Dental perforation treatment with MTA REPAIR HP

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Dental perforation can be conceptualized as a mechanical or pathological communication between the root canal system and the outer surface of the tooth. The occurrence of iatrogenic perforations varies between 2 to 12% in cases of endodontic failure and are often associated with risk factors such as: dental anatomy, tooth position in the arch and operator experience (1)

The interrelationship between the size and position of the perforation and its degree of contamination may result in numerous clinical variations requiring specific treatment for each case. However, in all cases, 3 points are critical and should always be taken into consideration: 1) preview of the defect and its accessibility through the canal; 2) decontamination of the defect region and 3) use of suitable materials for sealing the perforation (2). Among the materials used in the repair, the only one that offers support in the literature for biocompatibility issues (inert and absence of toxicity after 24 hours) and bioactivity (induces formation of hard tissues) is MTA. Siew et al (2015) reports after literature review using clinical studies, that MTA should be the material of choice for perforation treatment (3).

However, MTA presents some disadvantages such as: i) difficulty of insertion and manipulation and ii) promotes color change of the dental element. A new type of MTA-based material was recently launched in the market.MTA REPAIR HP— "High plasticity" MTA (Angelus ®, Londrina, PR, Brazil), aiming to circumvent these difficulties. The new formula keeps the entire chemical and biological characteristics of original MTA, however the physical properties have changed resulting in a more plastic material for easy manipulation and insertion. Moreover, the new formula uses a new radiopacifier - Calcium Tungstate (CaW04) - instead of bismuth oxide, therefore, can prevent tooth discoloration (4)

This clinical case describes the use of the new MTA for treatment of pulp chamber perforation of an upper first molar that occurred shortly after the access surgery in the furcation area.

References

1. Toure B, Faye B, Kane AW, et al. Analysis of reasons for extraction of endodontically treated teeth: a prospective study. J Endod 2011; 37:1512–5.
2. Zuolo ML, Kherlakian D, de Mello JE, Fagundes MIRC, Carvalho MCCC. Reintervenção emEndodontia. Quintessence Ed Ltda. 3 ed 2017.
3. Siew K, Lee AHC, Cheung GSP. Treatment outcome of repaired root perforation: A systematic review and meta-analysis. J Endod 2015; 41:1795-1803.
4. Angelus. MTA REPAIR HP. http://angelus.ind.br/MTA-REPAIR- HP-292.html. Accessado em Agosto 4, 2017.

Captions

Fig. 1 - Female patient referred to the dental office for evaluation and treatment of recent perforation, without the presence of lesion, performed during access surgery in tooth 26. Initial x-ray

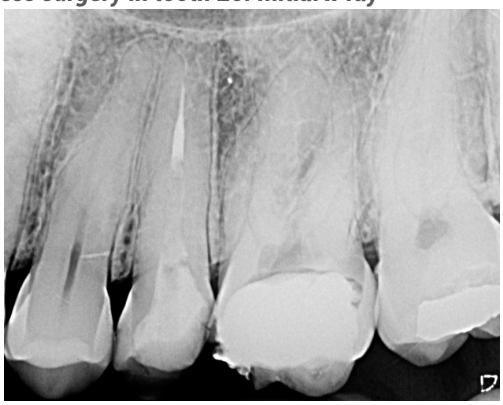

Fig. 2 - Clinical photo with x8 magnification shortly after removing the temporary sealing. Observe the palatine canal with bleeding (black arrow) and the furcation perforation (white arrow) not associated with bone loss in the region

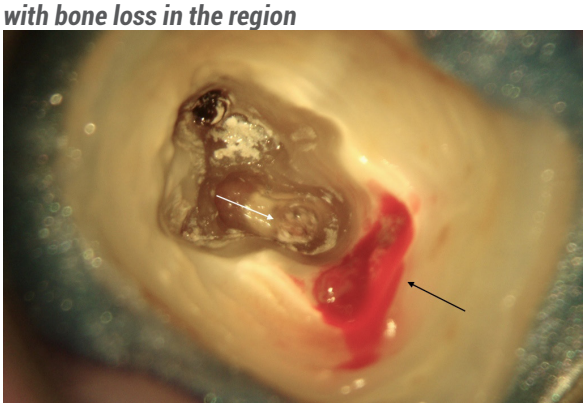

Fig. 3 - After cleaning the cavity and treating the canal, the defect was filled with MTA Repair HP (arrow). From a clinical aspect, the new MTA was easily placed and accommodated in the defect region

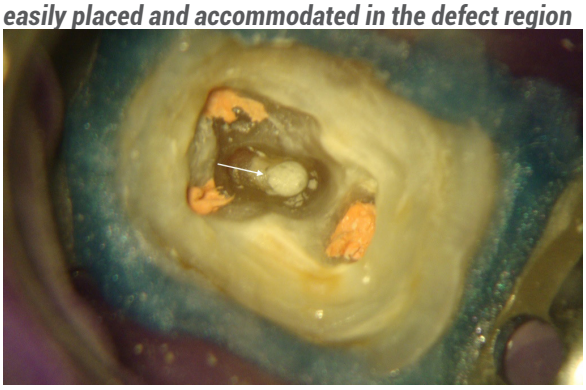

Fig. 4 - Filling the area with glass ionomer

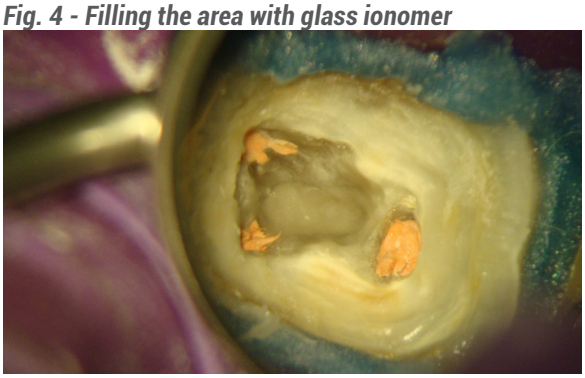

Fig. 5 - Final radiography

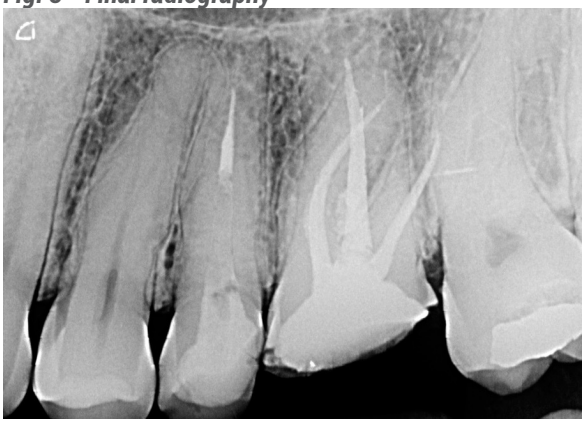

Fig.6 - 13-month control radiography showing normal periradicular tissues with final restoration in position