

Unusual treatment of symptomatic condensing osteitis related to mandibular premolar teeth: a case report

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Received: 14 May 2012

Accepted: 30 July 2012

ABSTRACT

Objectives: Condensing osteitis is defined as pathologic sclerosis of maxillo-mandibular bones characterized by mild clinical symptoms. This case report presented a different approach to a patient with symptomatic condensing osteitis.

Materials and Methods: A twenty one years old male patient was referred to our department because of pain in his left mandibular region during chewing. Intraoral examination revealed pain in the lower left first premolar tooth during percussion and it was seen that this tooth was associated with an apical sclerotic lesion approximately 1cm wide in radiographic examination. Root canal treatment was performed to the tooth. As complaints of pain during chewing exceeded, both biopsy and apical root resection were performed.

Results: The lesion was diagnosed as symptomatic condensing osteitis after clinical, radiological and pathological examinations. A month after the operation, the patient's symptoms completely disappeared. In 6, and 12 months radiographic controls, beginning of new bone formation in region of resection and also regression of lesion were observed.

Conclusions: The conventional treatment of condensing osteitis is extraction of related tooth and curetting of that region or root treatment of related the tooth. In this type of lesion, in condition of failed root canal treatment, instead of the tooth extraction, as a different treatment option, apical root resection can cut the relationship between the root and the lesion.

Keywords: Condensing osteitis, apical resection, mandibular osteosclerosis.

INTRODUCTION

Condensing osteitis is defined as pathologic growth of maxillo-mandibular bones characterized mild clinical symptoms.^{1,2} Localized areas of sclerotic bone occur in jawbones and can be caused by various agents such as trauma, stress or infection.^{3,4,5} When the sclerotic bone is directly caused by infection, the lesion is referred to as condensing osteitis.^{6,7} It is

also thought to be caused by mild chronic irritation of the root canal.² Although very rare different localizations were reported,⁸ majority of the lesions were found at the apices of mandibular first molars while a small amount was associated with mandibular second molars and premolars.^{3,9} Condensing osteitis may be seen at any age. Its frequency among the Turkish population was reported as 81:10000.⁴

The histological picture is of low-grade chronic osteomyelitis associated with new bone formation and zones of possible necrosis. It's thought as a proliferative response of bone in a patient with a high tissue resistance or a low-grade infection, or both. This appearance is quite different

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from the bone destruction usually associated with infection.¹

According to the general protocol only the symptomatic cases are to be treated. This is done by endodontic therapy or extraction.² In this case report we presented a different treatment to a patient with symptomatic condensing osteitis.

CASE

A 21-year-old male presented with a three-month history of pain in his left mandibular region during chewing. He was systemically healthy and extra oral examination was within normal limits. The patient reported pain during the percussion of the intact lower left first premolar in the intraoral examination (Figure 1).



Figure 1. Intraoral image of the patient.

Abnormal look of the lower right second premolar was also recorded. Approximately 1cm wide sclerotic mass associating mandibular left 1st premolar tooth, confined within the alveolus above the mental canal and absence of lamina dura of the apical third of the tooth were observed in panoramic radiography. The mandibular right 2nd premolar with a short root and malformed crown and cyst-like radiolucent areas in its apical region were pointing dentinal dysplasia (Figure 2).

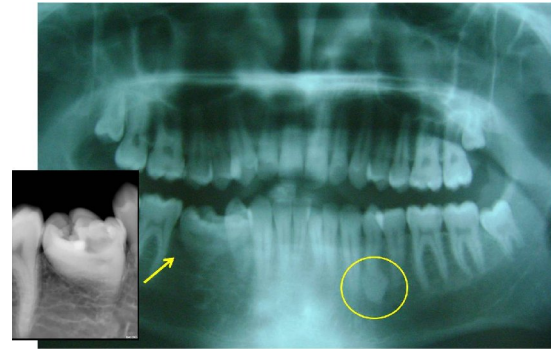


Figure 2. Sclerotic mass associating mandibular left 1st premolar tooth, confined within the alveolus above the mental canal and absence of lamina dura of the apical third of the tooth were observed in panoramic radiography. The mandibular right 2nd premolar with a short root and malformed crown and cyst-like radiolucent areas in its apical region.

Root canal treatment was performed to the tooth that considered as condensing osteitis. As complaints of pain during chewing exceed after the treatment, we decided to perform both biopsy and apical root resection. The procedure was explained and written and verbal consents were taken from the patient.

The surgical area was anaesthetised with 2% lidocaine hydrochloride containing 1:200,000 epinephrine. A flap was raised by sulcular and vertical releasing incisions allowing an easy access to the lesion which was located apical of the 1st premolar. After 1/3 apical of the root were resected and sample for the biopsy was taken, the flap was sutured back using 4/0 silk. The patient was put on the antibiotic regime for one week coupled with an anti-inflammatory drug and chlorhexidine gluconate mouth wash. The sutures were removed one week later.

