

**CASE REPORT**

## **Solitary Peripheral osteoma: A rare entity on angle mandible with review**

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### **ABSTRACT**

**O**steomas are benign, slow growing tumor arising from the proliferation of cancellous or compact bone. Osteomas have three varieties as central, peripheral and extra skeletal. Central and peripheral osteomas are often seen in the facial bones. Peripheral osteomas arise from the periosteum and are often located in the frontal, ethmoid and maxillary sinus, but its occurrence in the jaws is very rare. They are usually asymptomatic and discovered incidentally while radiological and clinical examinations. Peripheral osteomas of mandible are considered as rare entity and very few cases have been reported in the literature. The pathogenesis of it is imprecise. Some researchers categorise it as a true neoplasm, while others as a developmental anomaly or a reactive repercussions to trauma or infection. Herein, we report a case of peripheral osteoma of the angle region of mandible in a 20-year-old female along with review of literature.

### **INTRODUCTION**

Osteoma is a benign often asymptomatic neoplasm characterized by proliferation of compact or cancellous bone. There are three subtypes of osteomas; peripheral (parosteal, periosteal or exophytic), central (endosteal) and extraskeletal (osseous choristoma) osteoma.<sup>1,2</sup> The central osteoma have its origin from the endosteum, from the periosteum arises peripheral osteoma and the extra-skeletal soft tissue osteoma usually develops within the muscle.<sup>3</sup> Both central and peripheral osteomas have been described in the cranio-maxillofacial region.

In maxillofacial region, peripheral osteoma occurs most frequently in the paranasal sinuses. Other locations

include the orbital wall, temporal bone, pterygoid processes and external ear canal and are rarely seen in the mandible.<sup>4,5</sup> They usually occur between 2nd and 5th decade; however, may be seen at any age. Most of the osteomas occurring in the mandible are dense osteomas, and the cancellous osteoma is comparatively rare.<sup>2</sup> Of those that have been described, the locations are normally posterior to the premolars on the lingual surface of the mandible or in the condylar area. It is seen in young adults and usually remains less than two cm in size after years of slow enlargement.<sup>4,5</sup> The purpose of this case report is to present a solitary peripheral mandibular osteoma, clinical and radiographic findings, differential diagnosis and its surgical management.

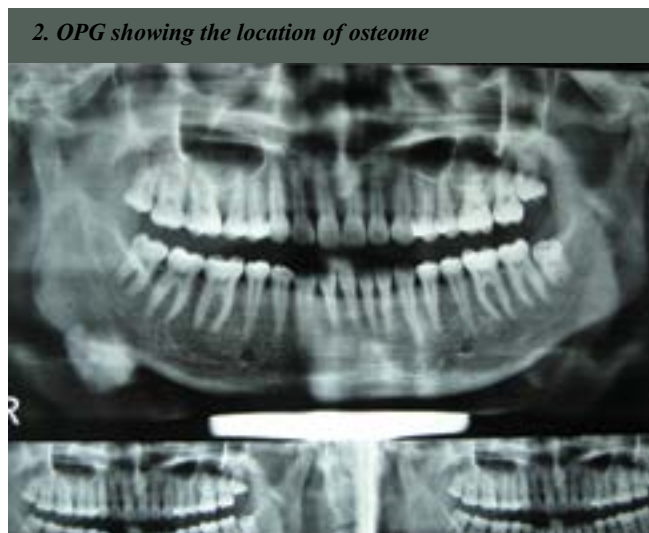


### Case report:

A 20-year-old woman reported to the outdoor patient department, with a complaint of slowly enlarging swelling in the right lower jaw for the last 3 years. A distinct facial asymmetry was observed extraorally with slight elevation in the angle region of the mandible. [Figure 1]

There was no associated pain with the lesion, and the patient did not have any problem with mouth opening or chewing. The patient was in good health with no history of previous facial trauma, surgery or any additional contributory medical factors. Clinical examination revealed non-tender, non-pulsatile, small, bony hard swelling approximately 3 × 2 cm present medially below the angle of the right mandible. The overlying mucosa of the mass was normal in color texture and was not attached to the underlying mass.

On radiographic examination, Orthopantomogram (OPG) revealed an oval, a well circumscribed, round radiopaque mass on the lower border of the angle region of right mandible. [Figure 2]



On clinical and radiographic findings differential diagnosis of Exostoses, osteoma, osteochondroma, osteoblastoma, osteoid osteoma, ossifying fibroma, late-stage central ossifying fibroma or complex odontoma was made. Surgical excision of the mass was planned.

The patient was prepared for surgery under local anaesthesia. Well informed written consent for surgery and anesthesia was taken from the patient. Extraoral submandibular incision was given to preserve the marginal mandibular branch of the facial nerve. Excision was performed and the mass was excised. The surgical specimen was submitted for the microscopic histopathological examination. [Figure-3,4,5]

**3. Surgical excision of the osteome**



**4. Excised lesion**

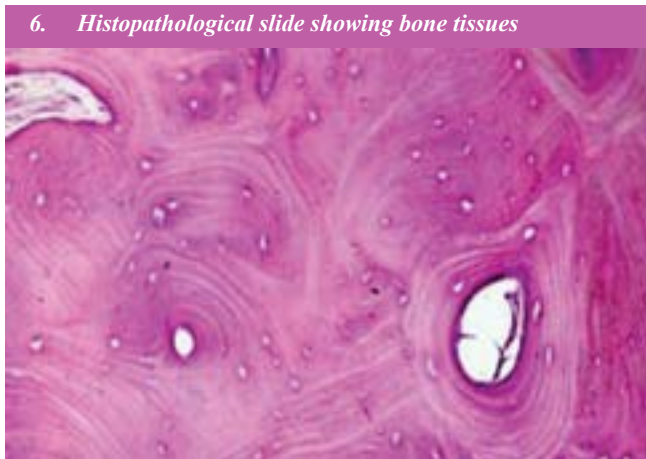


**5. Operative site after surgical removal of osteome**



Postoperative recovery was uneventful.

