Osteoma of Mandible - A Rare Existence

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Abstract

Osteoma is a benign bone tumor which rarely occurs in the maxillofacial region. Its incidence is rare in the jaws and mandible is more affected than the maxilla. Surgery with complete removal of the lesion is the most adequate treatment. It occurs predominantly in the second decade, with a tendency for malignant transformation by age. There have been very few reported cases of osteomas located on the ramus of mandible. Here we present a case of osteoma on ramus of mandible along with review of literature.

Keywords: Osteoma; Mandibular Ramus; Benign Neoplasm

Introduction

Osteoma is a non malignant mostly asymptomatic neoplasm, comprising of well differentiated matured bone. It is distinguished by multiplication of either compact or cancellous bone in an endosteal or periosteal location [1]. The central osteoma originates from the endostea, the peripheral osteoma from the periostea and the extra-skeletal soft tissue osteoma usually progress within the muscle. Peripheral osteoma of the jaw bones rarely occur [2,3]. They are more frequent in the craniofacial region, particularly the sinuses, primarily in the frontal sinus, followed by the ethmoidal and maxillary sinus [4,5].

Most common locations that have been reported are the lingual surface posterior to the premolars and in the condylar region. The commonly recurring sites in the mandible are the posterior body, followed by the condyle, angle, ascending ramus, coronoid process, anterior border, and sigmoid notch [6]. It is prevalent in young adults but is a slow progressive lesion which usually remains less than 2 cm in size. Here we describe a clinical presentation where osteoma is located on the ascending ramus, which in itself is a rarity as detailed in various literature reviews.

Case Report

A 37 year old female patient reported to our department with the complaints of asymptomatic swelling on the right side of her face. The swelling had been noticed for past three weeks and there has been a gradual increase in its size. Her face was apparently symmetrical and there was no previous history of facial trauma. There was no known medical history.

Extraoral examination showed no evident swelling but on palpation, an immobile, non-tender, hard mass, approximately 2×2 cm dimension was felt along the ramus of the mandible. The overlying skin was normal in color and was not attached to the underlying mass.

A panoramic radiograph was taken in which we noticed a radiopaque mass on the right side of the ramus of mandible which resembles an odontome (Figure 1).Coronal CT mandible was carried out, in which we could notice a radiodense, cylindrical, pedunculated mass, with well defined borders, on the right side of the ramus. The mass had a similar density to the adjacent bone structure (Figure 2a, Figure 2b).
On the basis of physical and radiographic examination, osteoma of the mandible was considered as the initial diagnosis and patient was prepared for surgery. All the biochemical and hematological investigations were within normal limits.

Surgical excision of the lesion was planned. Under general anesthesia, the bony mass was approached by an intraoral modified third molar vestibular incision (Figure 3). Mucoperiosteal flap was reflected, and subperiosteal dissection was done lateral to ramus of mandible (Figure 4). A 1×1.5 cm oval mass was found to be attached to the bone and was removed using a chisel and mallet (Figure 5). The ramus of the mandible was smoothened with a vulcanite bur under copious saline irrigation and the specimen sent for microscopic examination. Haemostasis was achieved by applying bone wax and closure was done with 3-0 vicryl (Figure 6). Post operative recovery was uneventful and no recurrence has been found till date.

Histopathological examination revealed features compatible with osteoma, such as well circumscribed area of normal appearing compact cortical bone with scanty intervening stroma and a thin rim of peripheral sclerotic lamellar bone was noted (Figure 7).

Discussion

Osteoma is a Latin word, meaning benign tumour composed of osseous tissue. The term osteoma is coined by Jaffe in 1935 and osteomas of the jaw bones usually appear as unilateral, pedunculated, mushroom shaped masses [6,7]. Typically both sexes have equal predilection. Kaplan et al [7] reported that the lesions were initially identified between 15 and 75 years, the majority being noticed after the age of 25.

