

# Peripheral osteoma of the mandible: case report and review of the literature

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## Abstract

Osteomas are benign, slow-growing osteogenic tumors commonly occurring in the craniofacial bones. Osteomas are characterized by the proliferation of compact and/or cancellous bone. It can be of a central, peripheral, or extraskeletal type. The peripheral type arises from the periosteum and is rarely seen in the mandible, if involved, the lingual surface and lower border of the body are the most common locations of these lesions. They are usually asymptomatic and can be discovered in routine clinical and radiographic examination. This paper presents a large solitary peripheral osteoma located in the lingual surface of the right posterior mandible. The osteoma was removed surgically, and no recurrence has been observed.

**Key words:** Gardner syndrome, Mandible, Peripheral osteoma

## INTRODUCTION

An osteoma is a benign osteogenic tumor characterized by compact or cancellous bone proliferation. It may be classified as peripheral, central, or extraskeletal. A peripheral osteoma arises from the periosteum, a central osteoma from the endosteum, and an extraskeletal osteoma in the soft tissue<sup>1-4</sup>. The pathogenesis of osteomas is not completely known. They are referred to developmental anomalies, true neoplasms, or reactive lesions triggered by trauma, muscle traction, or infection<sup>1-3,5</sup>.

Osteomas are found mainly in the craniofacial bones. A peripheral osteoma (PO) occurs most frequently in the paranasal sinuses. Other locations include the orbital wall, temporal bone, pterygoid processes, and external ear canal<sup>1,4,6-8</sup>. As noted in previous reports in the literature, a solitary PO of the jaw bones is quite rare, if occurring in jaw bones mandible is more commonly involved than maxilla. The most frequent sites affected in mandible are posterior body, followed by the condyle, angle, ascending ramus, coronoid process, anterior

body, and the sigmoid notch<sup>4,5,9</sup>. It has been reported that osteomas can occur at any age and that males and females are equally affected<sup>2,9</sup>. Peripheral osteomas are slow-growing lesions and, clinically, they usually remain asymptomatic. However, when they reach a large size, they can produce swelling and asymmetry. Patients with osteomas should be evaluated for Gardner's syndrome (GS). This syndrome is an autosomal dominant disease characterized by gastrointestinal polyps, multiple osteomas, skin and soft tissue tumors, and multiple impacted or supernumerary teeth. Intestinal polyps are predominantly adenomas and may progress to malignancy in almost 100% of patients<sup>10,11</sup>. Because the osteomas may be seen in the earlier stage of GS, the dentists may play an important role in the diagnosis of colonic polyposis.

## CASE REPORT

A 21-year old male patient complained of a swelling in the right lower back region of jaw since 15 years. There was history of noticing a small swelling of insidious onset which was not preceded by any trauma or toothache, and a gradual and constant increase in size was noted to attain present size. There was no history of associated pain in the right lower back teeth region. Patient also gave history of difficulty in speech due to the presence of swelling. There was no history of mobility of lower right back teeth, difficulty or restriction in tongue movements, but for history of difficulty in chewing food.

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There was no history of difficulty in jaw movements. There was no history noticing any change in the surface of the swelling like redness, sinus formation, ulceration, blood/ pus or watery discharge. There was no history of difficulty in mouth opening/swallowing/breathing. There was no history of associated symptoms such as loss of appetite, fatigue or loss of weight. There was no history of similar swellings elsewhere in the oral cavity or body in the present or in the past. There was no history of taking any consultations for the same complaint. Patients past medical, surgical, dental and family history were non-contributory. There were no features of Gardner's syndrome.

On extraoral examination (inspection and palpation), no abnormalities were detected.

On intraoral examination, hard tissue inspection revealed no evidence of fracture /supraeruption/ migration wrt 44, 45, 46, 47. 46 showed deep disto-occlusal caries involving pulp. On palpation of hard tissue, 44, 45, 46, 47 showed no mobility. No areas of decortications were felt upon palpation of the buccal and lingual cortical plates. On inspection of soft tissues a solitary, well-defined, sessile, elliptical, dome shaped, swelling was noted in mandibular right posterior region on the lingual aspect appearing to be arising from the attached gingiva and the underlying bone measuring approximately 2x4 cm in size and extending from the mesial aspect of 44 to the mesial aspect of 47 antero-posteriorly. Supero-inferiorly, the swelling extended from lingual gingival margins of 44, 45, 46, 47 to the depth of the alveololingual sulcus. Medio-laterally it extended from the midline of floor of mouth to the lingual slope. Overlying surface appears normal and smooth with no areas of hypo or hyper pigmentation. No evidence of any blood or pus discharge were noted. The swelling was non tender, bony hard in consistency and the margins are well-defined with smooth contour. The swelling was non-fluctuant, non-reducible, non compressible and appears to arise from the underlying bone.(fig: 1, 2). A provisional diagnosis of Peripheral Osteoma right body of mandible was given. List of differential diagnosis include Torus mandibularis, Mature peripheral ossifying fibroma, Mature cemento-ossifying fibroma, Chondromas and Chondrosarcomas – radiopaque variety, Mature osteoblastoma, Osteochondroma, Metastatic osteoblastic carcinomas – radiopaque variety, Calcified hematoma (soft tissue), Peripheral fibroma with calcification. Intraoral periapical radiographs w.r.t. 46, 47: showed an ill-defined radiopacity involving the right side of the mandible ranging 2x2 cm. The radiopacity extends from the mesial

