

Solitary Osteoma in the Angle of the Mandible: A Case Report

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ABSTRACT

Although osteomas are relatively common in craniofacial bones, the occurrence of a solitary osteoma is relatively more common in the mandible and is rare in the maxilla. Hereby, the authors highlight the clinical, radiological, and histopathological features of a solitary osteoma in the left angle of the mandible of a 60-year-old male patient, followed by surgical management and a review of the literature. The purpose of present article was to present the clinical, radiographic, and surgical features of a solitary peripheral mandibular osteoma in a 60-year-old male patient and to contribute to the evidence of their prevalence.

Keywords: Benign, Bony tissue, Craniofacial bones, Neoplasm

CASE REPORT

A 60-year-old male presented to the Outpatient Department of Oral and Maxillofacial Surgery with a painless swelling in the left lower mandibular region, persisting for more than 15 years. The patient's primary concern was cosmetic, as he desired a more symmetrical facial appearance. The swelling initially appeared at the bony angle of the left mandible approximately 15 years ago and had shown slow progression in size but did not cause pain or functional impairment. There was no history of trauma, systemic illness, or prior surgery in that area. The patient reported a history of tobacco chewing and occasional alcohol consumption.

On examination, after obtaining informed consent, the overlying skin appeared normal with no signs of inflammation or ulceration [Table/Fig-1a,b]. On palpation, the swelling was non fluctuant. Extraorally, there was a bony-hard, non tender swelling measuring approximately 3×2.5 cm, diffuse and roughly round in shape, with lobulated and nodular margins over the left angle of the mandible, causing mild facial asymmetry. There was no local rise in temperature. The swelling was firmly adherent to the underlying bone, and no enlarged lymph nodes were noted. Intraorally, there was no palpable swelling, mucosal involvement, or occlusal disturbance. Thorough inspection and palpation revealed no similar lesions on the long bones or elsewhere on the body; therefore, radiographic evaluation was indicated.



[Table/Fig-1]: Clinical photographs of patient: a) Worm's view depicting the swelling over left angle of the mandible; b) Left lateral view depicting swelling at resting position.

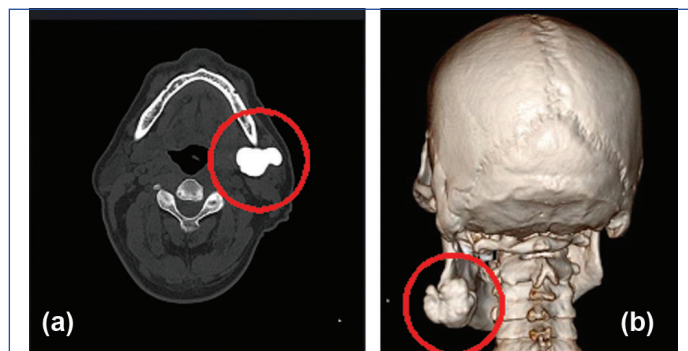
Based on the clinical findings and history, a provisional diagnosis of bony growth over the left angle of the mandible was made. The patient was planned for further evaluation and surgical management. For radiographic assessment, an Orthopantomogram (OPG) and Computed Tomography (CT) scan were obtained. The OPG revealed

a well-defined, homogeneously radiopaque, mushroom-shaped lesion arising from the outer cortex of the left mandibular angle. No signs of cortical perforation or periosteal reaction were observed. The adjacent teeth appeared normal, and the inferior alveolar canal was intact [Table/Fig-2].



[Table/Fig-2]: Orthopantomogram of patient showing a radiopaque mass over the left angle of the mandible (red circle).

Plain non contrast CT scan [Table/Fig-3a,b] confirmed a dense, homogeneous, exophytic bony mass measuring approximately 3.0 cm in diameter, attached to the angle of the mandible and extending more in the mesiodistal direction as a lobular mass. The lesion showed no cortical disruption or involvement of surrounding structures, supporting the radiographic diagnosis of a bony growth over the left mandibular lower border.

