Research Paper Medical Science

Multiple Osteomas of the Mandible- a Case Report

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ABSTRACT

Osteoma is a benign, bone – forming tumours located within bones or developing on them as an bony outgrowth of membranous bones, found mostly on skull and facial bones. It is usually restricted to the craniofacial skeleton affecting paranasal sinuses and jaws. We report a case of osteoma occurring in the inferior border of mandible in an unusual location.

INTRODUCTION:

Osteoma is a benign, bone - forming tumours located within bones or developing on them as a solitary or multiple lesions, accounting for 10 – 12 % of all benign bone tumours. Osteoma is a benign bony outgrowth of membranous bones and is found mostly on skull and facial bones. Osteomas consist of dense bony proliferations of histologically normal membranous bone, which vary from slight thickening to large masses and may affect most parts of the skeleton. They are usually restricted to the craniofacial skeleton and are rare in other bones. The most common sites in the craniofacial region include the mandible and the paranasal sinuses. When it occurs in the mandible it is usually seen on the lingual side, posterior to premolars. (Renita, Subhas, Shishir, Kumuda., 2011) It has been suggested that most osteomas in the maxillofacial region are reactive bone hyperplasia or advanced bone ossification. The lesions are usually asymptomatic and sometimes may impinge on surrounding area. Osteomas may be present in a solitary or multiple sites. The osteomas can be central, peripheral or of an extraskeletal type. (Shirin, Kanika, Prashant, Venkataraman., 2013)

The location of osteomas of the jaws is usually in close proximity to areas of muscle attachment, suggesting that muscle traction may play a role in its development. Small osteomas are harmless and can be left untreated. We report a rare case of osteoma occurring in the inferior border of mandible, anterior to premolar region.

CASE REPORT:

A 15 year old female patient reported to the Department of Oral Medicine and Radiology, JSS Dental College and Hospital, Mysuru complaining of a swelling in the right lower third region of face since 6 months. Patient reports noticing two separate swellings in the inferior aspect of her lower jaw since 6 months, which showed no sudden increase or decrease in the size but has slightly increased in the last 20 days, mild pain associated with the swelling, as seen in figure. 1. History of consulting a physician at a government hospital concerning the same and was referred to our hospital for further management.

Patient also had swelling in her knee and ankle joint of left lower limb which was noticed since 1 year. The swelling in her limb showed slight fortnightly fluctuations in size, either increase or decrease but had never completely regressed. The swelling in the limb caused mild to moderate intermittent pain but had no effect in carrying regular routine daily activities.

On local examination of the lesion in maxillofacial region, two separate well defined ovoid swellings were noted in the right inferior border of mandible, measuring roughly about 2 x 2 cms, about 3cms apart extending from line joining the right lip commisure to the inferior border of mandible and posteriorly upto 6cms. The skin overlying the swelling appeared normal with no signs of hypo or hyper pigmentation, erythema or ulcerations with no local rise in temperature. On palpation, all the inspectory findings with respect to size, location, number were confirmed and the lesion was non tender, firm to hard in consistency.

Intraorally, buccal vestibular obliteration extending from mesial third of mandibular right first premolar posteriorly to the region of mandibular right second molar was noted, as shown in figure 2. Teeth in the region of complaint were non tender, non mobile and deep intrdental pocket was noted in the region of second molar. Based on the above clinical findings a provisional diagnosis of osteoma was made and a differential diagnosis of buccal exostoses, proliferative periostitis, ossifying sub periosteal hematoma and osteoblastoma was given. The patient was subjected to mandibular cross sectional occlussal radiograph and orthopantamograph, which revealed two areas of radio - opacities along the inferior border of mandible in the region of mandibular right premolars and molar region with increased radiopacity in comparison to adjacent bone and had an onion peel appearance, as seen in figure 3 and 4. The patient's haematological evaluation showed no deviation from normal and the patient was referred to orthopedician for evaluation of the swelling in her lower ankle, who ruled out its correlation with lesion of the jaws.

Excisional biopsy of the lesion was performed and histopathological evaluation showed numerous trabeculae of bone with intervening stroma in focal areas with few lacunae showing osteocytes and was suggestive of osteoma, as depicted in figure 5. Based on the clinical, radiological and histopathological findings, an final diagnosis of peripheral periosteal osteoma was given.

