



CANCELLOUS OSTEOMA OF MAXILLA IN AN ADOLESCENT: A RARE ENTITY

Periodontology

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ABSTRACT

A female adolescent presented with the painless swelling in the right maxillary canine region causing facial asymmetry. On examination, well circumscribed, solitary, sessile, non-tender, non-pulsatile, non-compressible growth between maxillary right lateral incisor and canine. Radiographic examination revealed well circumscribed radiopaque mass with distinct borders. Complete surgical excision was performed with bone recontouring. Subsequent histological examination of the specimen revealed stromal tissue consisting of multiple trabeculae of mature lamellar bone with osteocytes; suggestive of cancellous osteoma. The patient remained asymptomatic with no evidence of recurrence since one year after surgery.

KEYWORDS

Osteoplastic Contouring; Osteoma; Surgical Excision

BACKGROUND

The osteoma is a benign neoplasm characterized by proliferation of either compact or cancellous bone usually in an endosteal or periosteal location. It can be central osteoma arising from the endosteum, peripheral osteoma arising from the periosteum or extra-skeletal soft tissue osteoma that usually develops within the muscle.(1,2) Osteomas are principally restricted to the craniofacial skeleton and rarely, if ever, are diagnosed in other bones.(3) A peripheral osteoma occurs most commonly in the paranasal sinuses. Other locations include the orbital wall, temporal bone, pterygoid processes, external ear canal, and mandible.(4-7) However, the most common site of maxillary osteomas is the alveolar process.(8,9) Maxillary osteomas are leisurely growing and swelling is the most frequent symptom.(10) Patients with multiple osteomas should be evaluated for Gardner's syndrome. Gardner's syndrome is characterized by colorectal polyposis, multiple osteomas, cutaneous sebaceous cysts, and multiple impacted or supernumerary teeth. The maxillofacial features of the syndrome can appear many years before the intestinal polyposis, so dentists should be familiar with the significance of Gardner Syndrome as a pre-cancerous condition.(11) Various hypothesis have been set forth with regard to the aetiology of osteoma. Although, trauma, inflammatory or infectious processes are the causes commonly cited in the literature, no aetiological factor can be associated with this.(12) The purpose of this report is to present a unilateral cancellous osteoma in the maxillary alveolar process in an adolescent female patient.

CASE DESCRIPTION- An 18 year old female patient reported with the chief complaint of slowly enlarging swelling in the right upper jaw front teeth region since last 1.5 - 2 years. There was no associated pain with the lesion, and the patient did not have problem with mouth opening or chewing. She had no history of previous facial trauma, and her medical history was not contributory. Clinical examination revealed extraoral swelling extending from ala of nose to the lower border of lower lip on the right side thus obliterating nasolabial fold on the right side of the upper jaw; it was oval, non-tender, immobile, and bony hard on palpation. The overlying skin was normal in color and was not attached to underlying structure. Facial asymmetry was evident with a slight obliteration of nasolabial fold on the right side. Intraoral examination revealed 1.5X1.0 cm well circumscribed, solitary, sessile, painless, non-compressible swelling involving attached gingiva and extending from distal aspect of maxillary lateral incisor to mesial aspect of maxillary canine creating a space of similar size between the two teeth (figure 1). Complete periodontal examination was done. Oral hygiene index (S) showed poor status of oral hygiene (score: 4.80); gingival index showed severe gingival inflammation (score: 2.45) and Russel's periodontal index depicted beginning destructive periodontal disease (score: 1.70). On

orthodontic evaluation it was found that growth had created mal-alignment of incisors on right side.

Patient was subjected to routine haematological and radiographical examination. The haematological findings were non contributory but orthopantomograph revealed a well demarcated radio-opaque mass superimposing the roots of tooth 12 and 13 upto the middle third of the roots. Periodontal ligament space seem to be obliterated.

Management:

Surgical treatment is indicated in cases of cosmetic disfigurement, limitation of function or significant growth rate.(9) In the present case, the lesion was surgically excised completely at its base which was united with the cortical bone. Following this, osteoplastic recontouring of the bony spicules was done using bone cutting burs. Further recontouring was done using bone bone files under copious irrigation.(figure 2) After achieving good hemostasis, periodontal dressing was placed. Antibiotics and analgesics were prescribed for 5 post surgical days.

There were no post operative complications reported by the patient. After 5 days, patient was recalled for evaluation and periodontal dressing was changed. One month recall visit showed uneventful healing of the surgical site (figure 3). The patient has been asymptomatic, with no evidence of recurrence till date i.e. 2 years after surgery.

Histopathological examination

The tissue was fixed in 10% neutral buffered formalin, decalcified and routinely processed. Hematoxylin and eosin staining of the decalcified section revealed orthokeratinized stratified squamous epithelium overlying fibrous and bony connective tissue. Superficial part of the stroma appeared to be fibrous with dense bundle of fibroblasts and collagen fibres. Central part showed bony trabeculae with marrow spaces. Under further higher magnification, the trabeculae showed entrapped osteocytes and peripheral rimming of osteoblasts. (Figure 4a) Overlying periosteal tissue was also evident. The overall histopathologic features were suggestive of Cancellous Osteoma.

