The polymer burs (Smart burs)

Sophana J1, Bikash Jyoti Borthakur2, Ganesan S3, Swathika B4

1-4Department of Conservative Dentistry and Endodontics, Mahatma Gandhi Post Graduate Institute of Dental Sciences, Puducherry, India.

Commentary:
Minimal intervention dentistry is a modern dental practice, that attempts to preserve as much natural tooth structure as possible. This concept aims at early detection and intervention of dental caries and limiting the caries removal to infected dentin, thereby conserving healthy tooth structure 1.

The most common instruments used for caries removal are the carbide burs and diamond abrasive points. However, they do not facilitate the differentiation between carious and normal dentin during cavity preparation. This results in excessive loss of sound tooth structure 2. The preservation of caries affected dentin is encouraged as it is less frequently or, at best, not contaminated with bacteria 3. This inner layer is re-mineralizable because of limited collagen degradation.

Polymer burs (Smart burs) are a unique, selective caries removal rotary instrument made of a medical-grade polymer. The hardness and wear resistance of the polymer burs are such that, only the soft caries-infected dentin can be removed, leaving the caries-affected dentin intact. The bur dulls and wears away, losing its cutting efficiency on reaching the caries-affected dentin. They are determined for single use only. They are self-limiting and work on a low-speed handpiece 4. Unlike the conventional carbide burs, excavation is carried out from the center of the carious lesion, to avoid premature contact with the harder enamel, and then progressed to the periphery of the lesion 5.

References

Keywords: Caries-Infected Dentin; Differential Hardness; Minimally Invasive Dentistry; Smart Burs; Self-limiting.

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Corresponding Author:
Sophana J,
Department of Conservative Dentistry and Endodontics,
Mahatma Gandhi Post Graduate Institute of Dental Sciences,
Puducherry, India.
Email id: shobanajkmr@gmail.com

Vol 9, Jul-Dec, Poster 23