode and starts corroding

The electric couple is created when the two restoration touch causes a sharp pain called **galvanic shock** usually occurs immediately after insertion.

2. **HETROGENEOUS COMPOSITIONS**

When an alloy containing eutectic is immersed in an electrolyte the metallic grains with the lower electrode potential are attacked and corrosion results

3. **STRESS CORROSION**

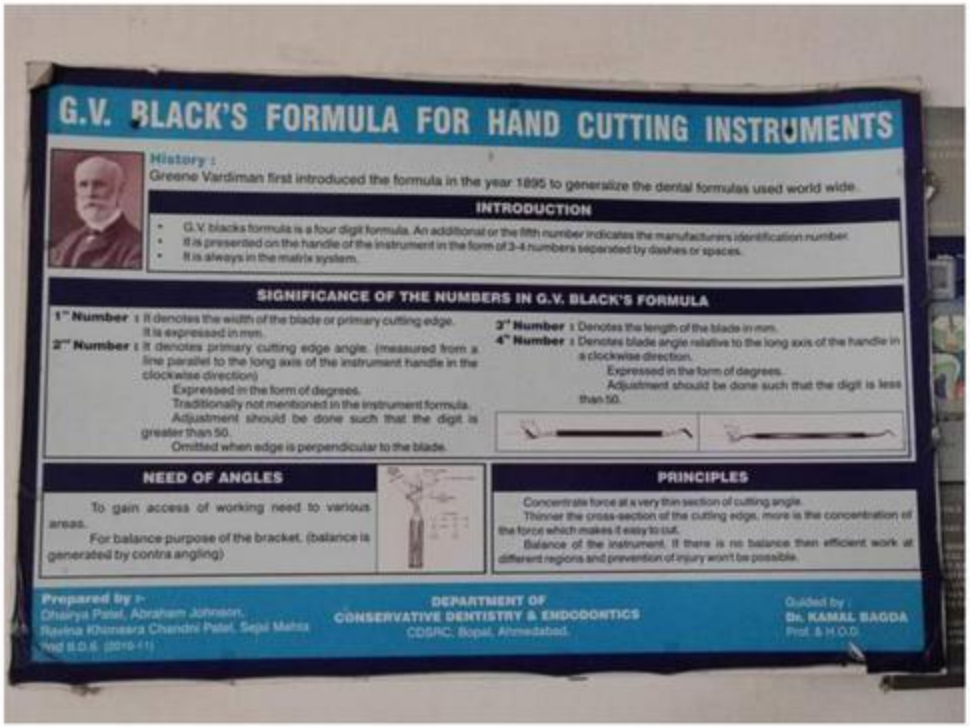
A metal stressed by cold working, becomes more reactive at the site of maximum stress.
If stressed and unstressed metals are in contact in an electrolyte, the stressed metal will become the anode of galvanic cell and will corrode
E.g. if an orthodontic wire has been cold worked, stress corrosion may occur and cause the wire to break.

4. **CONCENTRATION CELL CORROSION**

A type of concentration stress corrosion
Occurs due to microleakage between the restoration and the tooth margins.
A good oral hygiene is significant for minimizing these corrosion processes.

Prepared By: Srushti Desai, Heena Dethariya, Diksha Dobriyal

g.v.black formula for hand cutting instrumrnts



Dental bases

DENTAL BASES

BASES can be considered as restorative substitutes for the dentin that was removed by caries and/or the cavity preparation. They act as a barrier against chemical irritation, provide thermal insulation, and can resist the condensation forces on a tooth when placing a restoration.
Thickness of base: 0.5 mm

ZINC PHOSPHATE

- Zinc phosphate(ZP) is a powder/liquid combination that is an ideal base material since it can provide thermal insulation and will allow the condensation of amalgam several minutes after placement.

