Journal of Dental and Oral Health

ISSN: 2369-4475 Editorial

Biological Consideration for Nonsurgical Repair of Furcation Perforation

This article was published in the following Scient Open Access Journal:
Journal of Dental and Oral Health
Received October 28, 2015; **Accepted** November 02, 2015; **Published** November 09, 2015

Hatem Alhadainy*
Department of Endodontics, University of Tanta, Egypt

Root perforation is an artificial opening occurs in the pulp wall creating communication between the pulp and the exterior. Traumatic (iatrogenic) perforations are due to lack of attention given to details of dental anatomy and failure to consider its variations by the clinician. Perforation of a pulp chamber floor usually occurs due to inattentive access opening or the bur is not properly angulated in relation to the long axis of the tooth [1].

Existing perforating can be detected as the presence of serous exudate in the perforation site, sensitivity of the involved tooth to percussion, and chronic inflammation of the gingiva. The presence of a sinus tract or the appearance of localized problems such as pocket formation or furcation involvement following an apparently adequate endodontic therapy may indicate the existence of perforation [1].

Prognosis of perforation depends on time elapsed before filling the defect, location and size of the perforation, adequacy of seal, and repair material. Different materials have been used for nonsurgical repair of perforation defects such as amalgam, gutta percha, calcium hydroxide, and MTA (Mineral trioxide aggregate). Repair material extrusion into the periodontal space can be controlled using bioinert matrices such as indium foil, dentin chips and calcium hydroxide. In addition, perforations to be filled with blood or Teflon discs whereas hydroxyapatite or tricalcium phosphate matrix can be used without internal matrix [2].

The objectives of repairing furcation perforations are to seal the dentin defect and provide suitable conditions for formation of a new periodontal attachment. Some materials may provide adequate seal but may interfere with the formation of periodontal reattachment due to their extrusion into the furcation area. Periodontal reattachment did not occur when materials like amalgam, gutta percha, or calcium hydroxide were used for perforation repairs. Materials such as hydroxyapatite or plaster of Paris may initiate formation of new bone and periodontal attachment but cannot adequately seal the dentin defect. This may result in leakage of bacteria and then by-products into the lesion and failure, especially the perforation is connected to the oral cavity [3].

Since the furcation perforation involves different types of inter-related tissues, each tissue within the defect should be considered separately. Alhadainy et al. [3,4] suggested the use of artificial floor technique for repairing furcation perforations considering the periodontal wound and the dentinal wound as separate identities. Calcium sulfate (plaster of Paris) was used under glass ionomer to repair furcation perforations. Plaster of Paris is stable, biocompatible, readily available, easily sterilizable, and shows rapid rate of resorption coinciding with the rate of new bone growth. It also accelerates the rate of mineralization of the new bone by providing a ready source of calcium ions for early mineralization process. Calcium sulfate acts as bone barrier, aids guided bone regeneration and excludes epithelial tissue from the site of bone formation. This may help in avoiding the formation of periodontal pockets and allows for periodontal reattachment.

References

1. Alhadainy HA. Root Perforation. A review of literature. *Oral Surg Oral Med Oral Pathol.* 1994;78(3):368-374.
2. Alhadainy HA, Himel TV. Evaluation of sealing ability of amalgam, Cavit, and glass ionomer cement in the repair of furcation perforation. *Oral Surg Oral Med Oral Pathol.* 1993;75(3):362-366.

***Corresponding author:** Hatem Akhadainy, Professor and Head, Department of Endodontics, University of Tanta, Egypt, Email: alhadainy@gmail.com

3. Alhadainy HA, Himel VT, Lee WB, Elbaghdady YM. Use of a hydroxylapatite-based material and calcium sulfate as artificial floors to repair furcal perforations. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1998;86(6):723-729.

4. Alhadainy HA, Himel VT. An in vitro evaluation of plaster of Paris barrier used under amalgam and glass ionomer to repair furcation perforations. *J Endod.* 1994;20(9):449-452.