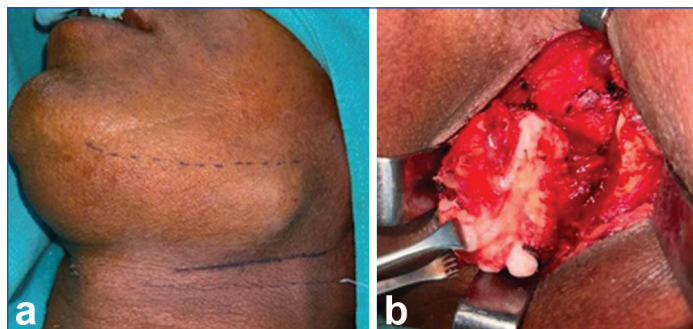


[Table/Fig-3]: Computed tomography cuts showing the bony overgrowth with lobules and extension.

Differential diagnoses included peripheral osteoma, which is well-defined, uniformly radiopaque, and typically asymptomatic; exostosis, which is usually bilateral and ceases growth; and osteoid osteoma, which causes pain and demonstrates a radiolucent nidus. Other differential diagnoses included osteoblastoma, which exhibits

mixed density with cortical expansion; cemento-ossifying fibroma, which presents with mixed radiolucency and possible dental involvement; complex odontoma, often associated with impacted teeth; and osteosarcoma, characterised as aggressive, ill-defined, with destructive margins.

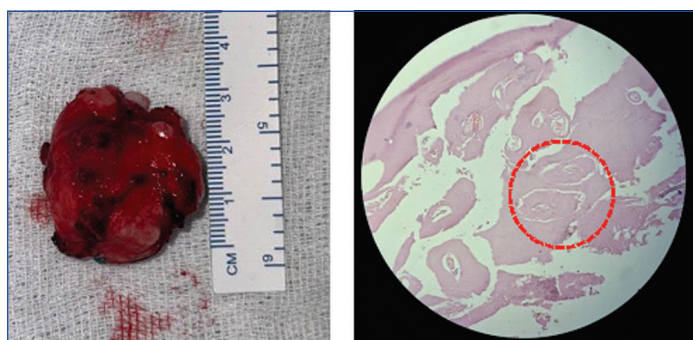
Given the lesion's size, location, and the patient's cosmetic concerns, surgical excision was performed under general anaesthesia using a periangular approach [Table/Fig-4a] to access the bony growth arising from the left mandibular angle. A careful incision and subplatysmal dissection exposed the lesion while safeguarding vital structures, including the inferior alveolar and marginal mandibular nerves [Table/Fig-4b].



[Table/Fig-4]: a) Incision marking at the first crease of neck; b) Exposure of the lesion to be resected.

The osteoma was meticulously excised en bloc using appropriate instruments, ensuring complete removal while preserving healthy bone. The surgical site was irrigated and closed in layers, and the excised specimen [Table/Fig-5] was sent for histopathological examination to confirm the diagnosis.

Microscopic analysis [Table/Fig-6], processed and stained with Haematoxylin and Eosin (H&E), revealed a well-organized mass of dense lamellar bone with minimal osteoblastic activity. No signs of malignancy, fibro-osseous transformation, or inflammation were observed, confirming the diagnosis of a peripheral solitary osteoma. Histopathology demonstrated osteoid tissue with Haversian structures, correlating with radiographic findings of a radiopaque outgrowth.



[Table/Fig-5,6]: Excised hard-tissue growth, showing osteoid tissue deposits (red circle) (H&E, 10x). (Images from left to right)

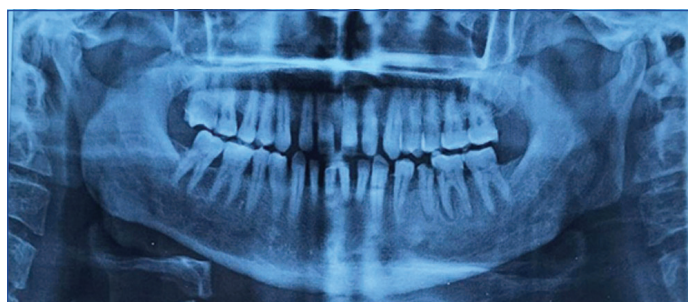
The patient experienced an uneventful recovery with no complications. Postoperative healing [Table/Fig-7,8] was satisfactory. Postoperative OPG [Table/Fig-9] demonstrated normal mandibular contour. Follow-up at one and three weeks showed satisfactory healing, no recurrence, and improved facial symmetry.

