Peripheral Osteoma of Mandible

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Introduction

Osteoma is a benign often asymptomatic neoplasm, consisting of well-differentiated matured bone. It is characterized by proliferation of either compact or cancellous bone in an endosteal or periosteal location [1]. The central osteoma arises from the endosteum, the peripheral osteoma from the periosteum and the extra-skeletal soft tissue osteoma usually develops within the muscle. In the facial bones, both central and peripheral osteomas have been described. Peripheral type of osteoma is most common in the lower jaws, which occurs at the surface of the cortical bone and is sessile or pedicled. Most of the osteomas occurring in the mandible are dense osteomas, and the cancellous osteoma is comparatively rare [2]. 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.

The pathogenesis of peripheral osteoma is unclear. Some investigators consider it as a true neoplasm, while others classify it as a developmental anomaly [3]. Possibility of a reactive mechanism, caused by trauma or infection has also been suggested. Maxillofacial osteoma associated with cutaneous sebaceous cysts, multiple supernumerary teeth and colorectal polyposis is known as Gardener's syndrome. We report a case of peripheral osteoma of the mandible.

Case Report

A 35 year old serving soldier presented to this centre for evaluation of a slow enlarging swelling at the lower border of the left body of mandible. Apart from aesthetic reasons the patient had no pain or difficulty in chewing. Individual had no previous facial trauma or significant medical history. He had noticed the swelling for the last three years, and it was gradually increasing in size. There was a 3 cm by 2 cm oval, immobile mass on the left side of the mandible. The mass was

hard, non tender and non pulsatile. The overlying skin was normal in colour and showed no adhesion to the mass. There were no features of Gardener's syndrome. All laboratory findings were within normal limits. Left lateral oblique view of the mandible showed a well circumscribed, round radiopaque mass at the left body of the mandible (Fig. 1).

A provisional diagnosis of osteoma was made and the patient prepared for surgery. Under general anaesthesia, the bony mass was approached by a left submandibular incision. The mass was spherical in shape and attached to the body of the mandible. The lesion was divided into two halves using a bone cutting bur, and then completely excised using a chisel and mallet (Fig.2). The cortical plate of the body of the mandible was smoothened with a vulcanite bur under copious saline irrigation and the specimen sent for microscopic examination. 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. Post surgical follow up is being carried out periodically.

Discussion

Osteomas are rare benign tumors of bone commonly seen in the maxillofacial skeleton. In the maxillofacial area peripheral osteoma occurs most frequently in the sinuses. The most common site is the frontal sinus, followed by the ethmoidal and maxillary sinuses. Peripheral osteoma has also been described in the external auditory canal, and rarely in the temporal bone and pterygoid plates [4]. Peripheral osteomas are more frequent in the mandible than the maxilla. Males and females are equally affected, while the age varies between 9-85 years [5]. These lesions usually appear as sessile or pedicled masses. The most common sites are the angle and the lower border of the body.

The exact etiology and pathogenesis of peripheral osteoma is unknown. Both hamartomatous and neoplastic factors have been advocated, but no definite conclusion has been reported. Infiltration of interdental

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Fig. 1 : Left lateral oblique radiograph of mandible shows a round radiopaque mass

bone and abnormal histological bone structure might support the neoplastic nature of this lesion [6]. Developmental, neoplastic and reactive causes have been attributed as possible etiologic factors. It is unlikely that peripheral osteomas are a developmental anomaly, as most cases occur in adults. Peripheral osteomas are probably not neoplastic because of their slow growth rate. Some investigators have classified them as a reactive condition triggered by trauma, because peripheral osteomas are generally located on the lower border or buccal aspect of the mandible which are areas susceptible to trauma [7]. As many of the peripheral osteomas are located in close proximity to muscle attachment (i.e. masseter, medial pterygoid, temporalis), it is possible that muscle traction may play a role in the development of peripheral osteomas.

Most cases of peripheral osteoma are asymptomatic. In some, depending on the location and the size, the tumor may cause facial deformity, deviation of the mandible on opening, headache or exophthalmos. Plain radiograph (panoramic radiograph, Water's view) or computed tomographic (CT) scan is used for imaging. Bone scan though not performed routinely, discloses the physiological activity of the peripheral osteoma.

The discovery of an osteoma of the facial skeleton should raise the possibility of Gardener's syndrome. Patients with Gardener's syndrome may present with symptoms of rectal bleeding, diarrhea and abdominal pain. The triad of colorectal polyposis, skeletal abnormalities and multiple impacted or supernumerary teeth is consistent with this syndrome. Skeletal involvement includes both peripheral and endosteal osteomas. Since the osteomas often develop before the colorectal polyposis, early diagnosis of the syndrome may be life saving in certain cases. Mandibular osteomas may be a genetic marker for the development of colorectal carcinoma [8]. Therefore the patient with a diagnosis of mandibular osteoma, suspected to have Gardener's syndrome, should be further evaluated to

Fig. 2 : Macroscopic view of excised lesion

rule out colorectal carcinoma [9].

Recurrence of peripheral osteoma after surgical excision is extremely rare. Radiographic follow-up on a six month schedule is recommended for two to three years, with two additional annual films thereafter. Malignant transformation of peripheral osteoma has not been reported in the literature.

Conflicts of Interest

None identified

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