aspect of 46 up to 47. The internal structure appeared to be homogenous with reduction in the thickness of the trabecular bone noticed throughout the lesion imparting it a ground glass appearance. Mandibular cross-sectional occlusal view showed an exophytic radiopacity with well-defined corticated margins showing mild evidence of internal trabeculations. Full extent of the lesion was also noted on the occlusal view (fig:3).

**Excisional biopsy:** Section showed normal squamous mucosa overlying compressed fibrous tissue and normal lamellar bone. A final diagnosis of Peripheral Osteoma right body of mandible was made.

## DISCUSSION

Osteoma is a benign neoplasm characterized by proliferation of compact or cancellous bone, usually in an endosteal or periosteal location and uncommonly entirely within soft tissue<sup>5</sup>. Reaction to infection or trauma is the most favored hypotheses for pathogenesis.

The solitary osteoma may be classified as: peripheral (paraosteal, periosteal or exophytic) when arising from the periosteum, central (endosteal), when arising from the endosteum and extraskeletal (osseous choristoma) when arising in soft tissue. Multiple osteomas may be associated with Gardner's syndrome. Peripheral osteoma of the craniofacial region occurs most frequently in the paranasal sinuses. Other locations include external auditory canal, orbit, temporal bone and pterygoid processes<sup>6,7</sup>.

It is a rare entity in the jaws when the maxillary sinuses are excluded and the mandible is more often affected than the maxilla with the mandibular angle and the inferior border of the body being most commonly involved. Clinically, peripheral osteoma appears as a unilateral, sessile or pedicled, well-circumscribed, mushroom-like mass ranging from 10 to 40 mm in diameter.

There is no predilection for age or sex and it may develop from 4.8 months to 50 years of age. Generally it is asymptomatic, but may be associated with asymmetry or interfere with oral function, and produce malocclusion. Overlying mucosa and other soft tissues are usually normal unless trauma has occurred. They are usually asymptomatic and are easily palpated as bony-hard nodules or masses. Peripheral osteomas are slow growing; however, they may become egg sized. Radiographically it is characterized by an oval, radiopaque, well-circumscribed mass attached by a broad base or pedicle to the host bone cortex<sup>9</sup>.

Histologically, Osteoma may be of two types:

1. Compact or "ivory": The compact osteoma comprises dense, compact bone with few marrow spaces and with only a few osteons.
2. Cancellous, trabecular or spongy: The cancellous osteoma is characterized by bony trabeculae and fibro fatty marrow enclosing osteoblasts and with an architecture resembling mature bone.

The differential diagnosis may include peripheral ossifying fibroma, exostoses, sessile osteochondroma, osteoid osteoma, periosteal osteoblastoma and paraosteal osteosarcoma.

Peripheral ossifying fibroma is a reactive focal overgrowth that occurs, predominantly, in the anterior portion of the maxilla and is characterised histologically by a prominent collagenous highly cellular stroma<sup>10, 11</sup>. Radiographically, peripheral ossifying fibroma presents as a radiopaque mass, but does not intrude into the osseous cortex.

Exostoses are hamartomas with a predilection for the lingual (torus mandibularis), and buccal regions of the mandible, midline of hard palate (torus palatinus), and buccal and palatal regions of the maxilla.<sup>5</sup> Usually exostoses stop growing after puberty.

In sessile osteochondroma, the cortex of the lesion merges imperceptibly with the cortex of the host bone.

It is composed of areas of endochondral ossification, calcified cartilage and fatty or haematopoietic marrow in the trabecular spaces.

Osteoid osteoma is a lesion of rapid growth, frequently painful and microscopically features highly vascular cellular tissue containing osteoid tissue.

Periosteal osteoblastoma presents as a round or ovoid heterogeneous mass attached to the cortex, is rapidly growing and painful.

Paraosteal osteosarcoma presents as a lobulated, sclerotic mass, homogeneous or heterogeneous in density with more radiolucent areas peripherally. An incomplete cleft between the lesion and the adjacent cortex is occasionally present. Recommended treatment is surgical, recurrence is rare and there are no reports of malignant transformation.

## CONCLUSION

This report presented a case of peripheral osteoma on the lingual surface of the mandibular body. The lesion had developed gradually for 15 years and caused intraoral swelling. Following histological 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.

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