CLASSIFIED AS
1)fine grained
2)medium grained
setting time 5 to 9 min **working time** 5min
➢ Uses - 1)Intermediate restoration
2)thermal insulating base
POWDER/LIQUID RATIO
1.4 gm powder to 0.5 ml liquid

ZINC POLYCARBOXYLATE

➢ A material that is comparable to ZOP is zinc poly carboxylate (ZPC).
➢ The important difference is the liquid component. The liquid in ZPC is poly acrylic acid, which is quite viscous.
➢ Zinc poly carboxylate adheres to the tooth via an interaction between the carboxylic acid and the calcium in the dentin.
setting time 6 to 9 min **working time** 2.5 min

POWDER/LIQUID RATIO
1.5 PARTS OF POWDER TO 1 PART OF LIQUID BY WEIGHT

APPLICATIONS
- Metal sub structured porcelain
- Crown and bridges

ZINC OXIDE -EUGENOL CEMENT

They are cement of low strength. They are the least irritating of all dental cements and They are known to have an obtundant effect on exposed dentin.

POWDER/LIQUID RATIO
4:1 TO 6:1 By weight
setting time 4 to 10 min **working time** 45 sec

APPLICATIONS
1)As a protective and sedative lining material.
2)As temporary filling

GLASS IONOMER & RESIN

Glass ionomer is the generic name of the group of materials based on the reaction of silicate glass powder and polyacrylic acid.

APPLICATONS IN DENTISTRY
-Pit and fissure sealant
-In pediatric patient in case of rampant caries

POWDER/LIQUID RATIO 3:1 BY WEIGHT
setting time 5 to 7 min **working time** 2.5min.

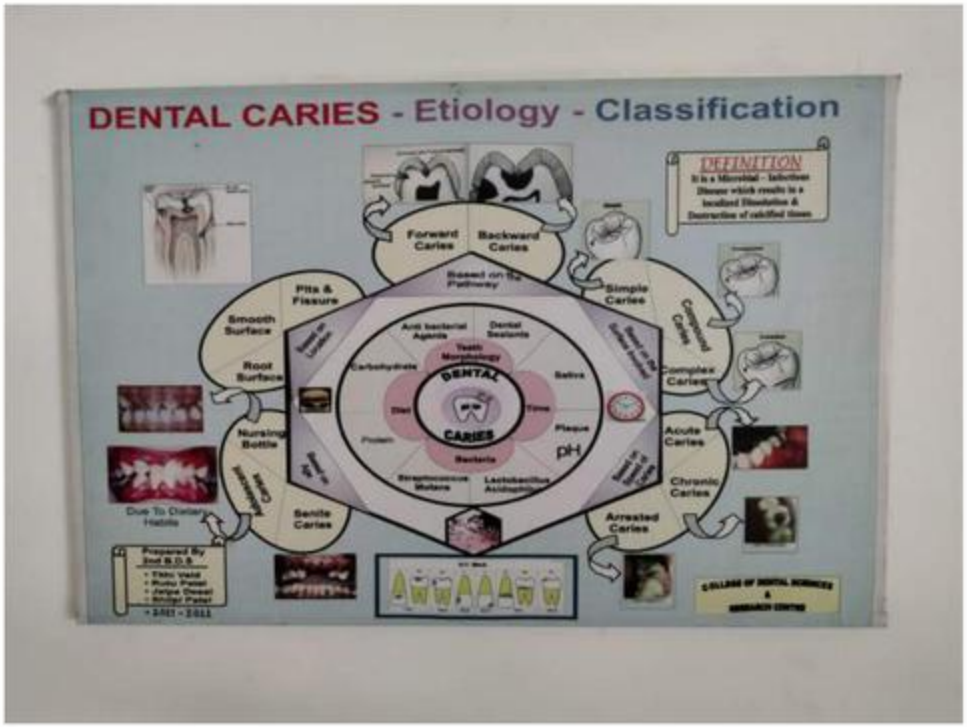
FLOWABLE BASE

SDR exhibits excellent adaptation to the preparation walls owing to its flowable nature, reducing the possibility of Avoid formation on the margins, which could lead to postoperative sensitivity or aesthetic failure of the restoration

