

MONOSTOTIC MANDIBULAR OSTEOMA: A RARE ENTITY

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ABSTRACT:

Osteomas are rare benign osteogenic tumors characterized by proliferation of compact or cancellous bone. They may be classified as Peripheral (periosteal), Central (endosteal) or Extraskkeletal types.

Osteomas not uncommonly involve craniofacial bones with paranasal sinuses being the most common location. A solitary peripheral osteoma (PO) of jaw bones is quite rare entity with mandible affected more than maxilla. Peripheral osteomas are typically slow growing lesions which are mostly asymptomatic unless attain a significant size to produce facial deformity. In this paper, we present 2 cases of mandibular osteoma, *first case* is of a large solitary peripheral osteoma located in the buccal surface of the left posterior mandible and causing facial deformity in a 18-year-old man. Radiographic examination by computed tomography revealed radiopacity with a well-circumscribed, pedunculated mass approximately 3 cm in size. *Second case* is of 28 year old male with an intra-oral swelling which on CT was arising from the medial aspect of the mandible. In both the cases, the osteoma was removed surgically, and no recurrence has been.

Key words: Osteoma, Mandible, Gardner syndrome.

INTRODUCTION:

Osteomas of facial bones are benign, slow growing osteogenic tumors characterized by the proliferation of compact or cancellous bone. They originate from the craniofacial region such as temporal bones, sinuses or jaws. They usually occur between 2nd and 5th decade; without predisposition for any age ^[1].

Lichtenstein defined osteoid osteoma as a "small, oval or roundish tumor like nidus which is composed of osteoid and

trabeculae of newly formed bone deposited within a substratum of highly vascularized osteogenic connective tissue [2]."

The overall incidence of osteoma is low, affecting 0.01–0.04% of the population; osteomas comprise 12.1% of benign bone tumors and 2.9% of all bone tumors ^[3]. It has been reported that males and females are equally affected.

There are three subtypes of osteomas; peripheral (parosteal, periosteal or

exophytic), central (endosteal) and extraskeletal (osseous choristoma) osteoma [4]. Peripheral osteoma arises centrifugally from the periosteum and is commonly a unilateral, pedunculated mushroom-like mass. However, central osteoma arises centripetally from the endosteum. Extraskeletal soft tissue osteoma often originates from muscle tissue [5].

Peripheral osteoma is a rare entity and most frequently arises from paranasal sinuses. The less often sites are orbital wall, temporal bone, pterygoid process and external ear canal [6-7]. Among jaw bone it is commonly seen in mandible as compared to maxilla and dense peripheral osteoma is most commonly found than the cancellous osteoma [8]. As reported by Sayan *et al.*, 22.85% of such lesion occurs in the mandible and 14.28% in the maxilla. In their study, Kaplan *et al.* also reported that 81.3% of cases occurred in the mandible [9].

The purpose of this case report is to present two cases of a solitary peripheral mandibular osteoma with radiographic finding and to discuss differential diagnosis with relevant literature.

CASE DETAIL:

Case 1

An 18yr old male patient was referred to our department with the chief complaint of swelling on the lower left side of the mandible for 7 months. Swelling was similar to the size of the marble which was progressively increasing and also had a pain while yawning and chewing food.

He had no prior history of facial trauma and his medical history was non-contributory. Dental history revealed extraction of lower left premolar. Clinical examination revealed extra-oral swelling of size 3x2cm in size in left lower mandibular region, extending 2cm from angle of the mandible, 4cm from mental and arising from the mandible. Swelling was hard, non-tender and non-mobile on palpation.(figure 1)

Intra-oral examination revealed normal mucosa with no vestibular obliteration and finding was non-contributory.

A well circumscribed, large pedunculated mass attached to the buccal surface of the left mandibular body was detected on computed tomography.(figure 2,3) On the basis of physical and radiographic examination, osteoma of the mandible was considered as initial diagnosis. Excision was performed under general anesthesia with extra oral approach and mass was excised with part of normal periosteum. (figure 4,5)

Macroscopically, yellowish solid mass of about 3x3cm was visualized. The surgical specimen was submitted for histopathological examination. Tissue specimens were fixed in 10% formaldehyde and then decalcified in 8% formic acid solution. They were processed routinely and paraffin embedded. Tissue blocks were cut with 4 μ thickness and slides were stained with hematoxylin and eosin. Histopathological examination revealed well-circumscribed non encapsulated mass composed of compact and mature medullary bone tissue,

showing osteocytes and medullary spaces interspersed with loose connective tissue and few well-endothelial lined vascular spaces of varying in size and shape. The histopathological finding was consistent with peripheral osteoma.

