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Case Report

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A Rare Case of Condensing Osteitis Associated with Root Resorption

Farheen Ustad¹, Ghadeer Saleh Alwadai², Fareedi Mukram Ali³

Contributors:

¹Lecturer, Department of Oral and Maxillofacial Surgery, King Khalid University, Abha, Kingdom of Saudi Arabia; ²Demonstrator, Department of Restorative Dental Sciences, King Khalid University, Abha, Kingdom of Saudi Arabia; ³Reader, Department of Oral and Maxillofacial Surgery College of Dental Sciences & Hospital Amargadh, Bhavnagar, Gujarat, India.

Correspondence:

Dr. Farheen Ustad, Department of Oral and Maxillofacial Surgery, King Khalid University, Abha, Kingdom of Saudi Arabia. Phone: +91-966531914303. Email: ustad_farheen@yahoo.co.in

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Abstract:

Condensing osteitis refers to a focal area of increased radiodensity that is characterized by bone growth which is caused by mild infection of the root canal. Radiologically, it presents as a well-defined, rounded or triangular radiodensity that is uniformly opaque. Condensing osteitis appears to be most often associated with mandibular posterior teeth. Root resorption and tooth movement are rare. We present a rare case of condensing osteitis which was associated with the maxillary tooth and caused resorption of the adjacent root.

Key Words: Carious tooth, condensing osteitis, opacity, periapical radiolucency

Introduction

Condensing osteitis refers to a focal area of increased radiodensity that is characterized by bone growth which is caused by mild infection of the root canal. The synonyms are chronic focal sclerosing osteomyelitis and sclerosing osteitis.¹ Condensing osteitis is caused by mild chronic irritation of the root canal either by inflamed pulp in chronic pulpitis or low virulence micro-organisms in remnant of necrotic pulp after improper endodontic treatment which lead to bone response.^{2,3}

Histologically, condensing osteitis appear as replacement of cancellous bone with compact bone and in some cases show inflammatory infiltrate and areas of fibrosis.⁴

Radiologically, it presents as a well-defined, rounded or triangular radiodensity that is uniformly opaque. There is no radiolucent component usually found near the root apex or in the inter-radicular area most common seen in the posterior mandible. Root resorption and tooth movement are rare.

We present a rare case of condensing osteitis which was associated with the maxillary tooth and caused resorption of

the adjacent root and was initially misdiagnosed as root piece or a dislodged filling material.

Case Report

A 42-year-old Saudi female patient reported to the department of oral diagnosis and radiology of King Khalid University female campus, Abha, Kingdom of Saudi Arabia with a complaint of pain in tooth number 16. Pain was dull since 15 days, increased with biting, and relieved by analgesics. Her medical history revealed she was on anti-depressives since 1 year, and she was also diagnosed to have hypothyroidism and was on medications for 5 months. The patient was physically fit and had no deleterious habits and intraoral examination revealed poor oral hygiene and had several crowns, restorations and history of extractions. Tooth 16 was endodontically treated with post and amalgam restoration. Oral panoramic radiograph showed a radiopaque lesion was evident in association with the roots of 16. On periapical radiograph of 16 showed loss of lamina dura and root resorption of mesial root, (Figure 1). Extraction was planned according to patient's preference, and extraction was carried out. The tooth was elevated and extracted without any fracture, and the furcation was intact, curettage was done there was no evidence of any root or filling in the socket. The patient was recalled for review after 1 month and radiographs were taken, and there was no change in the position or size of the radiopacity, and the healing was acceptable (Figure 2).

Discussion

Idiopathic osteosclerosis and condensing osteomyelitis are asymptomatic and are detected only on the radiograph. Condensing osteitis is a reaction to infection. Unlike idiopathic



Figure 1: Periapical radiograph of #16 before extraction.



Figure 2: Periapical radiograph of area of #16 after 1 month of extraction.

osteosclerosis, condensing osteitis is not related to the disease of the pulp and it is neither inflammatory nor neoplastic process.^{5,6}

The difference between idiopathic osteosclerosis and condensing osteitis from other periapical lesions is that there is bone production rather than bone destruction. The result is a radio opaque lesion. The incidence ranges from 4.5% to 6.5% and is more common found in females. The female to male ratio is found to be 1.5:1 and 2:1, respectively.⁷ Avramidou *et al.* detected that radiopaque lesions are most common seen in females than men⁸ and it is in accordance with our case. However, few authors found no difference between the incidence in women and men.^{5,9}

A predilection for the mandible in the posterior region has been stated by few studies.¹⁰ Fewer superimposition of anatomic structures in the mandible than in the maxilla could be the probable reason for such predilection. It could also be due to differences in bone anatomy and blood supply. However in our case, we could detect it in the maxilla.

Idiopathic osteosclerosis could be developmental rather than reactive and considered to be an anatomical variation of normal bone.¹⁰ Excessive occlusal forces may be a possible cause as reported by Eversole *et al.*¹¹ Since idiopathic osteosclerosis occurs almost exclusively in the alveolar process, the tooth or its primordium may play a role in the genesis of idiopathic osteosclerosis as suggested by some authors.⁷ Alternatively, some authors propose excessive fluoride as an etiological factor. Histological examination in one of the study clearly demonstrated sclerotic bone containing a retained root in one case. So, it is possible that microscopic root fragments may act as a nidus for bone proliferation in some cases.¹²

Differential diagnosis of condensing osteitis and idiopathic osteosclerosis lesions includes root segments, exostoses, foreign bodies, or even impacted teeth.¹³ Extraction history and the

lines of a residual root fragment facilitate the distinction with root segments. The accurate and complete shape of impacted teeth is sufficient to confirm the diagnosis. Exostoses are single or multiple radiopaque lesions of the periosteal surface of the jaw; they appear radiographically as clearly outlined radiopacities. Idiopathic osteosclerosis lesions are usually asymptomatic, but it may cause changes in tooth position or problems during orthodontic treatment.^{8,14} Marques Silva *et al.*¹⁵ presented a case report of tooth resorption caused by ectopic eruption route induced by idiopathic osteosclerosis. In this report, we could detect mesial root resorption adjacent to the condensing osteitis; however, the reason of root resorption whether it is due to condensing osteitis or any other reason cannot be confirmed since we do not have any previous radiographs; however, there is no other cause evident in the present case.

Conclusion

If an extraction is planned for the tooth a pre-operative distinction of the radio opaque lesion should be done and reported in the patient file, so that it is not misdiagnosed as a tooth or root fragment or a displaced filling material and thus avoid a second intervention to remove it.

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