Current Research in Health Sciences, 4(1):34–37, 2026. DOI: 10.58613/crhs416

Current Research in Health Sciences

ISSN (Online): 2584-1084

Journal homepage: https://www.gpub.org/journal-details.php?journal-id=47

Case Report

Stafne Bone Cyst - A Case report and review

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Article Info

Keywords: *Stafne bone cyst, Nerve laterarization, Histopathology.*

Received: *05.06.2026;*
Accepted: *17.06.2026;*
Published: *26.06.2026*

Abstract

Stafne bone cysts (SBCs) are typically asymptomatic, incidental findings at the mandibular angle, making clinical differentiation from true tumors challenging. We present an atypical case of an SBC presenting with long-standing pain in the left mandibular angle, devoid of paresthesia or progressive growth. Relying on an integrated clinical assessment, surgical intervention was planned under local anesthesia. Treatment involved surgical extraction, creation of a bony window within the socket, laterization of the inferior alveolar nerve, cyst enucleation, and Platelet-Rich Fibrin (PRF) placement. Postoperative histopathological evaluation confirmed an SBC with a salivary gland component. The patient achieved satisfactory functional and aesthetic outcomes. This report highlights that for symptomatic or ambiguous mandibular lesions, local enucleation coupled with definitive postoperative histopathology remains essential to successfully distinguish benign SBCs from true tumors.

1. Introduction

Stafne bone cyst (SBC) is a primary benign bone tumour characterized by a Stafne bone cavity (SBC) is a rare mandibular defect with unknown aetiology. SBC was first described by Edward Stafne in 1942, who reported asymptomatic unilateral radiolucent defects in the posterior region of the mandible [1]. The cavities appearing as round or ovoid, well-demarcated, unilocular radiolucency were located between the mandibular angle and the third molar, below the inferior alveolar canal and above the mandibular base.

The anterior variant of this cavity, which is a radiolucent cavity usually located between the canine and premolar mandibular region, was first reported by Richard and Ziskind in 1957 [2]. The clinical and radiographic features of the anterior SBC are similar to the posterior variant. Posterior SBCs can be easily diagnosed due to their unique features on radiographs; however, the anterior variants may be misdiagnosed and confused with other pathological entities owing to their unusual locations [3].

Due to its infrequency and the unique anatomical, functional, and aesthetic aspects of the mandible, diagnosing and managing this form of SBC is particularly challenging. It most commonly arises in the angle of the mandible in head and neck region.

Considering most of the cases, Stafne cavity is diagnosed incidentally in routine radiologic examinations in asymptomatic patients. In panoramic radiograms it appears to be a dense circumscribed radiolucency in mandibular angle, below mandibular canal, mostly in one focus. Stafne cysts are considered stable structural changes of the mandible and do not require surgical intervention. But in literature, there are reports of patients operated for this entity, with descriptions of cavities containing submandibular gland tissue, muscles, fibrous connective tissue, blood vessels, fat or lymphoid tissue. In this particular paper we present a Stafne bone cavity containing ectopic parotid gland.

How To Cite: A. Maity, M. Misra, R. Banerjee, S. Basu and A. Mahesh. Stafne Bone Cyst - A Case report and review. *Current Research in Health Sciences*, 4(1):34–37, 2026. https://doi.org/10.58613/crhs416

In view of this, we present a case report of Stafne bone cyst to highlight the diagnostic dilemma when approaching lesions of its nature. A 23-year-old male patient who presented with pain in the left angle of mandible after an excisional biopsy which was composed of in the left body of mandible. This case emphasizes the uncommon nature of this condition and the critical need for precise diagnosis and effective treatment approaches. In this report, we explore the clinical presentation, imaging findings, and histopathological features of this Stafne bone cyst, offering important guidance for clinicians and pathologists who may encounter similar presentations.

2. Case Report

A 23-year-old Indian male presented with pain and swelling in the left side of the lower jaw for over 15 days; until a growing lesion accompanied by numbness in the lower lip area.

No comorbidities were found, other than smoking. No medical record was found.

Extraorally, no gross asymmetry present. Head and neck examination revealed no pathologic findings and no pain on palpation of the neck nodes.

On intraoral examination the swelling measured approx. 2*2*1 sq. cm in the left mandibular region, involving primarily the alveolus and encroaching towards the body of left mandible Figure 1.

Figure 1: Pre op profile and radiograph

Digital orthopantomogram revealed an oval-shaped and well-bordered radiolucency between the third molar and the mandibular angle, slightly above the inferior mandibular line. Surrounding borders of the cyst were more dense Figure 2.

