

Bio-ceramic sealant - The Game Changer!

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Fundamentals of endodontics are to create a healthy environment to allow periapical healing. Cleaning and shaping is paramount in Endodontics but obturation offers longevity of the Endo therapy. Hermetic seal is important to avoid micro leakage and it improves prognosis.

In the year 1984, cleaning and shaping was deficient due to non-availability of tapered instruments and lack of non-degradable sealant. Understanding of essentials of cleaning shaping has given complete confidence to the clinician. Till year 1996, we used zinc oxide eugenol as a sealant for obturation.

After 27 years of practice with modern Endodontics, Mineral Trioxide Aggregate (MTA) has emerged as a game changer material in Endodontics. It is non-degradable and induces healing.



Fig. 1: Conventional Sealant - Zinc Oxide Eugenol Sealant



Fig. 2: Game Changer Sealant - Bio-ceramic Sealant

Ideal properties of a sealant:

1. Easy to mix.
2. Easy to handle.
3. Primary setting time
4. Secondary setting time
5. Radio opaque
6. Non degradable
7. Non-soluble in water
8. Anti-bacterial Induces healing.

To fulfill these above requirements, we struggled to find such material. MTA which was available in India since 1996 was difficult to handle due to powder and liquid form. Zinc oxide eugenol was very popular, and it was fulfilling all the requirements except it is soluble in water and degradable in periapical fluids. Resin sealants were popular in India from year 2000 to 2022. But resin sealant has no anti-bacterial action and healing effect.

Mineral Trioxide Aggregate (MTA) is a combination of silica with any three ions Calcium, Phosphorus, and aluminum/iron. This combination gives healing effect on the periapical lesion and antibacterial action in intracanal and lateral canals. Limitations of MTA packable are overcome by MTA bio ceramic sealer by adding vehicle in the composition.

Bio-ceramic sealant fulfills all the requirements of an ideal sealant like non-degradable and antibacterial action.

Clinical usage of MTA can be classified into two applications: -

1. Packable MTA
2. Sealant MTA – Bio ceramic sealant

MTA packable features:

1. Pulp capping
2. Perforation
3. Wide apical foramen (more than size 80)
4. Internal resorption
5. External resorption
6. Retroseal during apical surgery

MTA Sealant / Bio-ceramic Sealant

Usage and applications: -

1. Routine sealant
2. To fill lateral canals and accessory canals
3. Achieving puff BC sealer at the apex

Mindset of a clinician should be focused. The first attempt is the final attempt to seal the apex. Overfilled canals are highly recommended in every Canal which gives better prognosis. Since obturation is a blind procedure, achieving puff (overfilled apex) gives acknowledgement from the teeth to the clinician that he/she has reached the apex, cleaned the apex three dimensionally and filled the apex three dimensionally. With this philosophy we have seen that clinical success has increased dramatically. Prime Dental bio-ceramic sealant is excellent in these properties and very economical for day-to-day use.

Since bio-ceramic sealant is non degradable it is very difficult to remove it after obturation. So, retreatment is difficult.

But once you're first attempt is precise, then you don't need to think of a second attempt. First attempt should always be the final and the last attempt.

MTA powder in liquid form was available earlier but could not be used as a sealant due to lack of flow. But today, with the introduction of bio-ceramic sealant by prime dental India, we can choose MTA as a sealant and achieve miraculous success in Endodontics. These sealers are made under "Make in India" mindset and are very economical.

Earlier, packable MTA was very expensive and not applicable in Indian clinics due to economical limitations but MTA packable which is introduced by prime dental India is very economical and applicable in Indian clinics.

Conclusion:

Clinicians should always have mindset to make the first attempt as the final attempt. One should not think of a second attempt. Bio-ceramic sealant will boost longevity of endodontic therapy due to non degradable and anti-bacterial.