DISCUSSION

Osteomas are benign osteogenic neoplasms characterised by the proliferation of compact or cancellous bone [1]. Peripheral osteomas, arising from the periosteum, are infrequent in maxillofacial pathology [2]. These low-growing tumours are often asymptomatic and are detected incidentally during routine radiographic evaluations. However, larger lesions can present as swelling, causing facial asymmetry or restricted mandibular movement. The exact aetiology remains unascertained. Mandibular osteomas, particularly in the



[Table/Fig-7,8]: Immediate postoperative photographs of the patient showing mild surgical oedema over the left mandibular angle region. (Images from left to right)



[Table/Fig-9]: Postoperative OPG showing eradication of the bony growth and smooth mandibular margins.

angle of the mandible, pose unique challenges in diagnosis and management [3].

Osteomas are categorised into central (arising within bone), peripheral (arising from the periosteum), and extraskeletal types, with mandibular Peripheral Osteomas (PO) being the least frequently reported [4]. Their slow growth and benign nature often result in incidental findings, though larger lesions may present with functional and aesthetic concerns. Peripheral osteomas, though rare, can grow to significant sizes most commonly in the mandible and require histopathological analysis for definitive diagnosis, with surgical removal indicated in cases of functional limitation or facial deformity [5].

Peripheral osteomas most commonly affect the paranasal sinuses, including the frontal, ethmoidal, and maxillary regions [6,7]. Within the mandible, common sites include the angle, condyle, and body. There is no evidence of sex predilection [8] or specific age predilection [9]. The present case, involving a 60-year-old male, may reflect the lesion's indolent progression and delayed clinical manifestation.

The exact pathogenesis of peripheral osteomas remains speculative. Three major theories have been proposed: the neoplastic theory, which suggests that they may represent true neoplasms; the reactive mechanism, a commonly accepted hypothesis proposing that osteomas result from a reactive process following trauma, infection, or chronic irritation; and the developmental abnormality theory, which proposes that osteomas represent developmental anomalies arising from aberrant ossification during bone formation. Solitary osteomas, as seen in present case, are not true neoplasms. The absence of trauma or infection history suggests that this lesion could represent a developmental abnormality [8].

Mandibular osteomas often remain asymptomatic due to their slow growth and limited aggressiveness. When symptomatic, they may cause swelling or deformity (as observed in this case), trismus or restricted mandibular movement due to mechanical interference (not present here), or nerve compression leading to paresthesia, although this is rare. Treatment is generally not required unless the lesion causes pain, disfigurement, or interferes with normal function [10]. In present case, the patient sought treatment due to

progressive swelling affecting facial symmetry, a common motivator for intervention.

The differential diagnosis of osteoma includes exostosis, chronic focal sclerosing osteomyelitis, cemento-osseous dysplasia, ossifying fibroma, chondroma, and fibrous dysplasia [11]. Clinically, osteomas may overlap with exostosis, osteochondroma, and ossifying fibroma.

Imaging plays a pivotal role in diagnosing osteomas. Peripheral osteomas typically appear as well-circumscribed, dense radiopaque masses on panoramic radiographs and CT scans, with CT considered the gold standard modality for diagnosis. Advanced imaging allows precise localisation and detailed evaluation of the lesion's attachment to surrounding structures. Radiographically, osteomas may resemble sclerosing osteitis, as both present as radiopaque lesions with well-defined borders.

Gardner's syndrome is a rare, autosomal dominant disorder, a form of familial adenomatous polyposis characterised by the triad of multiple colonic polyps, osteomas, and epidermoid cysts, with the classical triad present in 38% of patients [12]. In present case, the patient was evaluated for colonic polyps or cysts, and none were found, effectively ruling out the syndrome.

Surgical excision remains the treatment of choice for symptomatic osteomas or those causing functional or aesthetic concerns [12,13]. The surgical approach depends on the lesion's size, location, and accessibility. In present case, a periangular approach was employed to achieve complete en bloc resection while preserving adjacent structures. Complete excision minimises the risk of recurrence, which is rare for peripheral osteomas [14]. The prognosis for peripheral osteomas is excellent, with no reports of malignant transformation.

CONCLUSION(S)

Solitary peripheral osteomas, while rare, are important considerations in the differential diagnosis of jaw swellings. The present case highlights the characteristic clinical, radiographic, surgical, and histopathological

features of a peripheral osteoma in the angle of the mandible. Surgical excision provides excellent outcomes with minimal risk of recurrence. Comprehensive evaluation and follow-up are essential to ensure long-term success and to rule out syndromic associations.

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