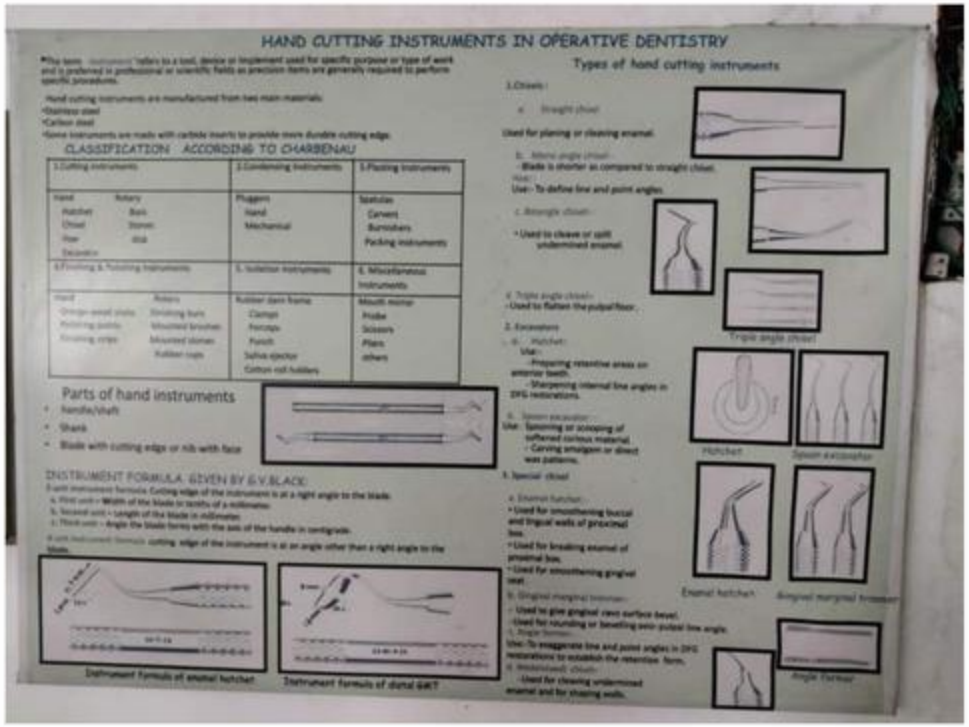
DEPARTMENT OF CONSERVATIVE DENTISTRY & ENDODONTICS

PREPARED BY : 1) Janki Tilva
2) Namrata Trivedi

Dental caries – etiology and classification



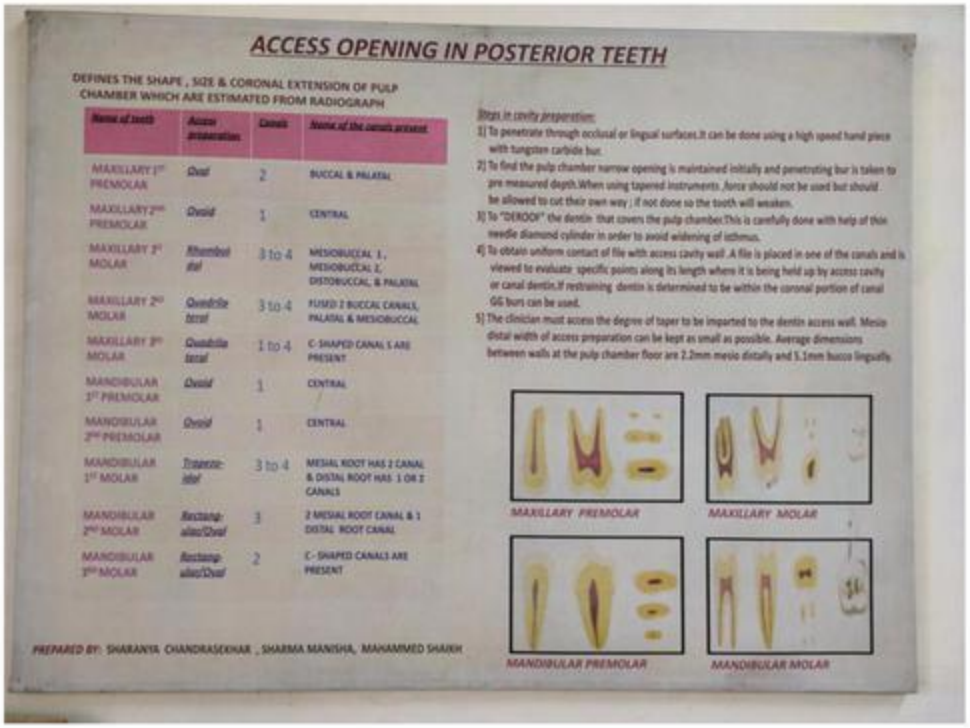
Hand cutting instrumrnts



Diseases of dental pulp

Posters - PG

Access opening in posterior teeth



ACCESS OPENING IN POSTERIOR TEETH

DEFINES THE SHAPE , SIZE & CORONAL EXTENSION OF PULP CHAMBER WHICH ARE ESTIMATED FROM RADIOGRAPH

Name of tooth	Access preparation	Canals	Name of the canals present
MAXILLARY 1ST PREMOLAR	Oval	2	BUCCAL & PALATAL
MAXILLARY 2ND PREMOLAR	Ovoid	1	CENTRAL
MAXILLARY 1ST MOLAR	Rhomboidal	3 to 4	MESIOBUCCAL 1 , MESIOBUCCAL 2, DISTOBUCCAL, & PALATAL
MAXILLARY 2ND MOLAR	Quadrilateral	3 to 4	FUSED 2 BUCCAL CANALS, PALATAL & MESIOBUCCAL
MAXILLARY 3RD MOLAR	Quadrilateral	1 to 4	C- SHAPED CANAL S ARE PRESENT
MANDIBULAR 1ST PREMOLAR	Ovoid	1	CENTRAL
MANDIBULAR 2ND PREMOLAR	Ovoid	1	CENTRAL
MANDIBULAR 1ST MOLAR	Trapezoidal	3 to 4	MESIAL ROOT HAS 2 CANAL & DISTAL ROOT HAS 1 OR 2 CANALS
MANDIBULAR 2ND MOLAR	Rectangular/Oval	3	2 MESIAL ROOT CANAL & 1 DISTAL ROOT CANAL
MANDIBULAR 3RD MOLAR	Rectangular/Oval	2	C- SHAPED CANALS ARE PRESENT

Steps in cavity preparation:

1] To penetrate through occlusal or lingual surfaces.It can be done using a high speed hand piece with tungsten carbide bur.

2] To find the pulp chamber narrow opening is maintained initially and penetrating bur is taken to pre measured depth.When using tapered instruments ,force should not be used but should be allowed to cut their own way ; if not done so the tooth will weaken.

3] To "DEROOF" the dentin that covers the pulp chamber.This is carefully done with help of thin needle diamond cylinder in order to avoid widening of isthmus.

4] To obtain uniform contact of file with access cavity wall .A file is placed in one of the canals and is viewed to evaluate specific points along its length where it is being held up by access cavity or canal dentin.If restraining dentin is determined to be within the coronal portion of canal GG burs can be used.

5] The clinician must access the degree of taper to be imparted to the dentin access wall. Mesio distal width of access preparation can be kept as small as possible. Average dimensions between walls at the pulp chamber floor are 2.2mm mesio distally and 5.1mm bucco lingually.