A dense trabecular structure was observed in the histological evaluation of the biopsy sample (Figure 3).

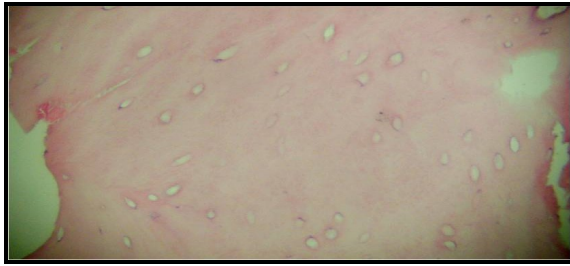


Figure 3. Histological image of the lesion includes dense trabeculae (H&Ex100).

The lesion was diagnosed as condensing osteitis after clinical, radiological and pathological examinations. A month after the operation, the patient's complaints have disappeared completely. In 6 and 12 months radiographic controls, beginning of new bone formation in the region of resection and also regression of the lesion were observed (Figures 4 and 5).

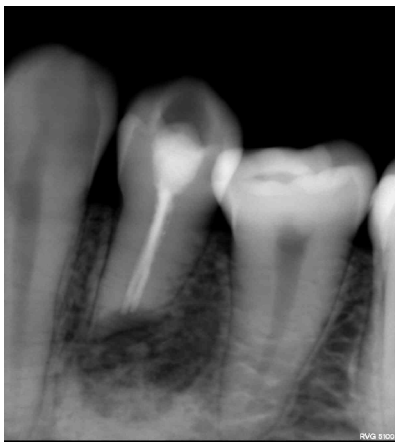


Figure 4. New bone formation was seen between lesion and root 6 months after the surgery.

DISCUSSION

Condensing osteitis should be differentiated from idiopathic sclerosis, which is mostly unrelated to pathologic lesions of dental pulp, and is neither an inflammatory nor a neoplastic process.^{2,6} Differential diagnosis of periapical radiopaque lesions, condensing osteitis and idiopathic sclerosis should be taken into

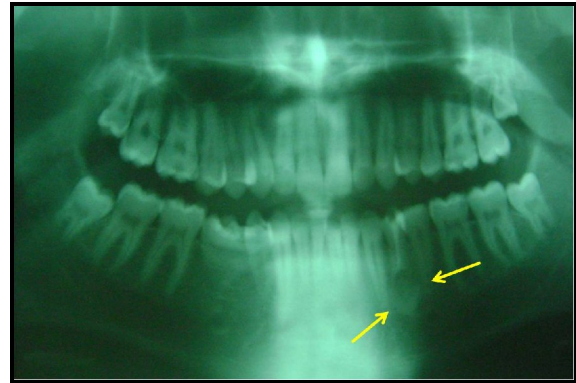


Figure 5. Image of the lesion one year later.

consideration.² An abnormal result with electric pulp testing strongly suggest condensing osteitis and tends to rule out osteosclerosis and cementoblastoma.² As the negative response of the lower 1st premolar tooth to the vitality test, we think that the lesion was condensing osteitis associated with an infected pulp.

Williams and Brooks⁵ in their longitudinal study presented long term behaviour of idiopathic sclerosis and condensing osteitis. In their study, 1585 full-mouth periapical radiographs taken from adults were evaluated for the presence of radiopaque masses diagnosed as idiopathic or condensing osteitis. There were 187 lesions detected and at follow-up 2 to 28 years, 180 lesions (96%) were still present, of which 155 were unchanged in size, 18 were smaller, and 7 were larger. As it is understood by this study, the patients are usually asymptomatic and lesions may be discovered on routine radiographic examination or may remain uncovered for years without causing any problems.³ When it is symptomatic, the lesion need to be removed and according to the related tooth prognosis, endodontic treatment or extraction must be performed.³ The related tooth in our case was undergone endodontic treatment primarily but because of the ongoing complaints, resection and biopsy procedures were considered. Clinical,

radiological evaluations and pulp vitality test are sufficient for the diagnosis of condensing osteitis, but in some cases of osteosclerotic lesions, biopsy would be needed.⁷ Instead of tooth extraction, in our case, apical resection was considered in order both to cut the root-lesion relationship and to take sample for biopsy.

Histologically, due to the impaired bone remodelling, condensing osteitis usually includes normal bone marrow exchange with fibrous connective tissue, occasionally accompanied by inflammatory cell infiltration, new bone formation and presence of bone sequestrum. The inflammatory cell infiltrate is rare and thus can be difficult to detect. Condensing osteitis also includes dense trabeculae with a limited area of bone marrow reduced in size, thus possibly resembling the compact bone.² Our histological evaluation results were compatible with the results of the study mentioned above but no inflammatory cell could be detected.

A search of the literature did not reveal any similar treatment report of symptomatic condensing osteitis affecting mandible.¹ In this type of lesion, in condition of failed root canal treatment, instead of the tooth extraction, as a different treatment option, apical root resection can cut relations between root and lesion.

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