CASE REPORT

Management of primary endodontic and secondary periodontal lesions: A case report

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Abstract
This clinical case report describes the endo-perio treatment in mandibular left first molar in a 42-year-old male patient. There was no caries with the chief complaint of the tooth and vitality test gave non-vital results. The case was diagnosed as a case of primary endodontic and secondary periodontic lesions. Endodontic therapy was planned with the placement of calcium hydroxide as an intracanal medicament. Intracanal medicament was changed every 5 days and obturation was done after 21 days. The patient was kept on recall for evaluation of periodontal pocket depth. After 3 months, the pocket was not resolved so periodontal surgery was planned. It was found that there was vertical defect in the mesiobuccal root. Thorough debridement, curettage, and root planning were done to remove granulation tissue. The flap was sutured and periodontal dressing was placed. The patient was recalled at regular intervals.

Keywords: Bone fill, endodontic-periodontal lesions, three wall defect

Introduction
Endodontic-Periodontal lesions are complex affecting pulpal and periodontal tissues. There is a close odontogenic relationship between endodontic and periodontal tissue structures, which is anatomically implicated because of three pathways, viz., dentinal tubules; lateral and accessory canals; apical foramen. These pathways aids in communication between pulpal and periodontal tissues. This relationship between periodontal and endodontic disease was first described by Simring and Goldberg in 1964. Microorganisms enters root canal system through various ways and have been broadly classified as physiological (apical foramen, lateral accessory and furcal canals, dentinal tubules) and pathological communications (directly by vertical root fracture and root perforations and indirectly by deep radicular grooves). These pathological factors are further divided into developmental and non-developmental factors [Table 1]. Neither periodontic nor endodontic treatment can be considered separately as clinically they are closely related further having impact on diagnosis and treatment. Endodontic-Periodontal lesions have been classified by various authors, of which most accepted is by Simon et al. This case report describes about management of Endodontic-Periodontal lesions.

Case Report
A 42-year-old male patient reported with the chief complaint of pain in maxillary left posterior region since 2-3 weeks. Pain was dull, localized, and intermittent. The patient had noncontributory medical, dental and family history. However, the patient was a chronic tobacco user with tobacco quid placement in the mandibular left buccal vestibule. Extraoral examination of the face, temporomandibular joint, or lymph nodes did not reveal any significant anomalies. Intraoral clinical examination revealed increased probing depth (>10 mm) on the buccal aspect of tooth 26 [Figure 1]. There was no evidence of caries or trauma to the involved tooth. Flecks of subgingival calculus were noted on the mesial and distal aspects of roots. Vitality test gave non-vital results with tooth 26 when compared with corresponding and adjacent teeth. A comprehensive periodontal examination revealed that the patient had generalized chronic severe periodontitis. As part of further radiographic examination, an orthopantomograph (OPG) and intraoral periapical radiograph (IOPA) with gutta-percha (GP) points placed in the gingival sulcus was carried out in relation to tooth 26. Generalized horizontal bone loss was seen on the OPG. IOPA revealed that base of the GP point was traced to the periapical area along with evidence of interdental and periapical bone loss.
Based on clinical and radiographic investigations, a diagnosis of primary endodontic and secondary periodontal lesion was made (Simon’s classification, 1972). Treatment plan decided was endodontic therapy with 26 and periodontal surgery. The patient was explained in detail about the treatment plan and patient consent was taken.

Local anesthesia (2% lignocaine with 1:80,000 adrenaline) was given and isolation was done with rubber dam. The root canal orifices were located and working length was achieved which was confirmed with electronic apex locator and radiograph [Figure 3]. Cleaning and shaping was done using crown down technique (ProTaper; Dentsply Maillefer; Ballaigues, Switzerland). Irrigation was done with 3% sodium hypochlorite, saline, and calcium hydroxide was used as an intracanal medicament. Calcium hydroxide with 2% chlorhexidine gel dressing was given for 21 days which was changed at an interval of 7 days.

