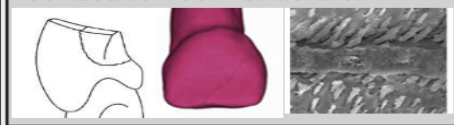
39th IACDE National Conference

TOOTH FRAGMENT RE-ATTACHMENT : RECONNECTING THE BROKEN BONDS

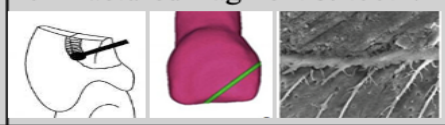
Traumatic dental injuries are disruptive & distressing endodontic emergencies.
Fractures of anterior teeth are most common.
Coronal fractures of permanent incisors is 18-22%.
Road Accidents, accidental falls, fights, contact sports are common cause of Dental trauma.
Aesthetic, functional and phonetic problems occur.

TYPES OF RE-ATTACHMENT TECHNIQUES

Simple re-attachment
Fractured Fragment is directly bonded to Tooth structure.



External chamfer 1.0 mm depth Chamfer margin is placed on fractured fragment & tooth.



Over-contour; Re-attachment done with composite → 1x1mm Depth orientation prep is done → Final composite placed.

Internal Dentinal Groove: Dentinal groove (1x1mm) is placed in the # fragment & tooth struture before reattachment.

❑ Method of Re-attachment

1. Fractured fragment - stored in saline to prevent it from Dehydration & brittleness.
2. Fragment and tooth surface are prepared using selected Re-attachment preparation techniques.
3. The Tooth surface and Fragment are coated with Dentin bonding agent (Self-etch/Total etch mode).
4. Composite (Nanohybrid or Flowable) Resin are then placed and Light cured.
5. Finishing & Polishing is done to improve the Esthetics of the tooth.

Indications- Fracture not Involving pulp, Full # Fragment available, Absence of root fracture, Tooth in normal occlusion

Advantages- Original anatomical form of tooth is restored immediately, Colour & Surface Texture are maintained, Psychologically better, Economical, Its Non-invasive with little chair-side time for complete procedure, Improved esthetics.

Shear Bond Strength; Studies showed Highest Fracture Resistance by Over-contour Preparation using in Total-etch mode and restored with Nano-Hybrid composite bcoz :-

Over-contour preparation increases Adhesion area, Equal distribution of forces. **Total-etch involves** demineralization of dentin by etchant, DBA placed followed by- **Nanohybrid composite restoration** which contains Nanoparticles for better adhesion.

Fracture Resistance of Nanohybrid composite is higher than Flowable composite, because of presence of nanoparticles of size 40nm and higher filler content which increases bond strength and durability. FR of re-attachment techniques is in order of :- Over-contour > Internal dentinal groove > Chamfer Prep > Simple attachment.

NOTHING IS UNFIXABLE, Clinicians should adopt a suitable Re-attachment technique, Better choice of Adhesives & Resin cement helps to achieve satisfactory outcome in terms of Retention & Aesthetics of Fractured tooth Re-attachment procedure. Bcoz; When you Lose Something -its Not a Loss, instead an Opportunity to Learn Newer Techniques to Rebuild the Broken Bonds..... :)