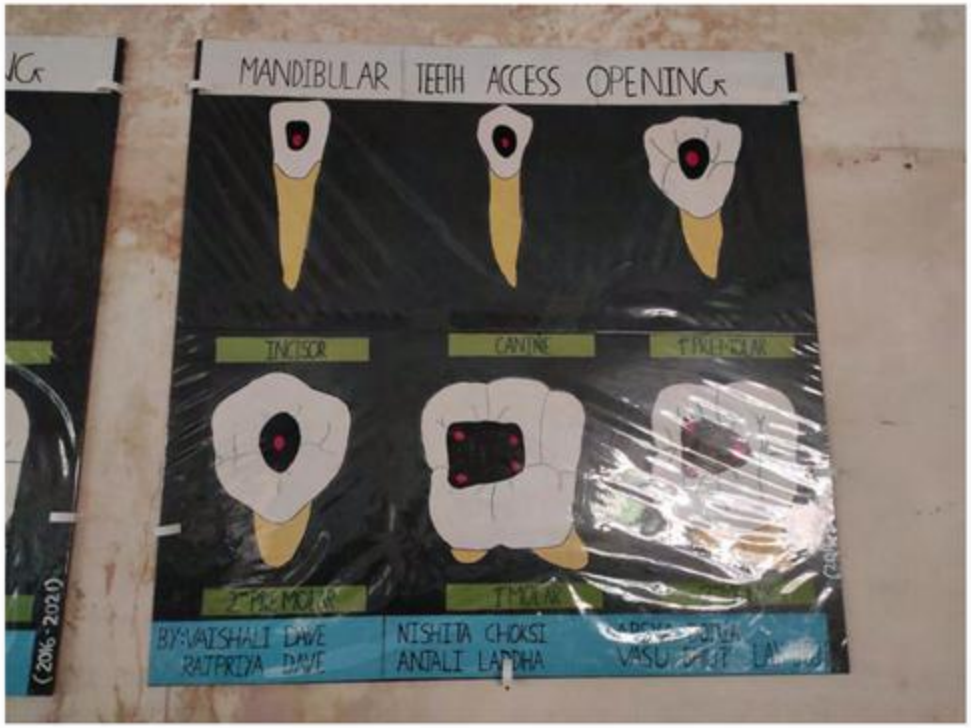
PREPARED BY: SHARANYA CHANDRASEKHAR , SHARMA MANISHA, MAHAMMED SHAIKH

Traumatic injuries

Post and core

Access opening - maxillary teeth

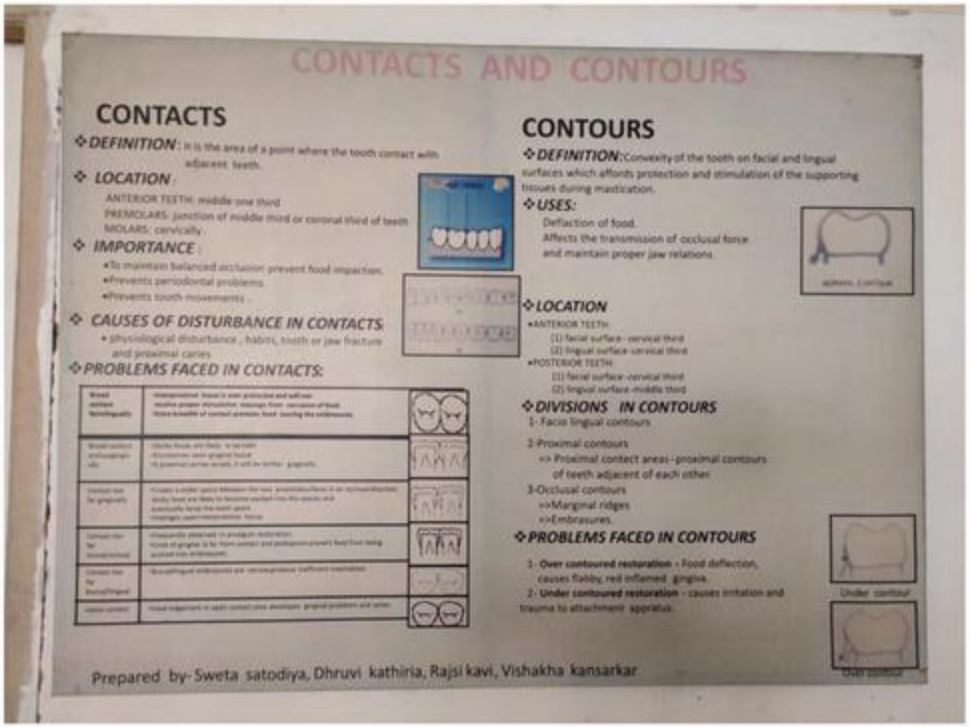
Access opening – mandibular teeth



Maxillary pre-m0lar and molar anatomy

mandibular pre-m0lar and molar anatomy

Contacts and contours



Recent advances in caries detection

Non-carious cervical lesions