Full mouth scaling and root planning were done after placement of calcium hydroxide. The patient was explained about the oral hygiene procedures and recalled after 7 days. The intracanal medicament was removed, and obturation was done with lateral compaction technique. This was followed by post-endodontic restoration which was done by amalgam using Nayyar core technique [Figure 4].

There was no progress in the healing of the periodontal tissues after 3 months, so surgical treatment was planned. Under local anesthesia (2% lignocaine with 1:80,000 adrenaline), a mucoperiosteal flap was raised following crevicular incisions. Surgical exposure revealed presence of a wide three walled defect on the mesial aspect of tooth 26 [Figure 5]. The defect was completely filled with granulation tissues so it was debrided with the help of surgical curettes and root planning was done. The fresh bleeding was induced such that it fills the defect

Table 1: Developmental and non-developmental reasons for pathological reasons

<table>
<thead>
<tr>
<th>Developmental</th>
<th>Non-developmental</th>
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<tbody>
<tr>
<td>1. Palatogingival grooves</td>
<td>1. Disease (Caries)</td>
</tr>
<tr>
<td>2. Faciocradicular grooves</td>
<td>2. Trauma</td>
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<tr>
<td>3. Cemental hypoplasia</td>
<td>3. Iatrogenic procedure</td>
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<td>4. Structural defects such as fissures and hypocalcifications</td>
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<td>5. Dentine dysplasia</td>
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<tr>
<td>6. Extended radicular grooves due to teeth gemination or fusion enamel pearls and intermediate bifurcation ridges</td>
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</tbody>
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Figure 1: Probing depth with periodontal probe with 26

Figure 2: Guttapercha tracing for bone loss

Figure 3: Working length radiograph with 26
and the clot was allowed to form. The flap was sutured back and a periodontal dressing was placed over the surgical site. The patient was recalled after 1 week for suture removal. The patient was recalled at regular intervals of 1 and 3 months. After 3 months when the periodontal probing depth was checked it was found to 3 mm. The patient was recalled at regular intervals of 1, 3, 6, and 12 months [Figure 6].

Discussion

The endodontic-Periodontal lesions is a broad term and has been defined as a lesion that shows dependent and/or independent involvement of the pulp and periodontal tissues of an individual tooth, regardless of the etiological factors, pathological patterns, or the treatment approach.[5] The tissues are affected because of oral pathogens which are present in the pulpal or periodontal tissues. These pathogens are living pathogens such as bacteria, fungi, viruses and biofilms and nonliving pathogens such as foreign bodies, epithelial rests of malassez, cholesterol crystals, russell bodies, rushton hyaline bodies, charcot–leyden crystals.[8]

Root canal system and periodontal tissues are closely related through different communications. Belk and Gutmann stated that the periodontal disease may damage pulp tissue via accessory or lateral canals.[9] These Endodontic-Periodontal lesions could be treated by endodontic treatment alone, periodontic treatment alone, and combination of both. Rotstein and Simon stated that in primary endodontic and secondary periodontal lesion should first be endodontically treated, and the periodontal status shall be evaluated after 2-3 months.[5] In this case, there was no change in periodontal status 2-3 months after endodontic therapy and the periodontal surgery was planned. In the periodontal surgery, complete curettage and root planning were done which was followed by induction of fresh bleeding and formation of clot. This clot acts as a natural scaffold and helps in regeneration by the formation of calcified tissue.

Patient gave history of tobacco chewing contributing to periodontal destruction. It was found that tobacco chewing leads to formation of deep pockets, periodontal attachment loss, and loss in alveolar bone height, further influencing the nonsurgical and surgical outcome. Considering this patient was advised to maintain oral hygiene and scaling and root planning was done.[10]

The patient was recalled at regular intervals where instructions for maintaining oral hygiene, periodontal pocket depth were evaluated. It was also found that lesion reduced in size and there was a reduction in pocket depth.
Conclusion

Primary endodontic and secondary periodontal lesions are difficult to diagnose and treat. Nevertheless, to achieve successful treatment, appropriate diagnosis and treatment shall be done. The induction of bleeding and formation of blood clot helps in regeneration of periapical tissues and thus enhancing the healing.

References