

Case Report Article
Artigo de Caso Clínico

Cone beam tomography evaluation of lingual cortical mandibular defect diagnosed as Stafne bone cavity

Avaliação tomográfica de feixe cônico de defeito cortical lingual da mandíbula, diagnosticado como cavidade óssea de Stafne

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Stafne bone cavity;
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computed tomography;
mandibular lesions.

Abstract

Introduction: Mandibular lingual bone depressions are considered to be developmental anomalies known as Stafne bone cavity. The purpose of the present report is to describe the characteristics of classic Stafne bone cavity in molar region evaluated by cone beam computed tomography (CBCT). **Case report:** A male patient, 27 years old, was submitted to CBCT to evaluation of the relation between the right lower third molar roots and mandibular canal and the unilateral cystic image found in the panoramic radiographic below the mandibular canal in the right molar area. It was used a gray scale of 12 bits and voxel of 0.2 mm.

The CBCT showed fine images of the Stafne bone cavity. In the present case, periodic clinical and radiological controls were the therapeutic option. In atypical cases or in doubtful diagnosis, surgical intervention and anatomopathological examination may be indicated. **Conclusion:** Although the diagnosis of a Stafne bone cavity can often be established with plain radiographs, confirmatory tests are sometimes required. In these situations, the diagnosis can be confirmed with CBCT.

Palavras-chave:

cavidade óssea de Stafne; depressão óssea mandibular; defeito ósseo mandibular; tomografia computadorizada de feixe cônico; lesões mandibulares.

Resumo

Introdução: Depressões ósseas mandibulares linguais são consideradas anomalias de desenvolvimento, conhecidas como cavidade óssea de Stafne. O objetivo do presente estudo é descrever as características da clássica cavidade óssea de Stafne na região molar, avaliada por tomografia computadorizada de feixe cônico (cone beam computed tomography – CBCT). **Relato do caso:** Um paciente de 27 anos foi submetido à CBCT para avaliação da relação entre as raízes do terceiro molar inferior direito e canal mandibular e a imagem cística unilateral encontrada na radiografia panorâmica, abaixo do canal mandibular, na área do molar direito. Foi utilizada uma escala de cinza de 12 bits e voxel de 0.2 mm. A CBCT demonstrou imagens nítidas da cavidade óssea de Stafne. No caso em questão, a opção terapêutica foi por controles periódicos clínicos e radiológicos. Em casos atípicos ou de diagnósticos duvidáveis, intervenção cirúrgica e exame anatomopatológico podem ser indicados. **Conclusão:** Embora o diagnóstico de uma cavidade óssea de Stafne frequentemente pode ser estabelecido mediante radiografias simples, às vezes são necessários testes confirmatórios. Nessas situações, o diagnóstico pode ser confirmado por meio de CBCT.

Introduction

Stafne bone cavity (SBC) is an idiopathic and mandibular lingual bone depression and it is considered to be a developmental anomaly [1]. SBC frequently occurs in lingual mandibular molar regions, adjacent to the submandibular gland and below the mandibular canal [2, 3], appearing as an asymptomatic radiological incidental finding and presenting no relevant changes over time. The recommended treatment for SBC is conservatory therapy, based on clinical and radiological periodic controls [4].

Differential diagnosis is not usually a problem. The typical characteristics of SBC are a well-circumscribed, rarely bilateral, corticated oval or round radiolucent lesion between the inferior dental canal and the lower border of the mandible angle, such as it is showed in figure 1 (panoramic dental radiography). These findings are sufficient for definitive diagnosis solely on radiological grounds [2]. The purpose of the present report is to describe the characteristics of one patient with Stafne bone cavity in molar region evaluated by cone beam computed tomography (CBCT).



Figure 1 - Part of panoramic dental radiography exemplifying traditional image of Stafne bone cavity in a girl of 12 years old

Case report

A 27-years-old male was referred to an imaging service for CBCT (i-CAT, Imaging Sciences International, Hatfield, PA) to evaluation of the relation between the right lower third molar roots

and mandibular canal and the unilateral cystic image found in the panoramic radiographic below the mandibular canal in the right molar area suggestive of Stafne bone cavity. No history of trauma or contributory medical was established. Cone beam computed tomography with three-dimensional reconstruction was performed using a gray scale of 12 bits and voxel of 0.2.