Figure 2: Intraoperative (from right to left extraction teeth 37, 38 with enucleation of cyst, placement of PRF, suturing with 3-0 silk.)

FNAC was performed and was negative. Following the clinical, radiological and histopathological diagnosis, extraction of 37, 38 and an enucleation was planned under local anaesthesia & it was decided to fill the empty socket with PRF for faster healing.

Surgical approach was made by placing a modified wards incision. Dissection was carried out by carefully preserving inferior alveolar nerve. Following periosteal detachment, the periosteal bone exposed. Lower 2nd and third molars were extracted. The entire specimen was removed in multiple piece. Postoperative histopathological specimen was analysed. Sections show histological features of salivary gland with predominant serous glands and scanty focal islands of mucinous glands which is suggestive of “Stafne Bone cyst” [4]. Postoperatively healing was uneventful Figure 3.

Figure 3: Post op after 1week

3. Discussion

Stafne bone cyst (SBC), first described by Edward Stafne in 1942, is a well-recognized developmental defect of the mandible, alternatively referred to as a latent bone cavity, static bone defect, or idiopathic bone cavity. Characterized as a pseudocyst due to its lack of an epithelial lining, SBC typically manifests as a well-demarcated, unilocular radiolucency located in the posterior mandible below the inferior alveolar nerve (IAN) canal. The widely accepted etiopathogenesis points to localized pressure resorption of the lingual cortical plate induced by hypertrophic or lobulated salivary gland tissue—most commonly the submandibular gland.

While the prevalence of SBC ranges between 0.1% and 0.48%, the overwhelming consensus dictates that these lesions are entirely asymptomatic, static, and discovered exclusively as incidental radiographic findings. Consequently, the standard of care for a classical SBC is non-interventional, conservative monitoring through periodic radiographic follow-up.

However, the case presented herein challenges this conventional management paradigm. Our patient presented with long-standing, localized pain at the left mandibular angle. While literature documents rare instances of influxes of pain—often attributed to secondary infection, chronic sialadenitis of the entrapped salivary tissue, or mechanical pressure on neighbouring neurovascular structures—the presence of pain immediately introduces a diagnostic dilemma. A genuine, symptomatic radiolucency in the posterior mandible cannot be definitively managed via watchful waiting, as it strongly mimics aggressive osteolytic pathologies.

Comparative Evaluation Between Aneurysmal Bone Cyst and Stafne Cyst Of Mandible as shown in Table 1.

Table 1: Comparative Evaluation Between Aneurysmal Bone Cyst and Stafne Cyst Of Mandible

Clinical, radiographic and transurgical findings	**Simple Bone Cyst**	**Aneurysmal Bone Cyst**
Age	2^{nd} and 3^{rd} decade of life	2^{nd} decade of life
Race	Caucasian	Caucasian
Main complaint	NR	NR
Evolution time	Unknown	>1 year
Symptom	No	No
History of trauma	No	No
Anatomical location	Posterior mandible	Posterior mandible
Facial asymmetry	No	Yes
Cortical disruption	No	No
Radiographic aspect	Radiolucent	Radiolucent
Number of lesions	Unique	Unique
Type of biopsy	Excisional	Excisional
Transoperative aspects	Empty cavity	Empty cavity

4. Clinical Outcome and Conclusion

The postoperative histopathological report confirmed the definitive diagnosis of an SBC containing normal salivary gland elements, with no signs of cellular atypia or malignancy. Despite the surgical complexity and the necessity of IAN lateralization, the patient exhibited an excellent recovery with no neurosensory deficits (paresthesia), achieving highly satisfactory functional and aesthetic outcomes.

In conclusion, while conservative observation remains the benchmark for classic, asymptomatic Stafne bone defects, this case underscores the necessity of surgical intervention when atypical symptoms like chronic pain are present. An integrated clinical approach utilizing conservative bony window designs, nerve lateralization, and PRF grafting allows for safe local enucleation. Ultimately, definitive postoperative

histopathology remains the gold standard to confidently distinguish this benign pseudocyst from true mandibular tumors, ensuring patient safety and treatment efficacy.

Article Information

Author Contributions: A.M. - Concepts, Design, Investigation, Manuscript Writing; M.M. - Concepts, Design; R.B. - Concepts; S.B. - Concepts; A.M. - Concepts;

Funding / Financial Support: The authors received no external funding.

Competing Interests: Authors have declared that no competing interests exist.

Informed Consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Disclaimer (Artificial Intelligence): The author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.), and text-to-image generators have been used during writing or editing of manuscripts.

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