Hemisection and Root Amputation: Report of a Case

SUMMARY

Root amputation refers to the removal of one or more roots of a multi-rooted tooth while the other root is retained. Such procedures are usually more complicated than the extraction of the tooth. Based on the literature data, we have practiced this method in different teeth in patient of different ages. We have applied root amputation in altogether 10 multi-rooted teeth, 6 mandibular and 4 maxillary molars. Here we are reporting one of these cases.

Keywords: Root Amputation; Furcation

Introduction

Endodontic surgery with interventions like root amputation has been estimated as a treatment method that belongs to endodontic therapy. The technique of root amputation and its use has been described in the literature a long time ago. Even Black and other authors in the 18th century have suggested its use. It comprises the removal of one or more roots of a multi-rooted tooth, while the other root is retained. Indications and the techniques of this kind of treatment of multi-rooted teeth have been already described 1-3.

The improvement of the technology and new medications that are used today in endodontics for treating periapical lesions have made possible to treat even complex root canals easily. However, a magic medication is not yet found to overcome some problems connected with a complex root canal morphology without surgical intervening. The difficulties that we find during the treatment of these canals are many and different, but other treatment alternatives, such as tooth hemisection, to escape the need for tooth extraction.

We have practiced this method in different teeth, in patient of different ages. The indication for the use of this method were many, but we have grouped them in 2 principal categories: (1) Periodontal indications (severe vertical bone loss involving only 1 root of the multi-rooted tooth); (2) Endodontic indications: (periapical lesions in multi-rooted tooth where there are anatomic difficulties for a successful treatment, severe caries lesion at the level of the tooth neck or in the furcation that are difficult to be treated, the failure of the previous endodontic treatment, or in the case of a vertical fracture of 1 root with a hopeless prognosis.

We have applied root amputation in 10 multi-rooted teeth, 6 mandibular and 4 maxillary molars. The aim of this report was to present an interesting case of root amputation applied to a 23-year-old patient.

Report of a Case

We are presenting here with figures of an interesting case of root amputation applied to a 23-year-old patient. All phases of the procedure are presented in figures 1-7.

Discussion

A knowledge of root anatomy is very important to indicate and perform the procedure of root amputation. The radiogram orientates us for the right topography of the roots. Canal filling of the remaining root should be placed before the surgery. After the crown is filled with amalgam (radio-opaque), vertical cut method should be utilized with a long shank, tapered fissure carbide bur in the air-rotor to section through the entire crown and root.
to the furcation as to gain a complete root separation. A deep preparation is required before we use the elevator. The forceps should be position parallel to the root body, and a minimal force should be applied for its removal. The side of the left part of the crown should be accurately smoothed and prepared for the temporary crown.

Figure 1. The radiography before (a) and after (b) root amputation

Figure 2. The tooth before root amputation.

Figure 3. The filling of the remaining root.

Figure 4. The tooth after root amputation

Figure 5. The extracted root.
Before starting the amputation procedure, the following cautions should be observed:
1. Does the remaining root have sufficient stability, especially if it is short and thick?
2. Is the remaining furcation clean and healthy?
3. Does the patient apply adequate oral hygiene and does he belong to a group of caries-risk patients?
4. Is the remaining root medicated adequately, and the crown correctly filled?
5. Does the patient have any medical risk?
6. Is the apical position of root furcation reachable, or can it be fixed through the separation?
7. Does the patient know possible prognosis.

After the procedure, the patient should be treated with antibiotic. He/she would be under continued control to check the state of the remaining root.

As a conclusion, we can say that root amputation is very useful nowadays. The prognosis is very good especially in the maxilla. With the improvement of techniques and materials in both periodontics and endodontics, the value of posterior teeth is increased for retaining arch integrity.

References