

## 72. USES OF MINERAL TRIOXIDE AGGREGATE IN ENDODONTIC TREATMENT



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**Introduction.** Mineral trioxide aggregate (MTA) is an endodontic cement with hydrophilic and biocompatible properties having the ability to stimulate healing and osteogenesis. Its composition includes a fine powder of trioxides such as tricalcium oxide, silicon oxide and bismuth oxide, along with other hydrophilic particles such as tricalcium silicate and tricalcium aluminate, which are responsible for the chemical and physical characteristics of MTA. Mineral Trioxid Agreggant has been proposed as a preferred option in a variety of procedures including apical filling, pulp capping, pulpotomy for primary teeth, apical barrier formation in teeth with necrotic pulp and open tips, perforation repair and apexification. For each of these applications, numerous clinical studies have been conducted to evaluate the performance of MTA.

**Case statement.** Evaluation of the effectiveness of using Mineral Trioxide Agreggant (MTA) to optimize endodontic treatment.

**Discussions.** Evaluation of using Mineral Trioxide Agreggant (MTA) to develop an optimal algorithm in endodontic treatment found that this sealing material of root canals have superior biocompatibility properties and interact effectively with dental tissue. The study included patients with pulpal disease caused by dental caries, and after clinical and paraclinical examinations, endodontic space damage was observed. MTA was the preferred optimum for endodontic treatment, demonstrating good adaptability and notable healing capacity in interaction with dental tissues. These results support the use of MTA in optimizing endodontic treatment, providing significant benefits in the context of acute pulpal disease. The results obtained after an effective root canal treatment were analyzed by using clinical and paraclinical tests (radiography), thus demonstrating the effectiveness of mineral trioxide agreggant (MTA) in smoothing and sealing the canals.

**Conclusion.** Mineral Trioxid Agreggant (MTA) has been successfully used in a number of endodontic procedures such as apical filling, pulp capping, pulpotomy for permanent teeth, according to radiographic data, showed uniformly filled canals without any gaps.