

Mandibular Unusual Radiolucencies of the Jaw

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Abstract

We are presenting two cases with mandibular radiolucencies, which is asymptomatic, incidental radiographic findings in orthopantomography (OPG), pose a radiographic diagnostic challenge. Put forth brief history of two cases reported and an overview of differential diagnosis of radiographic mandibular radiolucencies.

Keywords: Stafne Bone Cyst; Orthopantomography; Keratocystic Odontogenic Tumor; Traumatic Bone Cyst; Odontogenic Myxoma; Osteoporotic Bone Marrow Defect

Introduction

Stafne bone defects (SBDs), also known as lingual mandibular bone cavities, were first described in 1942 by Edward stafne [1] who reported 35 cases appearing as round or ovoid well-defined asymptomatic unilocular radiolucencies located below the mandibular canal, between the first molar and the angle of the mandible seen in middle aged male patients.

Case Report

Case 1

A 57 year old male patient reported to the department of Oral medicine with a complaint of teeth mobility and chronic generalized periodontitis diagnosis was made. On orthopantomographic examination (Figure 1), apart from generalized bone loss, A well-defined asymptomatic oval circumscribed radiolucency is seen below inferior alveolar canal measuring about 1 x 2 cm with sclerotic border seen in right side of the angle of the mandibular region.



Figure 1: Orthopantomography (OPG) of case one.

Case 2

A 50 year old male patient reported to Periodontist with a chronic periodontitis. On orthopantomographic examination (Figure 2), apart from generalized bone loss, a well-defined circumscribed asymptomatic circular radiolucency approximately measuring about 1x1 cm with enlarged bone marrow spaces (Sparsely arranged Trabecular pattern) which is partly surrounded by sclerotic border. After radiographic investigation asked about history of trauma, swelling and on physical examination revealed no evidence in both the cases.

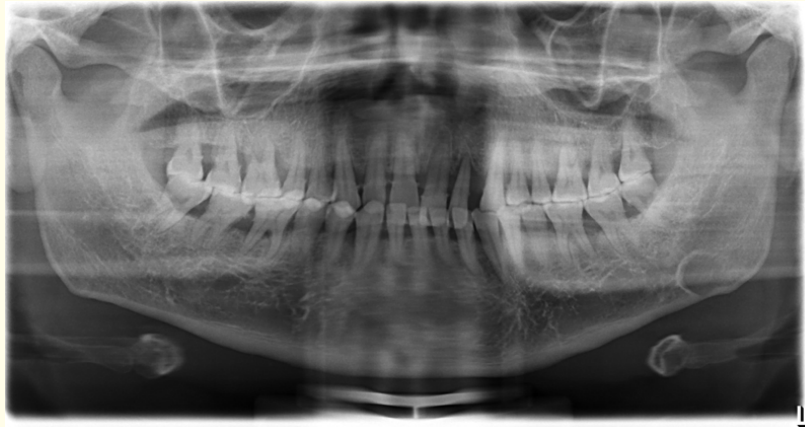


Figure 2: Orthopantomography (OPG) of case two.

Both the cases Stafne's bone cyst and Focal osteoporotic bone marrow defect clinical diagnosis was made and Traumatic bone cyst, Aneurysmal bone cyst, Keratocystic odontogenic tumor and Odontogenic myxoma was considered as differential diagnosis.

Discussion

Stafne bone defects (SBDs), also known as lingual mandibular bone cavities, were first described in 1942 by Edward stafne [1] who reported 35 cases appearing as round or ovoid well-defined asymptomatic unilocular radiolucencies located below the mandibular canal, between the first molar and the angle of the mandible seen in middle aged male patients. This is reflected in the diagnostic terms used over the years; stafne bone cyst, defect or cavity [2]. Static latent or Idiopathic defect, cavity or cyst [3], mandibular salivary gland inclusion [4], lingual mandibular bone cavity, concavity, defect or depression, aberrant or ectopic salivary gland [5]. The diagnosis is challenging and may sometimes be missed or incorrectly diagnosed as other unilocular radiolucencies, such as various benign tumors or cysts. Stafne bone cyst located below the inferior alveolar canal without bony enlargement when, compare to odontogenic cysts and tumors. The cause of the lingual bony defects is controversial. Stafne suggested that the occurrence of lingual cavities is developmental as the defect was occupied by cartilaginous tissue due to bone deposition deficiency. However, some authors have suggested that pressure of the glandular tissue on the lingual cortex of the mandible causes a lingual bony depression. According to this widely accepted concept, the submandibular salivary gland is responsible for the posterior variant of Stafne bone defects. Lingual bone defects, mostly posterior variants are usually diagnosed via conventional plain films since radiographic features of the afore mentioned defects are frequently unique. A static bone cavity is a benign finding and no intervention is required [6-8].

