Case Report

Stafne's Bone Defect: A Case Report

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Abstract: Stafne bone defect is asymptomatic radiolucent lesion of the lower jaw and generally seen incidentally during routine radiographic examinations. Diagnosis of this lesion is essential because of its similarity with other odontogenic pathologies. A dental practitioner should be familiar with stafne bone defect to avoid misdiagnosis. We report a case of stafne bone defect with review of literature.

Keywords: Bone cyst; Diagnosis; Differential; Mandible; Radiography; Submandibular gland.

INTRODUCTION

Stafne bone defect (SBT) or Stafne bone cyst (SBC) also known as lingual mandibular bone defect of the mandible is an invagination in the medial surface of the mandible, usually in the third molar angle area. It was described for the first time by Edward Stafne in 1942[1], who reported 35 cases of asymptomatic, unilateral round or ovoid, well defined, unilocular radiolucencies between the mandibular angle and the third molar.[2] It is not so common finding, but it is still important for differential diagnosis from other cyst and tumors of the jaws in order to plan for further treatment.

CASE REPORT

A 45 years old, otherwise healthy woman was referred to the out-patient department, Department of Periodontology for the treatment of bleeding gums. On oral examination, patient was found to have poor oral hygiene and presence of periodontal pockets. During the non-surgical therapy, patient was advised panoramic radiograph. Panoramic radiograph of the patient revealed a well-defined radiolucent area of cystic appearance at the right angle of the mandible below the roots of the second and third molar tooth.

On clinical examination, the overlying mucosa of the lesion was quite normal and there was no sign of infection or fistula. Radiologically, the lesion was found to be unilocular with a diameter of about 0.5 X 1.5 cm, presenting radiopaque margins mainly in the upper limit. The lower border of the mandibular canal was visible adjacent to the upper border of the cystic cavity. The location of the lesion was relatively far from the alveolar crest (Fig 1). The lesion was asymptomatic. On inspection, no swelling or enlargement was found intraorally or extraorally. On palpation, the area of defect was not painful with no discomfort or, paresthesia.

Figure 1: Panoramic radiograph showing the radiolucent area (indicated by arrows).

DISCUSSION

Stafne bone defects (SBDs) were first described by Stafne as usually unilateral, asymptomatic, well-defined radiolucent lingual bony defects located at the posterior region of the mandible below the inferior dental canal.[3]SBD is generally detected in patients in the 5th or 6th decade of life, although cases have been described in ages between 11 to 87 years.[2] SBD has two major variants related to the location of the defect.

The posterior variant is located below the inferior dental canal between the mandibular angle and the molar teeth and it is concluded to occur as a result of the pressure produced by submandibular gland and related structure[4] and very rarely on the medial surface of the ramus, associated with parotid gland.[2] In 1957, Richard and Ziskind reported a lingual bone defect that was located anterior to the molar region. Since then, almost 40 cases of anterior mandibular salivary gland defect have been reported in English literature.[5]Various theories have

been proposed for the etiology of Stafne bone defect. The exact pathogenesis is still obscure. Stafne suggested that the occurrence of lingual cavities is developmental, as the defect is occupied by cartilaginous tissue due to bone deposition deficiency.[1] It has also been reported that pressure of the glandular tissue on the lingual cortex of the mandible causes a lingual bony depression.[6,7] According to this widely accepted concept, the submandibular salivary gland is responsible for the posterior variant of SBDs whereas the sublingual gland causes Anterior Stafne Bone Defects.

Thus, many investigators found glandular tissue within defects either during surgical exploration or on MRI.[3] Some reports show that Stafne bone defect results from benign fatty or vascular lesion.[8] Lingual mandibular bone defects occur in 0.3% of adult and predominately in male patients. In some series all patients were male.[9]

SBD is generally diagnosed incidentally on routine panoramic radiographs and differential diagnosis include odontogenic cyst,[10] in case Lingual mandibular bone defect situated superiorly residual cyst[8] and radicular cyst if teeth are present or recently extracted, fibrous dysplasia, brown tumor of hyperparathyroidism, ameloblastoma, basal cell nevus syndrome, giant cell tumor. Computerized Tomography (CT) currently considered as the complementary test of choice, has the great advantage of verifying the peripheral origin of lesion and the conservation of the lingual cortical, which are essential characteristics for discounting other pathologies such as apical or residual cyst, fibrous dysplasia, traumatic osseous cyst, among others.[2]

It has been reported that almost 17% of reported cases were seen in edentulous regions.[8] Thus, the initial diagnosis of ASBDs in edentulous patients might be a residual cyst.[3]Diagnosis of this lesion is essential because of its similarity with other odontogenic pathologies.[2]In the present case, the defect was located anterior to the mandibular angle, between the inferior dental canal and the lower border of the mandible, which is the typical location for the posterior variant of SBD. In many cases panoramic radiographs give adequate information on the presence and extent of a Stafne bone defect. On the other hand, due to positioning and exposure errors, the location, shape and density of the lesion may change and this may result in misinterpretation of the radiographic features revealed on initial or follow-upradiographs. Positional errors may lead to magnification and limit dimensional accuracy on panoramic radiographs. The differences in patient positioning may result in a difference in the traversing of X-rays from the periphery of the lesion and as a consequence, definition of the boundary of the lesion may change.[4]

CT or MRI can be used to obtain three-dimensional images in order to determine the shape and size of the lesion and to confirm the content of the lesion. These techniques also reveal the characteristics of the lesion boundary. Axial CT sections show the peripheral origin of the lesion and the preservation of the lingual cortical bone.[11,12] SBD is thought to be due to the remodelling of the mandibular cortex around the salivary gland tissue and CT and MRI examinations show content consistent with salivary gland tissue. However, in some of the cases, adipose tissue may be detected.[4]

No surgical treatment is needed for SBD since these defects are anatomical variants.[4] Surgical exploration and biopsy may be an option when other pathosis such as salivary gland tumors, central giant cell granuloma, fibrosseous lesions, eosinophilic granuloma and other related lesions are suspected.[13] This defect should be managed conservatively and with radiological follow-up, any changes in size or shape of the lesion need to be detected.[14]In the present case, diagnosis of SBD was made based on the present panoramic radiograph available. CT and MRI could not be done because of the cost factor. Considering the shape and size of the present defect in panoramic image as well as absence of any clinical symptoms, no biopsy or surgery was indicated.

CONCLUSION: The diagnosis of the present case was an incidental finding.Considering the shape and size of the defect in the panoramic image,

conservative therapy based on periodic recalls was indicated. Complementary techniques such as CT and MRI are the preferred techniques since axial radiographic sections are crucial for a definitive diagnosis and demonstration of the size and extension of the lesion but in the present case it cannot be done due to cost factor. In dentistry, it is still a challenging task to diagnose SBD. The key point for its diagnosis could be consistent radiographic findings. The dentist should question the patients about the previous radiographic examinations, request patients to bring them or they can refer the patients to the dental facility where the previous radiographic examination was made.

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