



## Bilateral Stafne Bone Defect: An Incidental Radiographic Finding with Clinical Implications

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### KEYWORDS

Bilateral, CBCT, Mandibular, Radiography, Stafne Bone Defect

### ABSTRACT:

**Introduction:** Unilateral concavities in the posterior mandible are commonly known as stafne bone defects. Bilateral appearance is uncommon &, if misinterpreted, could result in needless diagnostic procedures by mimicking pathological lesions on radiographs. Here we present a rare case of bilateral Stafne bone defect (SBD), an asymptomatic mandibular radiolucency typically discovered incidentally, & to discuss its diagnostic relevance & clinical implications.

**Case Report:** A male patient, age 55, was referred for a standard dental examination. Bilateral, distinct, radiolucent lesions were seen on a panoramic radiograph below the inferior alveolar canal, close to the mandibular angle. The patient had no history of mandibular disease or trauma & was asymptomatic. The discovery of bilateral lingual cortical deficits with intact cortication & no indication of soft tissue pathology, consistent with SBD, was verified by cone-beam computed tomography (CBCT). There was no surgery done.

**Conclusion:** Bilateral Stafne bone abnormalities must be identified in order to prevent incorrect diagnoses & needless medical intervention. In order to confirm the diagnosis & rule out alternative mandibular diseases, CBCT is essential.

### Introduction

The Stafne defect, or Stafne bone cavity (SBC), is typically characterised as an asymptomatic, unilateral depression on the lingual surface of the posterior jaw, situated between the inferior alveolar canal & the inferior border of the mandible. In 1942, Edward Stafne identified an entity located unilaterally in the posterior jaw, characterised as a radiolucent cavity situated between the mandibular angle & the third molar, inferior to the inferior alveolar canal, & designated it the SBC [1]. The majority of occurrences have been documented in male patients aged between 50 & 70 years. The cavities are often filled with normal salivary gland tissue; however, certain instances have shown contents comprising skeletal muscle, fibrous connective tissue, & adipose tissue. [2,3] It is typically discovered

incidentally using radiography during other dental procedures, as patients frequently exhibit no aberrant clinical symptoms. Panoramic radiography reveals an oval or circular radiolucency around the angle of the mandible, typically situated between the inferior alveolar nerve & the lower edge of the mandible. The diagnosis of SBD is very straightforward with the use of CT & MRI; however, it is essential to differentiate it from other cystic lesions in the mandible, such as ameloblastoma, residual cyst, periapical cyst, or lesions originating from salivary glands. [4,5] Here we present a case report of a rare case of Bilateral Stafne Bone Defect which was diagnosed incidentally with radiographic findings.



## Case Report

A 55-year-old male patient was referred to the oral & maxillofacial radiology department for a routine dental evaluation prior to prosthesis rehabilitation. The patient's medical & dental histories were unremarkable, & he claimed no history of maxillofacial trauma, pain, swelling, or paraesthesia. No concerns were reported concerning the jaw or temporomandibular joint. The extraoral & intraoral results during the clinical examination were normal. Palpation of the jaw exhibited no discomfort, & intraoral examination showed no mucosal irregularities or bone enlargement in the mandibular areas. A panoramic radiograph was acquired as part of the pre-prosthetic evaluation. The imaging disclosed two well-defined, ovoid radiolucent regions bilaterally situated around the angles of the mandible, inferior to the mandibular canal & anterior to the angle of the ramus. The lesions exhibited consistent radiolucency, delineated by a slender sclerotic boundary, & did not seem to induce any displacement of the mandibular canal or surrounding structures. The radiographic findings suggested Stafne bone abnormalities, albeit their bilateral occurrence was atypical. (Figure 1)



**Figure 1: Panoramic dental X-ray shows two radiolucency's at the angle of mandible**

To enhance the characterisation of the lesions, cone-beam computed tomography (CBCT) was conducted. Cross-sectional & axial images verified the existence of bilateral concavities on the lingual side of the posterior mandible, each measuring approximately 8 mm by 12 mm in diameter. The defects displayed preserved cortical margins without indications of enlargement, soft tissue masses, or features indicative of cystic or neoplastic conditions. The lesions were situated in

proximity to the submandibular gland region, corroborating the idea of glandular indentation on the jaw. A diagnosis of bilateral Stafne bone defect was established based on the radiographic findings & the absence of symptoms. The patient was apprised of the condition's benign nature, & no intervention was considered essential. Periodic radiography surveillance was recommended, & the patient was comforted. At the six-month follow-up, no alterations in the dimensions or look of the flaws were noted, confirming the non-progressive character of the anomaly.

## Discussion

A rare abnormality known as the Stafne defect manifests as a dip on the mandibular lingual surface. The existence of submandibular salivary gland tissues or even fatty tissues in the literature suggests that the cavity may be developing. Since these individuals typically have no symptoms, these bone cavities are discovered by chance during a normal dental examination. Despite being rare, it can infrequently result in jaw enlargement [6,7]. Although the prevalence of SBC has been reported in the literature in a variety of ways, the majority of studies have found a lower range of approximately 0.10% to 0.48%, with a larger frequency in the male population [8]. Despite the fact that the documented instances in the literature span a wide range of age groups, most of them fall between the fourth & sixth decade of life, with no clear racial predominance [9]. There is a dearth of research & documentation on the etiopathogenesis of SBC in the literature. Nonetheless, a number of theories have been put forth to explain how the cavity develops, including the possibility that it is congenital by nature & has a developmental origin due to improper ossification, salivary gland inclusion, or variation in anatomy at birth [10]. Radiographic imaging is typically used to diagnose the Stafne defect. Although Stafne defects can occur in atypical locations, such as the anterior mandible, the ramus region, & occasionally mimic other entities like an accessory mental foramen, which is an anatomical variation, or, in rare cases, a pathological entity, such as a benign cyst, routine dental imaging, including panoramic radiograph(s), is typically sufficient for a preliminary radiographic diagnosis.[11,12] A bilateral Stafne deficiency in the front mandibular region apical to the canine & incisors was observed by Queiroz et al in their study [13]. A case



of bilateral SBC was described in another investigation by Junquera et al [14]. Additionally, an uncommon instance of three SBCs—two in the posterior mandible & one in the para-symphyseal region—was observed by Boyle et al [15]. Advanced imaging modalities like CBCT must be used to thoroughly analyse multiple Stafne defects in order to rule out multi-foci radiolucent lesions like multiple myeloma. In these situations, CBCT imaging can corroborate the radiographic diagnosis of the Stafne defect & offer the best visualisation. Surgery is no longer required to treat SBD because it is a benign, developing bone defect that does not result in any pathological alterations. However, routine follow-ups are advised to determine whether the lesion is exhibiting any aberrant indications or a tendency to enlarge on radiographs.

## Conclusion

The bilateral Stafne bone defect is an uncommon but benign anatomical mutation. Acquaintance with its radiographic features, particularly via sophisticated imaging, is crucial to prevent unwarranted biopsies or surgical procedures. This instance underscores the significance of appropriate radiographic assessment & careful handling of incidental findings in asymptomatic individuals.

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