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Peripheral Ossifying Fibroma- a Twosome in the anterior maxilla: A Case Report with CBCT assessment and Review of Literature

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Abstract

Ossifying fibroma is a benign fibro-osseous lesion that demonstrates a well-demarcated proliferation of cellular fibrous tissue with varying amounts of osseous products including bone, cementum or a mixture of both. Although it has been categorized under fibro-osseous lesions including the orofacial region, it behaves like a benign bone neoplasm. Juvenile ossifying fibroma (JOF) is an uncommon, benign, bone-forming neoplasm that is differentiated from other fibro-osseous lesions primarily by its age of onset, clinical presentation, and potential behavior. Here, we present a case report of a 23 year old female patient with a painless growth in the upper front jaw and in hard palate region for past 7 months. This article also emphasized the importance of Cone beam computed tomography (CBCT) which was used to analyze the internal structures.

Key words- Fibro-Osseous Lesion, Juvenile Ossifying Fibroma, Cone Beam Computed Tomography, CT Angiography

Introduction

Fibro-osseous lesions are characterized by replacement of normal bone by fibrous tissue containing a newly formed mineralized product. Fibro-osseous lesions of the jaw include reactive or dysplastic processes, developmental (hamartomatous) lesions and neoplasms.[1]

The peripheral ossifying fibroma [POF] is classified as a reactive hyperplastic inflammatory lesion which is a non-neoplastic enlargement of the gingiva.[2,3] The pathogenesis is unclear. On clinical and microscopic examination, it resembles the features of pyogenic granuloma and some consider the POF as secondary reaction to fibrosis of granulation tissue.[4,5] Due to chronic irritation from local factors, especially those arising from the presence of foreign bodies or dental calculus in the gingival sulcus, there is an excessive proliferation of mature tissue related to this pathology causing gingival injury.

The enlargement is usually found in the anterior maxilla and mandible with higher predilection for women that is most frequently found during the second decade of life. It presents as a nodular, sessile or pedunculated mass, which usually originates from the interdental papilla.[6] Coloration varies from red to pink, and the surface is often, but not always, ulcerated. Surgical treatment, together with the removal of any irritating factor, is indispensable because it is a lesion with high relapse rate.[7] The purpose of this study is to report a case of recurrent peripheral ossifying fibroma in a 23-year-old female patient.

Case presentation

A 23 year old female patient reported to the department with the painless growth in the upper front jaw region for past 7 months. On eliciting the history patient was apparently healthy 7 months back. Later she gives history of growth during her pregnancy which was gradual onset and slow progression to attain the present size. She also gives history of growth when she was 10 years old which was operated and similar swelling when she was 14 years old which was surgically removed and upper teeth was extracted. She gives history of hypothyroidism and was under medication for past 1 year. She gives history of extraction which was done in the upper front jaw region before 9 years. She gives history of RPD wearing for past 5 years and discontinued since 1 year. Patient was conscious, cooperative well oriented to time and place. All her vital signs were normal. On extra oral examination facial asymmetry was present and lips were potentially incompetent (FIGURE 1). Mouth opening was within normal limits and lymph nodes are not palpable. On intraoral examination, inspection revealed a localized growth that was present in the upper front alveolar region of size 3*2 cm, irregular in shape, lobulated, extending anteroposteriorly from the upper labial vestibule to the anterior part of the hard palate and mesiodistally from 13 to 23 regions. Surface over the growth appears erythematous in some areas with no ulcerations or bleeding and on palpation all inspectary findings were confirmed with respect to number, site, size, shape and extension. It was firm in consistency, non-tender, and no rise in temperature, pedunculated base, no pulsations and no evidence of paresthesia or bleeding and ulcerations in the involved site. There is also a localized dome shaped swelling in the anterior hard palate of size 2*2cm which was stony hard in consistency and non-tender (FIGURE 2). It was provisionally diagnosed as peripheral ossifying fibroma and a differential diagnosis of Cememto ossifying fibroma [COF], Peripheral giant cell granuloma [PGCG] and AV malformation was given. Further radiographic investigations were made in which maxillary cross sectional occlusal radiograph reveals mixed radiolucent and radio opacities with fading of bone and osteolytic lesion with displacement of 22 posteriorly.

