Treatment of Deep Caries , Vital Pulp Exposure

Treatment of the Deep carious lesion:

Children and young adults who have not received early and adequate dental care and optimal systemic fluoride often have deep carious lesions in the primary and permanent teeth. Approximately 75% of the teeth with deep caries have been found from clinical observations to have Pulpal exposures.

Exposure of the dental pulp exists when the continuity of the dentin surrounding the pulp is broken by physical or bacterial means leading to direct communication between the pulp and external environment.

The objectives of pulp therapy:

1- Preservation of the arch space.

2- Enhance aesthetic, mastication, prevent aberrant tongue habits, aid in speech and prevent psychological effects associated with tooth loss.

3- Helps in maintenance of healthy oral environment, relief of pain. contributes to development and maturation of the child, growrth of facial skeleton .

4- Prevention of deleterious effects on the succedaneous tooth, the periapical tissue and on the systemic condition of the child.

Gross Caries Removal:

Mass Excavation technique:

The procedure in which only, the gross caries is removed from the lesion removal of the gross caries with large round burs or sharp spoon excavators and the cavity is sealed for a time with a bactericidal agent in primary or young permanent tooth.

Only teeth with deep caries that are free of symptoms of painful pulpitis should be selected for this procedure.

Indirect Pulp Therapy

Definition: The clinical procedure involves removal of the gross caries with large round burs or sharp spoon excavators, allowing sufficient caries to remain over the pulp horn to avoid exposure of the pulp.

The procedure:

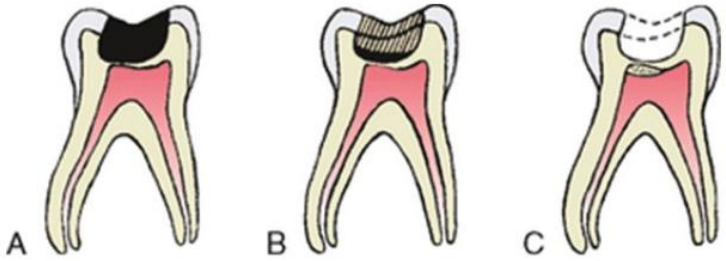
1- Usually results in some discomfort to the child therefore it is advisable to use a local anesthetic.
2- The walls of the cavity are extended to sound tooth structure with a fissure bur because carious enamel and dentin at the margins of the cavity will interfere with the establishment of an adequate seal during the period of repair.
3- The remaining thin layer of caries in the base of the cavity is dried and covered with bactericidal dressing of calcium hydroxide.

4- The treated teeth should not be reentered to complete the removal of caries for at least 6 to 8 weeks. During this time the caries process in the deeper layer is arrested.

5- After the minimum 6 to 8 waiting period. The tooth is anesthetized and isolated with the rubber dam, and the temporary restorative material and calcium hydroxide dressing are removed.

6- Careful removal of the remaining carious material, sclerotic may reveal a sound base of dentin without an exposure of the pulp, a liner material contain calcium hydroxide is applied.

7- Tooth is restored in a conventional manner.



Selection criteria:

- No history of spontaneous, unprovoked toothache (The tooth may have had a history of toothache associated with eating, as long as pain subsided immediately after removal of the stimulus).
- No tenderness to percussion.
- No abnormal mobility.
- No radiographic evidence of radicular disease.

- No radiographic evidence of abnormal internal or external root resorption.

Treatment was judged successful if:

- The restoration was intact.
- The Tooth had normal mobility.
- The tooth was not sensitive to percussion.
- The tooth had no history of pain after treatment.
- There was no radiographic evidence of abnormal root resorption and no radiographic evidence of radicular disease.
- There was no clinical evidence of direct pulp exposure when the tooth was reentered and the residual carious dentin was examined or excavated.

The procedure reduces the risk of direct pulp exposure and preserves pulp vitality.

Vital Pulp Exposure:

Direct pulp capping:

Definition: The placement of a medicament material on a pulp that has been exposed in course of excavating the last portions of deep dentinal caries or as a result of trauma.

Objective:

To creat new dentin in the area of the exposure and subsequent healing of the pulp.

Direct Pulp Capping procedures should be limited to:

a. Small exposure that have been produced accidentally by trauma or during cavity preparation.

b. True pinpoint carious exposures that are surrounded by sound dentin in asymptomatic vital teeth .

Exposure should have bright red hemorrhage that is easily controlled by dry cotton pellet with minimal pressure

Selection criteria:

1. Teeth in which there is an absence of pain with the possible exception of discomfort caused by the intake of food.
2. Lack of excessive bleeding at the exposure and the amount of bleeding that would be considered normal in the absence of a hyperemic or an inflamed pulp.

Notes:

- All peripheral carious tissue should be excavated before one begins to excavate the portion of the carious dentin most likely to result in pulp exposure.
- Calcium hydroxide is the material of choice for pulp capping normal vital pulp tissue.

- The possibility of its stimulating the repair reaction is good.
- All pulps capped with Dycal responded satisfactorily with complete bridging.
- There was no evidence of inflammation of the pulp or obliteration of the canal.