



# Biodentin- A Bioactive Dentin Substitute in Operative Dentistry

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For Many decades since 1928 calcium hydroxide has been considered as standard material for maintaining the vitality of pulp since it is capable of stimulating tertiary dentin formation. But the structure induced by calcium hydroxide contained several cell inclusion called tunnel defect.<sup>1</sup> This defected region is regarded as undesirable areas facilitating the migration of the micro organisms towards the pulp and predisposing the tooth to an endodontic infection. However, it has some drawbacks like poor bonding to dentin and material resorption.<sup>2</sup> Later, MTA introduced by Torabinejad M, in 1990 is used as a material of choice for all dentinal defect due to their biocompatibility & ability to induce Calcium phosphate precipitate at interface to periodontal ligament & bone tissue repair. However there are some drawbacks of this material such as slow setting kinetics and complicated handling properties<sup>3</sup>.

The minimal invasive philosophy has been a shift towards the biological non-operative management of teeth. The intervention when required has become more effective and predictable with the advent and development of technologies to support their approach. One such material is biodentin, known as 'dentin in a capsule' which overcome the drawbacks of calcium hydroxide and Mineral trioxide. Biodentin has a potential to revolutionize the management of the deep carious cavity in operative dentistry whether or not pulp is exposed. When pulp is exposed it acts as an excellent agent for direct pulp capping where it can affect healing when placed directly in contact with the pulp by enhancing the bioactive and biocompatible characteristics of the material.<sup>4</sup>

Biodentin has role on growth factors with TGF-beta<sub>1</sub> being the most important one. These factors main role is the signaling of reparative dentinogenesis. Though accumulation of further data is necessary, biodentin holds promise for clinical dental procedures as a biocompatible and easily handled product with short setting time. As more research is performed regarding this interesting alternative to MTA, we will be provided with more reliable data and more confident in implementation of biodentin into routine clinical application.

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