

"THE ROOT RESECTION OF AN ENDODONTIC-PERIODONTAL LESION"

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Abstract

Occasionally periradicular lesions of endodontic origin may be radiographically indistinguishable from periodontal disease. Infected pulpal tissue and microbial by-products may move through accessory and furcal canals and cause loss of attachment in those areas. Accurate diagnosis may be particularly difficult when a sinus tract originating from the endodontic lesion drains along the periodontal ligament space, giving the appearance of periodontal disease. Thorough diagnostic testing to confirm pulp necrosis or periodontal disease becomes critical when attempting to diagnose the specific disease entity accurately and then deliver suitable treatment. In the clinical cases presented in this paper, diagnosis of the etiology of the pathosis was more difficult since there was extensive bone loss on one site whereas the other sites showed had normal periodontal condition. However, successful healing was obtained after thorough disinfection and sealing of the root canal system.

Key Words: Endodontic lesion, Periodontal lesion, Accessory canal, Lateral canal, Apical foramen

Introduction

There is a close ontogenetic relationship between endodontic- and periodontal tissue structures, which is anatomically reflected in the apical foramen and accessory and lateral canals.¹ Clinically, this relationship promotes the spread of infection, potentially resulting in typical manifestations of endoperio osseous lesions.^{2,3} These lesions often remain free of symptoms for long periods, as they are rarely diagnosed until the disease starts manifesting itself in the form of acute symptoms of inflammation and/or increased pain. At times, the lesions are detected accidentally during a general check-up. Whenever the symptoms occur, they tend to be so severe that the periodontal aspect can seem dominant and the dentists tend to settle for strictly symptomatic periodontal therapy while overlooking the endodontic aspect.

Endoperio lesions are difficult to classify, because they lack the characteristic manifestations of strictly endodontic or strictly periodontal lesions.⁴ Long-term preservation of the tooth seems an unlikely prospect in the presence of clinical and radiographic findings such as acute inflammation, isolated deep pockets and circumradicular/interradicular radiopacities. It is difficult to distinguish by hindsight which parts of the lesion are endodontic and which parts are periodontal in origin.

To structure the complex treatment of endoperio lesions, a treatment concept was developed by Haeisen et al. (1999)⁵ that combines endodontic and periodontal measures in a special sequence and at defined intervals. The different progression of lesions of endodontic versus periodontal

origin (relatively fast/slow development of bony defects), as well as the different levels of healing (regeneration/repair), were taken into account.

Following initial treatment, priority is given to the endodontic aspect to allow healing by regeneration unless the patient presents with acute periodontal symptoms. The objective of the following case report is to present both the characteristic diagnostic features of an endoperio lesion and a treatment concept that can be applied even in complex cases.

Case Report

Clinical Examination : A 57-year-old female patient was referred to the department of periodontics, Institute Of Dental Studies And Technologies, Modinagar for intermittent pain, local swelling and suppuration in the region of the maxillary left first molar (tooth 26). The gingiva around the mesiobuccal root of tooth 26 was inflamed and showed a gingival recession of 2mm. The distobuccal root was exposed till the apex. (Fig. 1) Tooth 26 did not respond to pulp vitality tests and was tender to percussion.

Radiographic Examination : An intraoral periapical radiograph of tooth 26 revealed extensive periradicular bone loss in the distobuccal root area. Mesiobuccal root of 26 had a better periodontal status. (Fig 2) 25 also showed a carious exposed status however it had no bearing on the immediate clinical manifestations.

Provisional Diagnosis: A provisional diagnosis of an endo-perio lesion associated with tooth 26 was made.

Treatment Plan: The treatment plan was formulated and the consent of the patient was taken subsequent to due explanation. The treatment plan consisted of the endodontic phase initially followed by the periodontal therapy.

a) Scaling and root planing was completed 1 week prior to the start of endodontic treatment.

b) Root canal retreatment of tooth 26 was done as per the protocol.

c) Subsequent to the endodontic therapy it was decided to proceed with the root resection of the distobuccal root of the maxillary right first molar.

Local anesthetic was administered by local infiltration using 2.2ml 2% lignocaine with 1:80,000 adrenalin. The flap reflection was not required because the root was completely exposed in the oral cavity. The root was resected apically to where it joined the crown (Fig. 3). The root stump was smoothed down with a white stone. The tooth trunk was reshaped by odontoplasty, creating an area that would be easy to clean. (Fig. 4) Firm pressure was applied over the root socket for few minutes and postoperative instructions were given. One week after the surgery, the patient returned

asymptomatic and healing was uneventful.

Review: At the time of three-month recall, the patient complaints no apparent symptoms and on clinical examination the tooth 26 showed a Grade 0-1 tooth mobility. Its adjacent soft tissue had healed satisfactorily. Periodontal probing depths around the tooth were within normal range. Accessibility of the resected root area for plaque control was good. Radiographic examination showed a clean surgical site. (Fig. 5)

Discussion

In the reported case, the origin of the endo-perio lesion associated with tooth 26 was not apparent. The severe bone loss affecting the distobuccal root led to root resection of the affected root as the only logical treatment option.

The study of the literature indicated a diverse of opinions on the effectiveness of root resection therapy. The differing success rates from one study to another are a result of a lack of consensus in the criteria used to evaluate treatment outcome. While a few authors had used strict periodontal criteria such as bleeding index, pocket depth or attachment loss, most used tooth survival as the only evaluation criterion to measure long-term results. The reasons for root resection, how the teeth were subsequently restored and the operator's skills were also different in each case. An accurate comparison and summary of data is therefore difficult to achieve.

Despite these limitations, some trends can be identified. The failure rates of root resection procedures after five years, as reported by most studies, are low. In a limited meta-analysis using common denominators of time of observation

and criteria of failure as defined by Langer et al,⁶ Buhler⁷ reported that the failure rate for teeth treated by root resection, over a seven-year observation period, was 11%. With guarded optimism, the prospect of tooth 26 healing after root resection was assessed to be good.

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Figure Legends

Fig. 1 : Pre Operative Photograph

Fig. 2 : Pre Operative Radiograph

Fig. 3 : Resected Root

Fig. 4 : Immediate Post Operative Photograph

Fig. 5 : 3 Months Post Operative Radiograph