Case 2

28 year old male presented with intra-oral swelling since last 8 years which has progressively increased in size. There is no history of trauma or previous surgery. Patient had foreign body sensation with slight heaviness in the region of the swelling. There was no complains of dysphagia or pain due to swelling. On clinical examination, a hard ,non tender 3x3 swelling was present in the left sided gingivo-lingual sulcus. The tooth and the rest of the mandible was normal.

CT scan revealed 3x3 swelling arising from the mandible with relatively narrow base on the lingual aspect of the mandible.(figure 6 and 7) The surgical excision was done by intra-oral approach. The mucosa over the osteoma was lifted and preserved . The osteoma was demarcated along the circumference. The base was identified and chiseled out. The irregular area created by delivery of the osteoma was smoothed out by using diamond burrs. The mucosal flap was resutured to gingival mucosa to prevent granulation on the exposed bone.

The histo-pathological report proved it to be osteoma.

DISCUSSION:

The precise etiology of osteoma is unknown, although developmental anomalies, true neoplasm, reactive lesion triggered by trauma, infection, and muscle traction have been proposed.

Kaplan et al ^[9] suggested that many peripheral osteomas may be reactive lesions caused by trauma or muscle traction rather than neoplasm, because many peripheral osteomas are located on the lower border or buccal aspect of the mandible (as more prone to trauma).

As 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 Computerised tomography ^[10].

CT (with three-dimensional reconstruction) is considered the best imaging modality both to identify the location and extent of the lesion ^[11] and to determine the surgical approach. On CT images, peripheral osteomas are well-demarcated, round or oval mushroom-like hyperdense masses. Sessile lesions are often attached to the cortex with a broad base, whereas, pedunculated lesions have a thin contact area with compact bone ^[6]. In our case CT scan demonstrated a well circumscribed, large pedunculated mass attached to the buccal surface of the left mandibular body.

Peripheral osteoma may cause facial deformity, headache, exophthalmos, mandible deviation. The suspicion for early detection of Gardner syndrome rises with a facial osteoma detection as patients are at high risk for developing colorectal adenocarcinoma [1].

The surgical removal of asymptomatic peripheral osteoma is not generally necessary. Asymptomatic, small, nonprogressing solitary osteomas can be just followed-up with physical and radiological examinations. However, surgical removal is indicated only for large, deforming and progressive osteomas causing facial asymmetry or functional dysfunction. Extraoral approach is preferred for larger tumors that are located posterior part of the mandible. Recurrence after resection is very rare and malignant transformation has not been reported in the literature [12].

Exostoses, osteoblastoma, osteoid osteoma, ossifying fibroma, late-stage central ossifying fibroma or complex odontoma should be considered in the differential diagnosis. Exostoses are an extension of bone and usually stop growing after puberty. Ossifying fibroma is a well-defined mass with marginal sclerosis and a thin cortex. Bone expansion may be seen at 50% of cases. Aggressive lesions may have a characteristic ground-glass appearance. Osteoblastoma and osteoid osteoma are painful lesions that tend to grow very fast. Benign osteoblastoma may cause expansion in the cortex of the mandible. It is an osteoblastic tumor and characterized

with radiopaque and radiolucent patterns, depending on the degree of calcification. Osteoblastoma arises from the medullary bone whereas osteoid osteoma arises from the cortical bone. Complex odontoma is a well-defined radiopacity, which is denser than the adjacent bone tissue. Furthermore narrow radiolucent rim can be seen around the mass.

CONCLUSION:

We have presented two cases of a peripheral osteoma on the lower left side of the mandibular body. The lesion had grown slowly. Following clinic-radiological diagnosis, surgical excision was done. Recurrence of peripheral osteoma after surgical excision is extremely rare. However, it is appropriate to provide both periodic clinical and radiographic follow up after surgical excision of a peripheral osteoma. There are no reports of malignant transformation of peripheral osteoma in the literature. CT is a very useful modality for both detection of location and extension of osteomas. Furthermore, osteomas of the facial skeleton precede the clinical and radiographic evidence of colonic polyposis or Gardner syndrome; hence is a sensitive marker for the disease. Therefore, patients with osteoma of the facial skeleton should be evaluated for the colorectal carcinoma because early and advanced evaluation is very significant for the prognosis of the patient.

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FIGURES:

Case 1



Fig. 1 Extraoral photograph shows a swelling on the left posterior body of the mandible



Fig. 2 Panoramic radiograph showing a solitary, round, 3×3cm well-defined radio-opaque mass without a radiolucent rim on the left side of the body of the mandible



Fig 3. CT scan showing osteoma



Fig. 4 Extraoral approach for tumor excision



Fig. 5 Macroscopic specimen



Figure 6. Intra-oral mandibular osteoma



figure 7. CT showing osteoma on the medial side of mandible