

Subject Dental Material

instructor: Mr. Us man

Midterm Assignment

30 Marks

Department AHS

Semester DT 4th

Muhammad Tahir ,ID NO,15083. Semester DT 4.

-
-
- **Attempt all questions, all questions carry equal marks.**
-
-

Q1. Discuss glass ionomer cement briefly?

Ans :These cements are act to provide colored and they are introduced by Wilson and Kent in1972.These material are always depend over the reaction of polyacrylic acid and silicate glass powder.They make bond with tooth structure and release fluoride.

CLASSIFICATION

A] TYPE 1.It used for luting.

B] TYPE 2.It is used for restoration.

C] TYPE 3.It is used to make a liner bases of cavity.

D] TYPE 4. Fissure and sealent.

E] TYPE 5 .Used as a orthodontic cement.

F] TYPE 6.For core build up.

COMPOSITION

They are supplied in powder and liquid nature,but may be maxed together for clinical uses.

POWDER ;

Sodium floride 9.3 percent

Alumina floride 1.6 Percent

Calcium floride 15.7 percent

Alumina28.6 percent.

Silica 41.9 percent.

LIQUID

Polyacrylic acid

Tartaric acid

Water

SOLUBILITY AND DISINTEGRATION

At first solubility is high due to leaching of intermediate product. The setting reaction completed within 24 hr. Necessary for all to protect the cement from saliva during this period.

MANIPULATION

First you prepare the surface of tooth then start mixing. Must protect your cement during setting time. After setting protection is necessary.

PROTECTION OF CEMENT DURING SETTING

They are very sensitive to air and water during setting. Immediately after placement with cavity, pre-shaped matrix is applied to it.

FINISHING

Excess materials must be trimmed from margin. Hand instrument are preferred to rotary tools to avoid ditching.

PROTECTION OF CEMENT AFTER SETTING

Before dismissing the patient, restoration is again coated with protective agent to protect trimmed area.

.....
Q 2 : Differentiate permanent cement , luting agent and temporary cement ?

Ans ; PERMANENT CEMENT

They are used for long duration of cementation of cast restoration like crowns, inlays, bridges, laminate veneers and orthodontic fixed appliances.

TEMPORARY CEMENT

They used for short duration of restoration. Most commonly, temporary cement are selected for placement of provisional coverage.

LUTING AGENT

They are used for adhesive bonding with tooth structure. Luting agents are designed to be either permanent or temporary.

.....
.Q:3 Write a detail note on manipulation, advantages and disadvantages of Zinc Oxide Eugenol cement ?

Ans :MANIPULATION

The ratio of powder and liquid should be 1.0 parts of powder to 1 parts of liquid. You must use a small area of pad for manipulation. All the instrument should be cleaned before the cement sets on them.

MIXING TIME

Mixing time should be 2 to 3 minutes.

SETTING TIME

The surface of material hardens take place 20 to 30 minutes, but complete hardening occurred within 3 to 3 hours.

ADVANTAGES

They are inexpensive and easy for manipulation. They have a good dimensional stability and surface detail. They must be added with fresh zinc oxide eugenol. They are non toxic.

DISADVANTAGES

These materials are unable to use in deep undercuts. They are set with short time in thin section. Some patients have allergy from eugenol.

.....
.Q 4: Briefly explain polycarboxylate cement ?

Ans :These materials are the first cements which are developed with the property of adhesive bond formation with tooth. They are available in powder and liquid form.

COMPOSITION

POWDER

Zinc oxide 89 percent

Magnesium oxide 9 percent.

Barium oxide 0.2 percent.

Other oxide 1.4 percent.

LIQUID

Polyacrylic acid 32 to 48 percent.

Other carboxylic acids 30 to 50 percent such as itaconic acid.

Properties

They have a PH level 1.7 which is more bio compatible to the pulp that is similar to ZOE cement. These material working time is 2.5 minutes.

MANIPULATION OF ZINC POLYCARBOXYLATE CEMENT

The ration of powder and liquid must be 1.5 parts of powder and one part of liquid. You must use a small surface of pad for manipulation. The mixing time of these materials are required 30 to 60 seconds. Working time required 2.5 minutes and setting time is 6 to 9 minutes.

USES

They are used for permanent cementation of crowns, bridges, inlays and onlays.

ADVANTAGES

They have low irritancy and more adhesion to tooth. The manipulation of these materials are easy. They have greater tensile strength.

DISADVANTAGES

They are poor esthetic in nature and have high solubility.

.....
Q :5; Distinguish liquid powder ratio of Zinc phosphate cement, also write its uses and advantages ?

Ans ;It is a oldest cement used in dentistry for luting permanent metal restoration. These material are present in powder and liquid form which are mixed by hand. Zinc oxide is the more reactive agent in powder nature.

POWDER

Zinc oxide

Magnesium oxide

Other oxides and flourides.

LIQUID

These material cement consist of phosphate acid and 30 to 40 percent water. Zinc oxide and aluminum hydroxide act as buffering agent.

USES

They are used for final cementation of cast metal restoration and cavity base. These material are used as a temporary filling material. These cements used for cementation of orthodontic bands.

ADVANTAGES

They have inconspicuous appearance. These materials have low thermal conductivity beneath metallic restoration. They have speed and ease of usage.

.....

