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CASE REPORT

Solitary Periosteal Osteoma of the Mandible
A case report

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ورم عظمي سمحاقي منفرد للفك السفلي
تقرير حالة

ريما ميهتا، أركانا ياداف، شيفاني بانسال، موهان ديشباندي

الملخص: يعد ورم عظم الفك حاله نادرة وتشير الأدبيات الطبية إلى حالات قليلة جدا في هذا المجال. ويعتبر الورم العظمي ورما حميدا بطيء النمو في الهيكل العظمي القحفي ويتسم بانتشار العظم المضغوط أو الإسفنجي. ويمكن أن يكون الورم مركزيا، متطرفا أو خارج الهيكل العظمي. في منطقة الوجه، تحدث هذه الأورام العظمية السمحاقيه أكثر في الجيوب الأنفية، ولكن الأورام العظمية السمحاقيه المنفرده لعظام الفك نادرة جدا. ويتأثر الفك السفلي بهذه الأورام أكثر من الفك العلوي مع الميل نحو اللسا ن، والزوايا والحدود السفلية. هنا نعرض حالة ورم عظمي سمحاقي انفرادي على جانب الشق السفلي لفك امرأة تبلغ من العمر 42 عاما.

كلمات البحث: الفك السفلي, ورم عظمي, سمحاقي, تقرير حالة, الهند

ABSTRACT: Osteoma of the jaw bones is a rare entity with very few cases reported in the literature. Osteomas are benign, slow-growing osteogenic tumours of the bone commonly encountered in the craniofacial skeleton and characterised by the proliferation of compact or cancellous bone. They can be central, peripheral or extra-skeletal in their location. In the facial region, periosteal osteomas occur more frequently in the paranasal sinuses, but solitary periosteal osteomas of the jaw bones are quite rare. The mandible is more commonly affected than the maxilla, with the sites of predilection being the lingual aspect of the body, the angle and the inferior border. We report a case of a solitary periosteal osteoma on the buccal aspect of the mandible in a 42-year-old woman.

Keywords: Mandible; Osteoma; Periosteal; Case Report; India.

Osteomas are rare, benign, osteogenic tumours characterised by the production of mature bone and slow growth.[1] The lesion usually remains asymptomatic unless there is obvious disfigurement or discomfort to the patient.[2,3] Osteomas can be central (intraosseous or endosteal), peripheral (periosteal) or extra-skeletal in location,[4] and occur mainly in the cranio-facial bones, with the most common location being paranasal sinuses.[5] Solitary peripheral osteomas of the jaws are a rare entity. They involve the mandible more frequently than the maxilla with the sites of greatest predilection being the lingual aspect of the body, the angle, and the inferior border of the mandible.[2,5,6]

Case Report

A 42-year-old woman reported to the Department of Oral Pathology at Nair Hospital Dental College, Mumbai, India, with a complaint of a bony, hard, asymptomatic swelling on the buccal aspect of the left side of the mandible. Over the previous 20 years, the lesion had progressed from a pea-sized mass to a hard, globular, well-circumscribed swelling measuring 2 x 2 cm [Figure 1]. She gave no history of facial trauma. Her medical, family and social histories were unremarkable. A clinical examination revealed a swelling producing obvious facial asymmetry. The overlying skin was normal, showing no signs of induration, erythema or inflammation. Regional lymph nodes were not palpable. An intra-oral examination revealed a pedunculated swelling when the mucosa in the left canine-premolar region was stretched. No similar bony hard swellings where found anywhere else in the body.

The mandibular occlusal radiograph showed a well-circumscribed, pedunculated, radio-opaque mass in the canine-premolar region on the buccal

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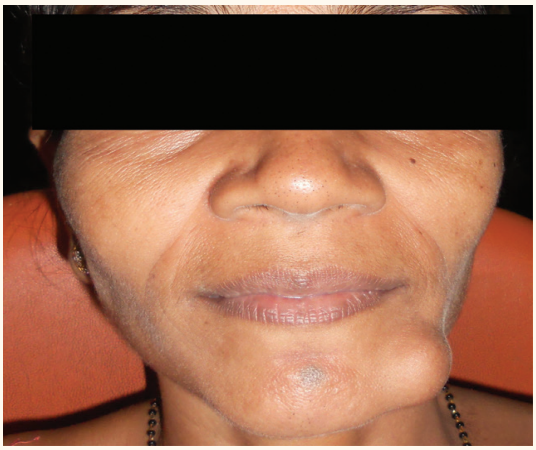

Figure 1: Clinical photograph showing a bony, hard swelling on the left side of the mandible.

aspect of the left side. Computed tomography (CT) imaging showed a well-defined, pedunculated bony mass arising from the left side of the mandible, measuring 1.8 x 1.8 cm in maximum dimension. The pedicle was 1 cm wide [Figure 2]. Based on clinico-radiological findings, a working diagnosis of an osteoma was made.