On coronal, sagittal and axial view of CBCT shows osteolytic, hyper dense, well circumscribed, mixed radio opacities in the anterior maxilla of sixe 3*2cm, extending posteriorly to the anterior hard palate and superiorly to the nasal septum and maxillary sinus. Nasal nares are reduced on the affected site (FIGURE 3). On 3D reconstruction, a

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well-defined osteolytic lesion with evidence of erosion of the surrounding structures and complete erosion of the anterior maxilla involving nasal spine and the nasal septum. **CT Neck Angiography** reveals a large expansile bony lesion in the left maxilla involving the alveolar process and adjacent hard palate with mild crossing of midline and the lesion was mineralized with ground glass density and multiple foci of calcifications. Margins are predominantly well circumscribed with no feeding of vessels (FIGURE 4).

A routine hematological investigations were taken which was within normal limits. Incisional biopsy was advised. The H and E stained soft tissue section shows a dense fibrous connective tissue associated with the calcified masses. The calcified masses are irregular and in few foci appear as small round hematoxyphilic bits. The irregular masses exhibits osteocytes. The stromal cells surrounding the calcified masses are plump and associated with few blood vessels. The stromal fibroblasts in the dense fibrous stroma are flattened. Few areas of dilated blood vessels and RBC are also seen (FIGURE 5).

Following the microscopic examination surgical excision of lesion was done, obturator was placed and patient was under regular follow up (FIGURE 6).

Discussion

In 1982, Gardner [8] outlined that POF as a lesion that is reactive in nature and is not the extraosseous counterpart of a COF of the maxilla and mandible.

There are two types of ossifying fibroma, **the central and peripheral type.[1,2]**

- The central type arises from the endosteum or the periodontal ligament adjacent to the root apex, causing expansion of the medullary cavity.
- The peripheral type occurs only in soft tissues.

Growth occurs solely on the gingiva and it appears as a nodular mass. The growth may either have a pedunculated or sessile base. POF usually emanates from the interdental papilla, is often mistaken for pyogenic granuloma.[1,9] There exists a considerable confusion over the nomenclature and diagnosis of the lesion, and there are several terms to describe due to its varied histopathologic features.[4] Eversole and Rovin [5] stated that, cases with the similar site and sex predilection of pyogenic granuloma, POF and PGCG, and with almost common histopathologic and clinical features, these lesions may simply be varied histologic responses to local irritation.

POF occurs most exclusively in gingiva is due to the proximity of gingiva to the PDL. There is also presence of oxytalan fibers within the mineralized matrix of the lesion. POFs occur in children with primary or mixed dentition and a slight specific occurrence in decidious teeth.[10]

About 9–10% incidence of POF has been reported occurring in the oral cavity. [10,11] It is more commonly seen in the first and second decade of life and has a female preponderance. About 60% of cases occur in the anterior maxilla and with 55–60% presenting in the incisor-cuspid region which was in correlation with our case. Histologically, large number of fibroblasts with fibrous proliferation is seen associated with the formation of mineralized product. So, the characteristic feature of the peripheral ossifying fibroma is highly cellular connective tissue containing foci of calcified material.[12]

POF has varied radiographic features.[13,14] There is a scattered Radiopaque foci of calcifications in the central area of the lesion, but not all lesions reported have a similar radiographic calcifications. Bony involvement underlying the lesion is usually invisible on a radiograph. Superficial erosion of bone is noted in seldom instances.[7,15] In the present case, mixed radiolucent and

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radio opacities with fading of bone and osteolytic lesion with displacement of 22 posteriorly was seen.

The clinical differential diagnosis of a peripheral cemento-ossifying fibroma includes peripheral odontogenic fibroma, pyogenic granuloma, peripheral giant cell granuloma, giant cell fibroma, inflammatory gingival hyperplasia, pregnancy tumor, and fibroma.[16,17]

Compared to the lesions considered under the differential diagnosis of POF, they are firmer and less friable with a typical longer course.[3,6,8] Local resection is the treatment of choice for POF and with peripheral and deep margins including both the affected periosteal component and periodontal ligament.[3] furthermore, elimination of local etiological factors such as calculus, bacterial plaque and debris is required. The teeth associated with POF are generally not mobile, though there have been reports of dental migration secondary to bone loss.[7,9] Follow-up is essential because of the recurrence rates varying from 8 to 20%. Recurrence is due to incomplete excision, inadequate periodontal management (root planning and curettage) and or persistence of local factors.[4,17]

Conclusion

POF is a slowly progressive, benign lesion with restricted growth. Clinically difficult to diagnose, so histopathologic confirmation is mandatory. Many cases will progress for a long period before patients seeks treatment due to its asymptomatic nature as in our case.[2] Complete surgical excision down to the periosteum is the preferred treatment and as the recurrence rate is high (8-20%),[4,17] close post-operative follow-up is required.

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Figure legends

Figure 1: Profile view of the patient showing incompetent lips.

