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**PAPER DENTAL MATERIAL**

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Qno: (1)

## USES OF Calcium Hydroxide Cements

Answer :- Calcium Hydroxide Cement perform the following functions.

⇒ Endodontic Sealer :-

To be therapeutically effective calcium hydroxide cement must be associated with  $Ca^{++}$  and  $OH^-$ . Therefore to be effective an endodontic sealer based on calcium hydroxide must dissolve.

⇒ Pulp Capping Agent :-

⇒ Calcium hydroxide is generally accepted as the material of choice for pulp capping, histologically there is a complete dentinal bridging with healthy radicular pulp under calcium hydroxide dressings.

⇒ Apexification :-

⇒ In apexification technique pulp canal is cleaned and disinfected, when tooth is free of signs and symptoms of infection the canal is dried and filled with stiff mix of calcium hydroxide and MTA, histologically there is a formation of osteodentin after placement of calcium hydroxide paste.

⇒ Pulpotomy :-

⇒ It is the most recommended pulpotomy medicament for pulpal involved vital young permanent tooth with incomplete apices. A pulpotomy is a removal of a portion of the pulp including diseased aspect.

⇒ Weeping Canal :-

⇒ For such teeth dry the canals with sterile absorbent paper points and place calcium hydroxide in canal, calcium hydroxide converts the acidic pH of periapical tissue in the weeping canal to basic pH.

## Qno:2 Properties Of MTA

Answers:- Initial PH OF 10.2 which rise 12.5 following setting the high PH is theorized to be responsible for the antimicrobial action and biological activity of the materials.

- => Working time 5 minutes.
- => Setting time 3 hours - or 20 minutes.
- => Solubility MTA displays low or nearly no solubility
- => Compressive strength of set MTA is about 70mpa
- => Biocompatible.
- => Good setting ability.
- => Usually a thickness of 3mm to 5mm is sufficient
- => Retentive strength - MTA is not suitable as luting agents.

### 2) Manipulation and Setting Reaction Of MTA:-

The MTA paste is obtained by mixing 3 parts of powder with one part of water to obtain putty like consistency. mixing can be done on paper or on a glass slab using a plastic or metal spatula.

MTA has a PH of 10.2 immediately after mixing and increase to 12.5 after 3 hours of setting which is almost similar to calcium hydroxide.

MTA take longer time to set compared to any other material. The exact time taken to set varies between different studies.

MTA being hydrophilic requires moisture to set. absolute dryness contraindicated, presence of moisture during setting improves the flexural strength of the set cement.



### Qno:3: Manipulation Of amalgam :-

Answers:- Trituration is the process by which mercury is allowed to react with the alloy powder. This procedure allows the rubbing of the surface oxide on amalgam particles. have two process.

⇒ Hand Mixing :-

The disposable capsule serves as a mortar. Some capsules have a cylindrical metal or plastic piece in the capsule, which serves as a pestle. Reusable capsule which serves as the paste.

⇒ Mechanical Mixing :-

⇒ A glass mortar and pestle is used. The mortar has on its inner surface roughened to increase the friction between amalgam and glass surface. Carborandum paste.

⇒ Indications :-

- ⇒ Restoration Of Posterior teeth
- ⇒ In some cases restoration distal surface of the canine.
- ⇒ Class v preparations.
- ⇒ Class vi preparations.
- ⇒ Core build up for badly broken down teeth in the posterior teeth.

⇒ Contraindications :-

- ⇒ when esthetic is important.
- ⇒ patient have a history of allergy to mercury or other amalgam components
- ⇒ Remaining tooth structure requires support
- ⇒ treatment of incipient or early primary fissures caries.

## Qno:4 Composition Of Calcium Hydroxide:-

- => Accelerator Paste:-
- => Alkyl Salicylates 36-42%
- => Zirconium Oxide - titanium Oxide 12-14%
- => Barium Sulphate 32-35%
- => Calcium Sulphate 14-15%
  
- => Base Paste:-
- => Calcium Hydroxide 50-60%
- => Zinc Oxide 10%
- => Zinc Stearate 0.5%
- => Ethylene toluene Sulphonamides and paraffin
- => Oil 39.5%

## => ADVANTAGES:-

- => Initially bactericidal than bacteriostatic.
- => Promotes healing and repair.
- => High pH stimulates fibroblasts.
- => Neutralize low pH of acids.
- => Stops internal resorption.
- => Inexpensive and easy to use.

## => DisAdvantages:-

- => Does not exclusively stimulate dentinogenesis.
- => Associated with primary tooth resorption.
- => may degrade during acid etching.
- => Degrades upon tooth flexure.
- => marginal failure and amalgam condensation.
- => Does not adhere to dentin or resin restoration.

=>  
=>



Qno: 5

## Components Of Composite Resin:-

Answers:- Following are some of the important components:-

- => Matrix.
- => Filler.
- => Coupling agent.
- => Initiators and accelerators.
- => Pigments.
- => Resin Matrix :-
  - => Bis-GMA (bisphenol-A glycidyl methacrylates).
  - => UDMA (urethane dimethacrylates).
  - => TEGDMA (triethylene glycol dimethacrylates).
- => Uses Of Composite Resins :-
  - => Flowable.
  - => Condensable.
- => Flowable Composites
  - => Has a reduced filler contents to make the material "Flowable"
  - => Indicates for Class I restoration in gingival class.
  - => Used as a pit and fissure sealant.
- => Condensable Composite :-
  - => Has a filler that inhibits the filler particles by sliding to one another
  - => Stiffer, thicker feel.

**THE END.**