The lesion was surgically excised under general anaesthesia through a crevicular incision and surgical flap reflection [Figure 3]. The gross specimen was smooth and ivory-type in appearance. A histopathological examination revealed a well-circumscribed, unencapsulated, normal-appearing, extremely dense cortical bone with minimal marrow tissue suggestive of a periosteal osteoma of the mandible (compact type) [Figure 4].

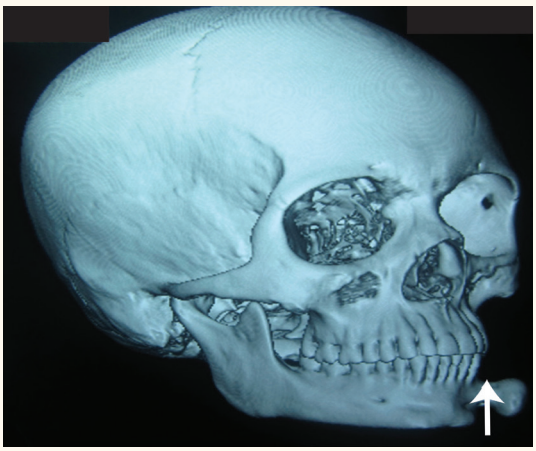

Figure 2: Computed tomography images showing well-defined, pedunculated mass arising in the left side of the mandible (arrow).

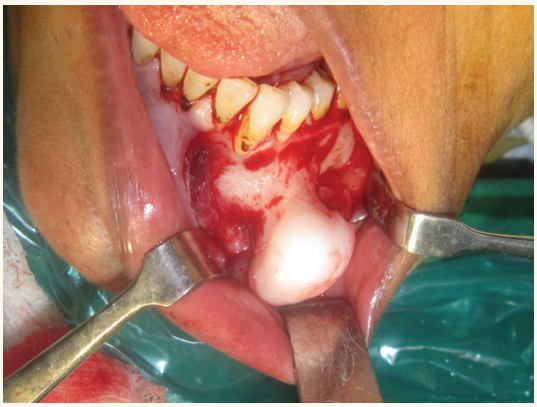

Figure 3: Surgical clinical photograph showing the lesion exposed surgically via a crevicular incision and reflected flap.

Discussion

According to Lichtenstein, an osteoma is a benign osteogenic lesion composed essentially of osteoblastic connective tissue forming an abundant osteoid and new bone, which may eventually become compact over a period of time.[7] Osteomas may be grouped on the basis of their site of derivation as peripheral, central or extra-skeletal lesions.[1] Central osteomas arise from the endosteum, peripheral osteomas arise from the periosteum, and extra skeletal soft tissue osteomas evolve within muscle tissue.[8] The most common locations of osteomas are the paranasal sinuses including frontal, ethmoidal and maxillary sinuses.[4] The lesions rarely affect the jaws.[2,4] Sayan *et al.* reported that 22.85% of periosteal osteomas occurred in the mandible as compared to 81.3% reported by Kaplan *et al.*[5,8]

Osteomas are classified as: compact/ivory, cancellous/spongy, or mixed on histopathological

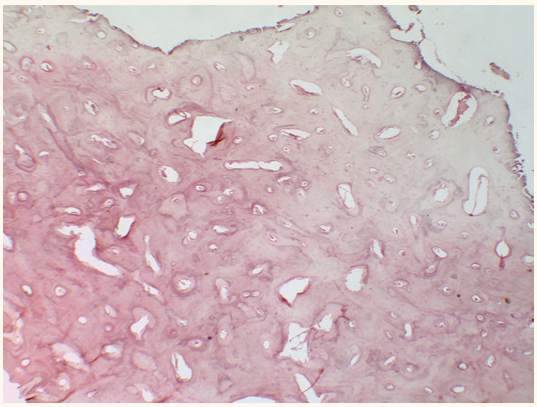

Figure 4: Photomicrograph showing hard tissue composed of benign dense bone with minimal marrow spaces, and Haversian canals (haematoxylin & eosin stain x 10).

and clinical grounds.[9,10] Peripheral (periosteal) osteomas are infrequently encountered as solitary lesions.[5] The compact osteoma is comprised of dense, compact bone with some marrow space and osteons. The cancellous osteoma shows bony trabeculae and fibrofatty marrow.[10]