Histological classification differentiates among: Compact,
Cancellous and mixed osteoma [7,8]. The compact or “ivory” osteoma, presents as a sessile, normal appearing dense bone with minimal marrow spaces, and occasional occurrence of haversian canals while the cancellous type of osteomas typically appears as a pedunculated mass resembling the bone of origin [9]. The outer surface of lesion can be either jagged or smooth, with cortical bone at the outer margin. Impermeation of interdental bone and uncommon histological bone structure might corroborate neoplastic nature of this lesion.

The plausible etiological factors of osteomas imputed are; developmental, neoplastic and reactive causes [2]. According to some authors [10], it grows extemporaneously and is associated to the trauma and not to the inflammation. Schneider et al [11] outlined six cases of osteoma with a positive history of prior trauma, reinforced with the earlier hypothesis. In certain cases osteomas may be borne out of minor traumas, unrealized by the patients, which leads to subperiosteal hematoma in association with the muscle pull and subsequently initiating the lesion [7,12,13].

Peripheral osteomas are more commonly located on the lower border or buccal aspect of the mandible, areas which are more prone to trauma, some investigators classified peripheral osteoma as a reactive condition triggered by trauma [7,12]. A great number of peripheral osteomas are situated in close propinquity to muscle attachment, it is likely believed that muscle traction may contribute in the development of peripheral osteoma [7,14].

Majority cases of peripheral osteoma are asymptomatic. Often remain undetected unless incidentally found on a routine radiographic survey or until they cause facial asymmetry or functional impairment [15]. In some cases, based on the location and size, the tumor may cause facial deformity, mandibular deviation on opening, restricted mandibular movement especially those on condyle, occlusal dysfunction, headache or exophthalmos [14,16].

In most cases traditional radiographic imaging is sufficient to diagnose an osteoma. On radiographs, peripheral osteoma can be appreciated as a well defined, round or oval, dense radiopaque mass with distinct borders with a density indistinguishable to normal bone. If a peripheral osteoma is pedunculated, a narrow contact area can be seen between the lesion and the compact bone. Though bone scan helps in estimating the physiological activity of peripheral osteoma, it’s not performed routinely.

Peripheral osteoma should be distinguished from exostoses and other pathologic processes including inflammatory and neoplastic lesions like sclerotic pattern of chronic osteomyelitis, peripheral ossifying fibroma, periosteal osteoblastoma, osteoid osteoma, and parosteal osteosarcoma, last stage central ossifying fibroma [14,16]. It is quiet difficult to differentiate between exostosis and osteoma. The clinical features are absolutely necessary in the final diagnosis since histopathological features resemble each other.

On the other hand, central osteomas are more difficult to diagnose and the usual differential diagnosis that needs to be considered for this lesion include the fibrous dysplasia, central ossifying fibroma, odontoma, osteoblastoma, chondroma, cementoblastoma, paget’s disease, and central osteosarcoma [14,16]. Pain is a salient symptom in 30% of central osteomas [16].

It is not always essential to remove an asymptomatic peripheral osteoma. Surgical intervention is advisable only if it becomes large enough to cause facial asymmetry and functional impairment [17]. Osteomas can be managed by complete surgical excision at the base where it unifies with the cortical bone. Those occurring in the mandible can be treated by both intra and extraoral approaches.

Intraoral approach is preferred to extraoral approach whenever possible, as it prevents disfigurement to the facial nerve. Lengo et al reported that, extraoral approach is more desirable when large tumors are located posteriorly in the mandible, as it allows for a better exposure and visibility - avoiding damage to the major structures in the region [16]. Surgical treatment can be opted when there is cosmetic disfigurement, limitation or loss of function, or if it is required for a histopathological diagnosis, or when there is significant growth rate, or when the symptoms or complications secondary to osteoma that have failed to become better, in spite of proper medical therapy. Patients with known asymptomatic osteomas should be assessed every 1–2 years to evaluate growth and to observe the development of complications [17].

Conclusion

The clinicians should always keep in mind the unusual positions and presentation of osteomas in and around the orofacial region. Proper radiographic investigations and good clinical knowledge is essential for proper diagnosis of these lesions. Although recurrence is very rare, periodic follow up should be done after surgical excision of osteomas.

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