DISCUSSION:

Osteoma is a benign tumor of bone originating due to proliferation of either cancellous or compact bone. (HU W, Thadani, Agarwal, Sharma, Tailor., 2014) According to Lichtenchstein, Osteoma "is composed essentially of osteoblastic connective tissue forming abundant osteoid and new bone which may eventually become compact over a period of time". Osteoma can be of either central, peripheral, or extra - skeletal type. (Mehta, Nagrajappa., 2014)

The central variant of osteoma arises from the endosteum, from the periosteum arises the peripheral variant, while the extra – skeletal soft tissue variant usually develops within the muscle.(Renita et al., 2011)

Clinically, osteoma may be asymptomatic for years and diagnosed only when it becomes large enough or is a coincidental finding during routine radiological investigations. Osteoma of the jaws may be of two types :

Periosteal osteoma arising on the surface of the bone either as a polypoid or sessile mass, or

Endosteal osteoma, when it is located in the medullarybone

The exact etiology of osteoma remains unclear and various theories have been suggested which include trauma, infection and hereditary factors. Most osteomas in the maxillofacial areas are thought to be either reactive bone hyperplasia or advanced ossifications. (Kyung-Soo nah., 2011)

The growth of the tumor is caused by the activity of either the periosteum or the endosteum. It can also be called central, peripheral, or extraskeletal.

Peripheral osteoma is characterized by centrifugal growth from the periosteum, and manifests as a circumscribed swelling on the jaw producing obvious asymmetry; whereas the central osteomas shows centripetal growth from the endosteum and is slower to present, as considerable growth must occur before there is expansion of the cortical plates and is seldom associated with pain.(Kyung-Soo Nah, 2011)

Various hypotheses have been proposed as the etiologic factors in the formation of osteoma for osteoma formation, some of which are congenital anomalies, chronic inflammation, trauma, embryogenetic changes and muscular traction contributes to neoplastic changes in the bone. The location of osteomas of the jaws is usually in close proximity to areas of muscle attachment, suggesting that muscle traction may play a role in its development

The peripheral form of osteoma has characteristic growth pattern making it the easiest form to diagnose as they can be clinically verified and observed clearly on radiographs.

Paranasal sinuses such as frontal, ethmoid and maxillary sinuses are the most common site of occurence of peripheral osteomas and less frequently found in maxilla and mandible. When occurring in maxilla they are most common in areas that form the hard tissue and are common in the condyle, angle and margin in case of mandibular osteomas.(HU W, Thadani, Agarwal, Sharma, Tailor., 2014)

Characteristic clinical symptoms include severe pain which worsens at night and is usually relieved by nonsteroidal anti - inflammatory drugs (NSAID's), mainly aspirin. It is believed that pain may be caused by nerves which accompany the blood vessels to the tumor which is richly vascularised. It is believed that the pain is due to prostaglandins, produced by tumor cells. (Manjunath, Yadav, Bansal, Deshpande., 2014)

Radiographically, both the peripheral and the central lesion appears within the jaws as a well-circumscribed sclerotic mass. Periosteal osteomas may show a uniform sclerotic pattern or a sclerotic periphery with a central trabecular pattern and are difficult to distinguish from scar tissue in case of small lesions. In few cases of diffuse osteomas may be confused with chronic sclerosing osteomyeliits. (Neville, Damm, Allen, Bouquot., Oral and maxillofacial pathology., 2006)

Histologically, osteoma is composed of either extremely dense, compact bone or of coarse cancellous bone as an unencapsulated well defined mass of normal appearing bone. The treatment for osteomas is surgical resection and recurrence is rare after complete removal. (Neville, Damm, Allen, Bouquot., Oral and maxillofacial pathology., 2006)

FIGURES:

Fig 1: Extra- oral photographs

Fig 2: Intra-oral photograph

Figure 3: mandibular cross sectional occlusal view

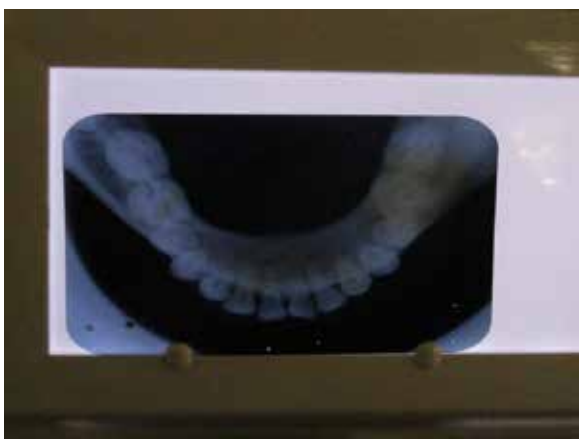
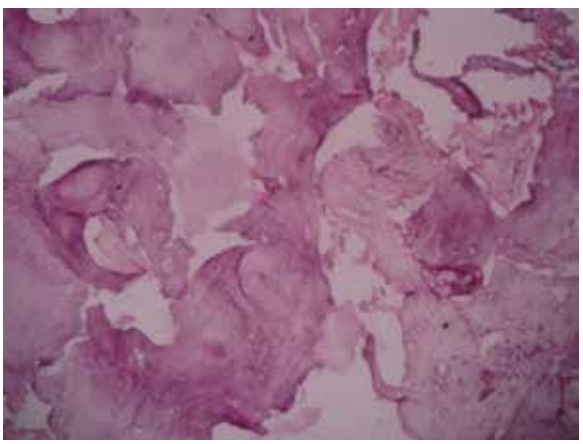


Figure 4: orthopantomograph

Fig 5: Photomicrograph



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