Kaplan *et al*. reported an increased occurrence of periosteal osteomas between the ages of 15 and 75 years, with a mean age of 25 years.[5] Osteomas do not show any sex predilection; however, cases favouring the cancellous variant in females and the compact form in males have been reported.[6,10]

The pathogenesis of periosteal osteomas is not well-understood.[3] Kaplan *et al*. proposed three possible aetiologies for periosteal osteomas: developmental, neoplastic and reactive.[5] However, it is unlikely that periosteal osteomas, either located in the mandible or the sinuses, are developmental anomalies as, in most cases, they develop during adulthood. Furthermore, as the majority of cases of periosteal osteoma are slow growing, it is likely that they are non-neoplastic in origin. Kaplan *et al*. and others have reported that most periosteal osteomas of the mandible occur on the lower border or on the buccal aspect, and this site is more susceptible to trauma than the lingual aspect.[4,5,11] A combination of trauma and muscle traction may provide the best explanation of the pathogenesis of mandibular periosteal osteomas. It is suggested that osteomas are initiated following minor traumas which are unlikely to be remembered by the patient years later.[5] The patient in this report did not recall any history of trauma. Bony hyperplasia associated with muscle traction is also a documented phenomenon.[4,5]

Other aetiologies mentioned in the literature are that of a Reilly-Finkel-Biskis osteoma virus (ecotropic type C retrovirus) and their clones which have shown to induce osteomas in mice.[12] Their frequent relationship to Gardner's syndrome is of crucial clinical significance.[2] This autosomal dominant syndrome is characterised by the development of multiple osteomas and these may present as the initial clinical signs of the syndrome.

Osteomas can be confused with a plethora of lesions. Exostoses and peripheral osteomas are distinguished on the basis of history and clinical appearance. They are bony excrescences, reactive or developmental in origin, which cease to grow by puberty.[2,3,8] Other pathological entities, including peripheral ossifying fibroma, tori and osteochondroma, should be considered as differential diagnoses.[2] Also, *torus mandibularis* are hamartomas lesions with a predilection for the lingual region of the mandible.[8]

The peripheral ossifying fibroma is a reactive focal overgrowth that occurs mostly in the maxilla anteriorly and histologically shows prominent collagenous highly cellular stroma. It is radio-opaque but does not intrude into the osseus cortex like an osteoma.[13] In sessile osteochondroma, the cortex of the lesion merges imperceptibly with the cortex of the bone. Microscopically, it is composed of areas of endochondral ossification, calcified cartilage and fatty or haematopoetic marrow in the trabecular spaces.[10]

Fibrous dysplasia is most commonly confused clinically and radiographically with osteomas.[2] It is usually possible to differentiate the two conditions on the basis of radiographic structure alone. Fibrous dysplasia does not often reveal the same homogenous density as osteomas and, while osteomas may present a suggestion of granularity, it is not likely to be so definite in fibrous dysplasia.[14]

Osteomas can also be radiographically mistaken for odontomas or sclerosing osteitis.[8,14] Odontomes are usually surrounded by a radiolucent soft tissue capsule, differentiating it from osteomas.[14] Sclerosing osteitis can be differentiated by margins that are ill-defined radiographically. The aetiology is generally an infected tooth or retained root.[8,12] Osteoblastomas and osteoid osteomas are more frequently painful and grow more rapidly than peripheral osteomas.[10] Microscopically, an osteoid osteoma shows highly vascular cellular tissue containing osteoid *trabeculae*, whereas a periosteal osteoblastoma is composed of *trabeculae* of woven bone with osteoblasts and osteoclasts.[8,10]

Sialoliths may also mimic osteomas on panoramic and lateral radiographs but they can be differentiated by further radiographic examination, clinical signs and symptoms.[2] Particular consideration should be given to osteochondroma because some of these tumours can undergo malignant transformation.[2] Malignant transformation within an osteoma has not been reported. Recurrence has been reported, but is rare.[2] The overall prognosis of osteomas is considered to be good.[2]

Conclusion

Solitary periosteal osteomas of the jaws are uncommon bony tumours. This case report describes a solitary periosteal osteoma that occurred on the posterior buccal aspect of the left side of the mandible. The lesion had grown slowly for 20 years, causing obvious facial asymmetry. Early diagnosis and surgical excision of this slow-growing benign osteogenic lesion helps in alleviating subsequent facial asymmetry. Although rare, the possibility of a periosteal osteoma should be considered as a differential diagnosis for any peripheral, solitary, slow-growing, non-tender, bony hard, non-compressible, non-fluctuant and non-pulsatile swelling encountered in the oral and maxillofacial region. Even if recurrence is rare, it is appropriate to provide both periodic clinical examination and radiographic follow-up after the surgical excision of such lesions.

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