Osteoporotic bone marrow defect: In adult life the presence of hematopoietic marrow in the jaws is usually restricted to the angle of the mandible, the maxillary tuberosity and the condylar process. Osteoporotic bone marrow defect is a radiolucent area that corresponds to the uncommon presence of hematopoietic tissue found in others regions of the jaws. The defect is generally asymptomatic and is discovered incidentally during radiographic analysis seen in middle aged women [9,10]. Radiographically, it is a localized radiolucency that varies in size, shape, trabeculae and border definition. Since the osteoporotic bone marrow defect is rarely included in the differential diagnosis of radiolucent lesions of the jaws located especially in the posterior mandible, radiolucency varies in size from several millimeters to centimeters, the shape and borders are ill defined, the knowledge of the clinical, radiographic and histopathological characteristic in association with an accurate examination, are mandatory, in order to distinguish it from other most common odontogenic tumors and cysts are completely radiolucent well circumscribed expansile lesions where, as osteoporotic bone defect is irregular radiolucent non expansile lesion with sparsely arranged trabeculae [11,12].

Keratocystic odontogenic tumor (KCOT): Keratocystic odontogenic tumor was formally known as “Odontogenic keratocyst” because of aggressive behavior of the lesion recently categorized as an odontogenic tumor rather than cyst [13]. It is a benign locally aggressive developmental odontogenic tumor that is most commonly located in the mandibular ramus and body [14]. These lesions are typically found in adults in the second to fourth decades of life. They are unilocular or multilocular, scalloping, cloudy radiolucent lesion with mild cortical expansion because, it expands antero-posteriorly rather than bucco-lingually with epicenter located superior to the inferior alveolar canal. Sometimes, it can show a more aggressive growth pattern including multilocularity, cortical expansion, perforation, canal displacement and root resorption which, is not evident in other bone lesions [15,16].

Traumatic bone cyst (simple bone cyst): The term simple bone cyst includes synonyms such as solitary bone cyst, hemorrhagic bone cyst, extravasation cyst, unicameral bone cyst and idiopathic bone cavity. Despite its name, simple bone cyst lesions lack an epithelial lining and are not true cysts, simple bone cyst are common in mandible most often in the ramus and posterior mandible, occurs in first two decades of life [17], should not be associated with root resorption or tooth displacement [18]. Although the cause is unknown, thought to originate from intramedullary haemorrhage caused by trauma (including tooth extraction). They are commonly located in the mandibular marrow space, which extends posterior from the premolar region. Radiographically simple bone cysts are typically unilocular with well-defined borders, scallops between the roots of the teeth [17].

Odontogenic myxoma: True odontogenic tumor most commonly seen in adults in the second and third decades of life [19]. It is a benign, slow growing, painless lesion, they tend to be locally aggressive, exhibiting rapid growth leading to extensive osseous destruction and cortical expansion [20]. They present equally within the maxilla and mandible, ramus being the most common mandibular location occur in the premolar and molar areas [19]. Radiographically, odontogenic lesions appear as radiolucent regions separated by bony trabeculae that form geographic compartments. They typically contain multiple thin straight septations and internal wispy osseous trabeculae and exhibit honey-comb like pattern, the trabecular arrangement may also show a tennis racket pattern [15,16,21-23]. The tumor margins are typically Poorly defined, aggressive shows little encapsulation, often extending through bone into the adjacent soft tissues [23].

Conclusion

Asymptomatic, incidental, radiolucent radiographic lesions of the jaw findings are diagnostic challenge to a clinician. So, thorough history, examination, proper investigation, interpretation and differential diagnosis of the suspicious lesion are made to rule out similar appearing lesions and come to a final diagnosis.

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