The sagittal view using the maximum intensity projection mode (MIP of 5 mm) (figure 2) and three-dimensional reconstruction (figure 5) curved reformatting along the mandible revealed the relationship of the radiolucency to the inferior alveolar canal. Contiguous unenhanced 0.25 mm-thick axial CT scans obtained with bone reconstruction algorithms and coronal slice revealed, respectively, an ovoid defect invagination in the lingual cortex of the mandible, constituting a well defined Stafne bone cavity (arrow in figure 3) and a lack of continuity between SBC and mandibular canal (figure 4).

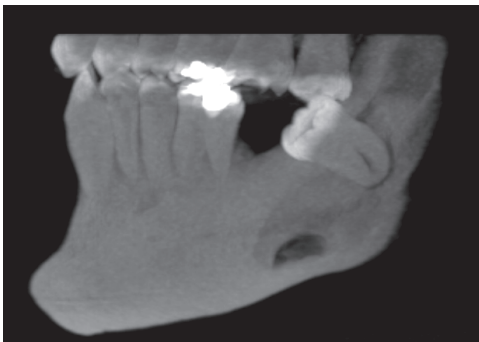


Figure 2 - Maximum intensity projection mode (MIP of 5 mm), sagittal view of Stafne bone cavity



Figure 3 - An ovoid defecting invagination in the lingual cortex of the mandible constituting a well defined Stafne bone cavity

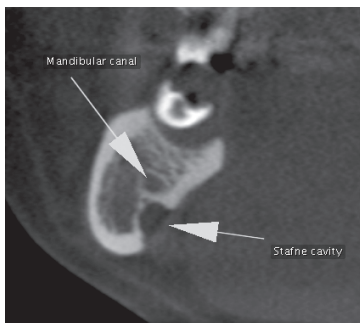


Figure 4 - Coronal image shows lack of continuity between SBC and mandibular canal

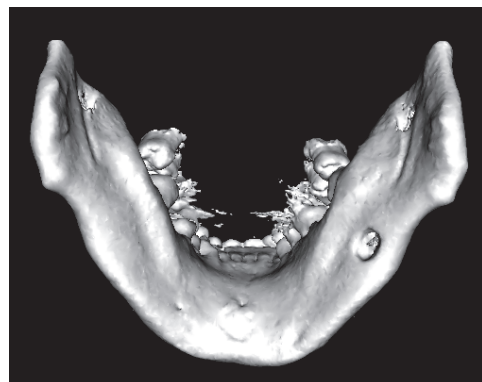


Figure 5 - Three-dimensional reconstruction

Discussion

The Stafne bone cavity is generally detected in patients in the 5th or 6th decade of life, although some cases have been reported in patients between 11 and 87 years with male/female ratio of 6:1 [5, 6]. These studies, based in sialographies and surgical findings, consider this entity to originate from the pressure put by glandular tissue on the lingual cortical of the mandible. The submandibular gland is directly related to the posterior variant, while the sublingual gland is related to the anterior variant, and the parotid gland to the variant of the ascending ramus of mandible [5, 6]. However, mandibular bone depressions should not be seen exclusively as salivary gland-related bone defects. Other congenital factors and facial artery also have been described [5, 7-9]. Although these imaging techniques are often sufficient for diagnosis, they may not be definitive when the lesion is atypical (e.g., lobulated, incompletely corticated, multiple or in an uncharacteristic location) [10].

Periodic clinical and radiological controls are the recommended therapeutic option. In atypical cases, the diagnosis must be confirmed with surgical intervention and anatomopathological examination, excluding the possibility of a neoplastic pathology [2]. Although plain radiographs can often establish the diagnosis of a Stafne bone cavity, confirmatory tests are sometimes required. In these situations, CBCT can be a useful instrument in confirming the SBC diagnosis.

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