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A new paradigm for obturation of root canal system

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Using E glass fibers, a light transmitting root canal filling material (GF) was manufactured as a prototype for research purpose. GF cones are of different ISO standardized sizes. The GF transmits light to the apical area of the canal allowing the future use of light cure self adhesive sealers and better polymerization of dual cure resin sealers. It was found that the GF seal the root canal efficiently. The ability of GF to reinforce weakened root canal treated tooth structure and its resistance to dislodgment were evaluated. Based on the results of these studies, it was concluded that GF provided tooth reinforcement equivalent to that of fiber reinforced posts and superior to metallic posts. Moreover, GF exhibited far better resistance to dislodgment than both posts. Based on this evidence, GF succeeded to act simultaneously as a root canal filling material and a post in maxillary central incisors. Another study was conducted to compare the bond strength to root canal dentin of GF and MetaSeal to other filling systems. GF showed the highest total bond strength mean value which was significant from other groups. Despite the obstacles, the bonding inside root canal is facing these days, the future lies in it. GF seems to be a promising system; however, further investigations were conducted to evaluate other parameters of this root canal filling material. These include cytotoxicity, ease of removal and degree of polymerization of resin sealers after light transmission. The results of all these researches will be presented in the lecture.

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