Histopathological examination revealed features compatible with osteoma, such as vital compact and mature medullary bone tissue, showing osteocytes and medullary spaces containing a loose connective tissue with capillaries.[Figure-6:]



A diagnosis of 'peripheral osteoma of the body was made from the clinical, radiographic and histopathological findings.

Post surgical follow up is being carried out periodically.

## DISCUSSION

Osteoma is a benign, slow growing bone tumor manifesting as a protruding mass, frequently arising from the maxillofacial bones and characterised by proliferation of compact, lamellar and cortical bone. It arises from the paranasal sinuses, most commonly involves the frontal sinus. Other documented craniofacial sites include external auditory canal, orbit, temporal bone, zygomatic arch, pterygoid plates and rarely jaws.<sup>6-9</sup> There is greater occurrence in mandible than maxilla.<sup>4,7,10</sup> In the mandible the common locations are the posterior lingual aspect of the body, angle and inferior border of the mandible. The other sites of occurrence are sigmoid notch, coronoid process, genial tubercle, condylar notch.<sup>7,10-12</sup> The peripheral osteomas are usually attached to the bone by a sessile or pedunculated base.<sup>12-14</sup> They are usually asymptomatic unless their large size results in facial asymmetry.

Osteoma is most frequently observed in the second and fifth decades of life. Osteomas are usually solitary; if multiple, the patient should be evaluated for Gardner's syndrome. Gardner's syndrome may present with rectal bleeding, diarrhea, and abdominal pain and may be

characterized with colorectal polyposis, multiple osteoma, skin and soft tissue tumors, and multiple impacted or supernumerary teeth.<sup>4</sup> In present case, the lesion was solitary, there were no dental or skin anomalies, and the patient gave no history of pain or any intestinal complaints. Thus, Gardner's syndrome was not considered due to the absence of accompanying lesions.

The Pubmed search revealed very few cases of solitary osteomas reported in angle region of mandible. [Table-1]

S. No.	Title	Authors	Journal
1.	Osteoma of the mandibular angle aggravated by radiotherapy	Grether A	Revue Stomatol. 1951 Feb-Mar; 52(2-3): 132-9
2.	Peripheral osteoma on the buccal aspect of mandible angle: a review of radiopaque masses and differential diagnosis.	Han SH, Kwon H, Jung SN	J Craniofac Surg. 2013; 24(5):1842-4
3.	Revisiting Peripheral Osteoma of the Mandible with Case Series and Review of Literature	S Soni. A. Bhargava	Indian J Otolaryngol Head Neck Surg, 2014 Jun; 66(2): 212-218.
4.	Solitary Peripheral Osteoma of the Angle of the Mandible.	Kshirsagar K, Bhate K, Pawar V, Santhosh Kumar SN, Kheur S, Dusane S	Case Rep Dent.; Volume 2015, Article ID 430619, 4 pages <a href="http://dx.doi.org/10.1155/2015/430619">http://dx.doi.org/10.1155/2015/430619</a>

The cause of peripheral osteoma is still debated. Differential diagnosis of osteomas include peripheral ossifying fibroma, exostoses, sessile osteochondroma, periosteal osteoblastoma, osteoid osteoma, and periosteal osteoblastoma, parosteal The exact pathogenesis of osteoma is controversial and vague.<sup>12,15</sup> It has been considered to be a true neoplasm, developmental anomaly, or reactive lesion triggered by trauma muscle traction or infection.<sup>6,10,15</sup>

As solitary peripheral osteoma may be clinically silent for years without symptoms, it is usually diagnosed when it becomes enlarged or is incidentally discovered by radiological examination such as panoramic radiography or CT.<sup>1</sup> In this case, the lesion is single ,silent and initially



without any symptoms; however, it gradually enlarged over a period of 3 years to reach a size of 2.5 cm.

Radiographically, the presence of an oval, radiopaque, well-circumscribed mass attached by a broad base or pedicle to the affected cortical bone is a hallmark of peripheral osteomas. New periosteal bone formation is absent.<sup>16,17</sup>

Histologically, compact osteomas are made of normal dense bone with minimal bone marrow tissue. The cancellous osteomas are made of trabecular bone and fatty bone marrow. There is marked osteoblastic activity.<sup>18</sup>

The surgical management of osteoma is only indicated in patient with clinical symptoms.<sup>9</sup> These are based on the degree of disfigurement, limitation or loss of function or desired for definitive histopathologic diagnosis.<sup>10</sup> Surgery involves complete removal of the lesion from the base where it unites with the cortical bone.<sup>6,12,14</sup> Extraoral approach is preferred for larger tumors that are located in the posterior region of the mandible. In our case, extraoral approach was preferred due to the location of the lesion in the angle region of the mandible.

The recurrence or malignant transformation after surgical removal hasn't been reported till date.<sup>4,10</sup> However, periodical and radiographic follow ups after surgery are advised.<sup>13</sup>

## CONCLUSION

Although peripheral osteomas of jaws are rare, this case demonstrates that if neglected they can enlarge slowly and considerably. Cosmetic disfigurement and functional impairment are main reasons of patients opting for the treatment. The postsurgical follow-up should comprise periodic clinical and radiographic studies. Patients with osteoma associated with impacted or supernumerary teeth should be evaluated for the possible Gardner's syndrome. Surgery is indicated only when the lesion is symptomatic.

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