

Dense Bone Islands: A Case Report

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ABSTRACT

Background: Dense bone island refers to a focal area of increased radiodensity that is of unknown cause and cannot be attributed to any inflammatory, dysplastic, neoplasia or systemic disorder. DBI is invariably asymptomatic, not associated with detectable cortical expansion and is typically detected during routine radiographic examination and could appear as round, elliptical or irregular in shape. Internal aspect is usually uniformly radiopaque. This condition may cause changes in tooth position or problems during orthodontic treatment. The purpose of present study is to report a case of tooth resorption caused by ectopic eruption route caused by Idiopathic osteosclerosis.

Keywords: Bone diseases. Osteosclerosis. Mandible. Radiopaque. Orthodontic, DBI, IO.

INTRODUCTION

Idiopathic osteosclerosis is well defined, radiopaque, localized growth of compact bone within cancellous bone.² IO is invariably asymptomatic, not associated with detectable cortical expansion and is typically detected during a routine radiographic examination.¹ They are found more often in mandible especially in premolar and molar regions or may occur at root apices between roots, or separate from teeth.² Rarely, lesion may be located periapical to tooth root leading to external root resorption. This paper describes two clinical cases about long treatment and observations of mandibular IO in adolescents.

CASE REPORTS

Case 1

A female patient of age 18 years referred to the department of oral & maxillofacial surgery in Divya

Jyoti College of dental sciences and research from department of Orthodontics and dentofacial Orthopaedics for therapeutic extraction of mandibular premolars. She had no significant medical and family history. Clinically, patient is asymptomatic without any symptoms such as bony expansion or tenderness in alveolar bone and patient is apprehensive. Patient with orthopantomogram revealed a radiopaque lesion in between mandibular right second premolar and molar region. Lesion was well defined, radiodense, circular mass that was uniformly radiopaque. Margins of lesion blended into surrounding bone. Lesion resulted in inclination of second premolar. There is external root resorption of roots of second premolar and mesial root of first molar. Lamina dura around mesial root of mandibular first molar is connected to lesion than mandibular second premolar.

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Under general anesthesia extraction of first molar is done and chunk of bone is sent for biopsy along with extracted tooth. Histopathological investigation reveals dense calcified tissue without marrow spaces and generally no inflammatory cell infiltration. Patient is rehabilitated with conventional implant in the first molar region



Fig 1: histopathologic investigation reveals dense calcified tissue without marrow spaces and no inflammatory cell infiltration.

Case 2

A female patient of age 15 years referred to department of oral and maxillofacial surgery in Divya Jyoti college of dental sciences and research from department of orthodontics and dentofacial orthopaedics undergoing treatment for malocclusion. she had no significant family and medical history. It is an accidental finding when patient is undergoing therapeutic extraction of maxillary and mandibular first premolars. Routine radiographic examination revealed a radiopaque lesion at mandibular left first molar region. The mandibular first molar has been extracted 3 years before she came to our department. Patient is asymptomatic clinically without any symptoms of bony expansion or tenderness in alveolar bone. The lesion was well defined, radiodense circular mass that was uniformly radiopaque. Margins of lesion blended into surrounding bone. And chunk of bone is taken and sent for biopsy under local anesthesia.

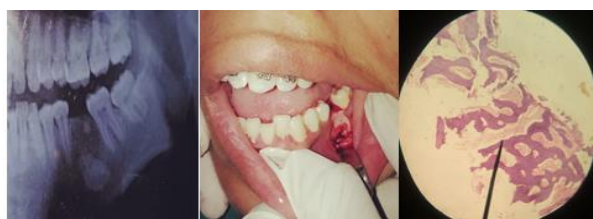


Fig 2: Histopathologic investigation shows no inflammatory cell infiltration and dense calcified tissues without marrow spaces.

DISCUSSION

DBI is described as localized , non expansible radiopacity of unknown origin.¹ DBI on generally modest in size and donot change overtime.² Austin and Moule in 1984 used the term osteosclerosis to describe lesion with increased bone density not directly related to infections or systemic diseases. They used bone sclerosis as a general term to describe areas of increased bone formation which leads to increased radiopacity. Although this bone alterations has several synonyms such as bone sclerosis, Dense bone island, bone scar, focal periapical osteopetrosis or enostosis.⁵ Mirra presented a case of 5 year old child with a lesion of 1.1 * 1.7 cm in distal portion of femur initially considered as DBI whereas 6 months later, the lesion has reached the size of 4.2 * 3 cm and biopsy showed the evidence of osteo sarcoma. Author suggest to perform an open surgery biopsy of DBI when size of lesion increases by 25% in 6 months or by 50% in one year.³ DBI is round, elliptical or irregular in shape with size varying from 2-3 cm to 7 cm. Although it may encompass the whole body of mandible. In the present study the biggest IO measured and similar to previous research lesions were found in different areas, near root apices, between teeth , away from adjacent teeth,. Higher incidence of IO in mandible and premolar region was found in this study.⁵ The prevalence of IO lesion is presented in literature ranges from 3.3 to 31.0%. IO can be found in most parts of skeleton in the jaw studies which has reported a predilection for mandible in posterior region which is present in our case also. IO lesions are most frequently located in premolar and molar areas, they might represent residual roots from deciduous molars, resorbed and replaced by sclerotic bone. ¹ DBI may be differentiated from more aggressive malignant bone lesions by one of the following: absence of primitive tumor, slow growth over a period of years, clearly demarcated margin with thorny radiation from the sclerotic lesion and absence of pain. DBI is clearly separated from the roots of adjacent teeth and should be distinguished from condensing osteitis of dental origin and other alveolar bone related radiopacities such as periapical cemental dysplasia, ossifying fibromas , hypercementosis, benign cementoblastoma, cement ossifying fibroma.³ Although condensing osteitis develops in periapical areas , it is a response to low grade inflammatory

stimulus, such as deep caries, large restorations, or pulpitis and associated teeth are usually non vital and showed considerable inflamed pulps.⁵

CONCLUSION

IO lesions are radiopaque without any obvious etiologic agent. These lesions are more common in mandible appear in round, elliptical or irregular shapes and are found in a routine radiographic examination. There are usually asymptomatic and do not cause bone expansion.¹ Various therapeutic choices apply. When thick radiopaque area is associated to a secondary infection, through element involved the surgical procedures must be carefully carried out in order not to cause lesions to surrounding areas as in first case. If lesion is isolated radiopaque area without any connection within teeth, no pain symptomatically occurs, it is preferable not to surgically intervene as in second case.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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