DISCUSSION

Osteomas are characterized by excessive and proliferation of osseous tissue and present with sluggish growth.(10) The diagnosis of osteoma is usually an incidental finding as the lesions are asymptomatic.

On the basis of clinical and radiographic findings, provisional diagnosis of osteoma was made. Differential diagnosis included peripheral ossifying fibroma and exostoses. Exostoses are the bony

excrecences considered as hamartomas that tend to stop growing after puberty.(5,13) Although their nature is unknown, they might more properly be considered developmental lesions. In the present case, patient reported with growth even after puberty, hence exostoses as diagnosis was excluded.

Periosteal osteoblastoma, osteoid osteoma and paraosteal osteosarcoma might show similar radiographic features but they have rapid growth with associated pain;(5,13) thus excluded from the final diagnosis. Peripheral Ossifying fibroma is a focal mass of tissue on gingival with sessile or pedunculated base whereas osteomas are well demarcated bone tumors. In the present case, swelling appeared bony hard clinically, but final diagnosis was based on histopathological findings.

In our case, the lesion had reached significantly large dimensions and caused facial asymmetry, without any other clinical symptoms. Osteomas, most frequently occur in the sinuses of maxillofacial area. Thus, as in our case, their occurrence in jaw bones is very rare. As noted in the literature, these lesions are more frequent in the mandible than in the maxilla. Sayan et al. reported finding 22.85% of the lesions in the mandible and 14.28% in the maxilla in their study;(5). In another study, Kaplan et al. reported that 81.3% of cases occurred in the mandible.(14) According to Coste et al. osteomas are most frequently diagnosed in middle age (20-50 yrs) with an approximately 2:1 male to female ratio. Whereas, in our case patient was an adolescent female. Clinically, these lesions appear as pedunculated, unilateral mushroom-like masses and radiographically they are well-circumscribed radiopaque masses with distinct borders either sessile or attached to the cortical plate with broad base.(13) Osteomas precede the clinical and radiographic evidence of colonic polyposis or Gardner syndrome; therefore, they may be sensitive markers for the disease.(15) Nearly all untreated patients of intestinal polyps develop into colorectal carcinoma, so mandibular osteomas may be a genetic marker for the development of colorectal carcinoma.(16)

The exact etiology and pathogenesis of peripheral osteoma is unknown; however, neoplastic and reactive causes have been suggested as possible etiologic factors. Some investigators consider it a true neoplasm, while others classify it as a developmental anomaly.(5) According to Kaplan et al(14) It is possible that muscle traction (i.e., masseter, medial pterygoid, temporalis) plays a role in the development of peripheral osteomas. However, in the present case, there was no information reported on the possible cause because there is no history of previous trauma. Varboncover et al.(17) hypothesized that osteomas arise either from embryonic cartilaginous remnants or from a persistent embryological periosteum.

CONCLUSION- Asymptomatic osteomas may not require intervention, while symptomatic osteomas definitely require surgical excision. Since most osteomas are asymptomatic, many investigators advocate periodic imaging to follow their growth and intervene before the development of complications. But in our case, since patient reported with cosmetic disfigurement, we planned for surgical resection with bone recontouring. The removal of bony irregularities was necessary so that post surgery gingival apparatus adapts well to the underlying bone and there is no formation of craters or periodontal pockets. Recurrence after surgical procedure is rare and also there are no reports of malignant transformation in the literature. Patient was kept on periodic recall visits for evaluation and she did not present with any signs of recurrence upto one year after surgical removal.

In the present case, patient was kept on periodic recall visits for evaluation and did not present with any signs of recurrence till date.

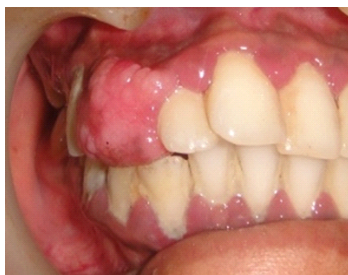


Figure 1. Pre-Operative Photograph



Figure 2. Intra operative photograph after excision and bone contouring



Figure 3. Post Operative photograph showing uneventful healing.

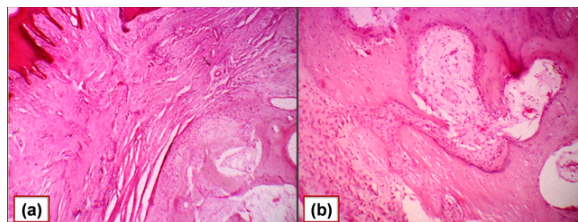


Figure 4: The Photomicrographs showing: (a) Epithelium overlying fibrous connective tissue stroma and deeper connective tissue showing bony trabeculae with marrow spaces (H & E, X40), (b) Bony trabeculae with entrapped osteocytes within lacunae (H & E, X100).

DISCUSSION

Osteomas are characterized by excessive and proliferation of osseous tissue and present with sluggish growth.(10) The diagnosis of osteoma is usually an incidental finding as the lesions are asymptomatic. On the basis of clinical and radiographic findings, provisional diagnosis of osteoma was made. Differential diagnosis included peripheral ossifying fibroma and exostoses. Exostoses are the bony excrecences considered as hamartomas that tend to stop growing after puberty.(5,13) Although their nature is unknown, they might more properly be considered developmental lesions. In the present case, patient reported with growth even after puberty, hence exostoses as diagnosis was excluded.

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