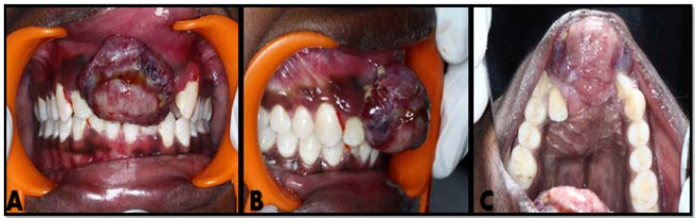

Figure 2: (Intraoral Examination) A, B- reveals a localized growth present in the upper front alveolar ridge region, C- reveals a localized dome shaped swelling present in the anterior hard palate.

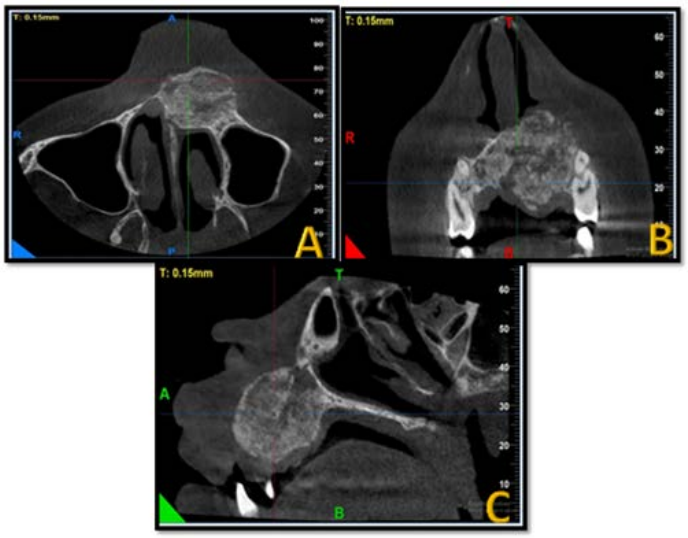

Figure 3: A-axial, B-coronal, C-sagittal view of CBCT shows an osteolytic, hyper dense, well circumscribed, mixed radio opacities in the anterior maxilla.

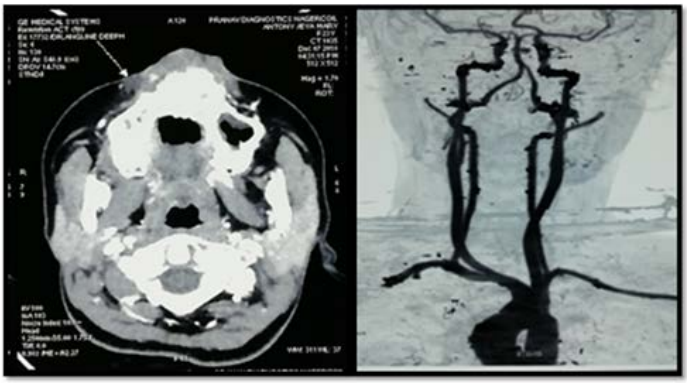

Figure 4: CT Neck Angiography reveals a large expansile bony lesion in the left maxilla involving the alveolar process and adjacent hard palate.

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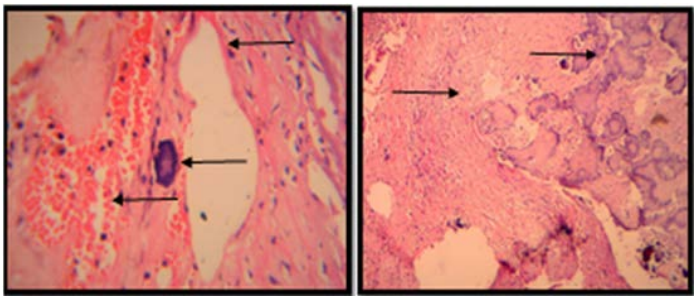

Figure 5- Microscopic features

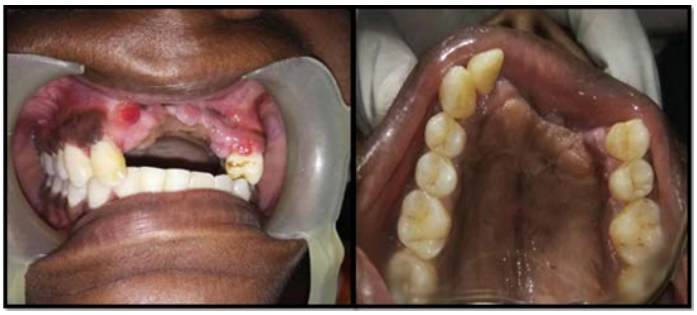

Figure 6- Post Operative image of the patient.

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