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Cemento Ossifying Fibroma: A Case Report

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Abstract

Cemento ossifying fibroma (COF) is an uncommon benign tumour, arising either by reactive or by developmental origin of the craniofacial skeleton with unknown etiology. It involves slow-evolving growth with deforming swelling generally arising in the mandible, with possible early tooth displacement and rarely associated with pain and paraesthesia. COF tends to be concentric within the medullary part of the bone with outward expansion approximately equal in all directions. This can result in the expansion of the outer cortical plate of bone which may result in facial asymmetry. Radiographic features may range from a complete radiolucent lesion to a radiolucent lesion with varying degrees of radiopacities. Complete excision of this tumor is necessary due to its high recurrence rate.

Keywords: Benign tumour, Medullar, Paraesthesia, Radiopacities

Introduction

COF is a slow-growing benign neoplasm that occurs most often in the jaws, especially the mandible (1). According to the 1992 World Health Organization (WHO) classification, an ossifying fibroma is a "demarcated or rarely encapsulated neoplasm consisting of fibrous tissue containing varying amounts of mineralised material resembling bone and/or cementum". (2) COF consist of 2 variants i.e. central and peripheral ossifying fibroma. The origin of central ossifying fibroma has been associated with the

periodontal membrane that has multipotent cells and pluripotent mesenchymal cells capable of forming cementum, lamellar bone, and fibrous tissue (3). According to the literature, previous tooth extraction or periodontitis might provide a stimulus or that the formation of COF might be simply linked to a disturbance of bone maturation of congenital origin. COF occur most often in the posterior region of the mandible and may also occur in the maxilla, commonly in the region of the canine fossa and in the area of the zygomatic arch. COF occurs more common in females, and present greatest incidence in the third and fourth decades of life (4). Swelling is the most frequent symptom with occasional presence of facial asymmetry and tooth displacement and rarely associated with pain and paresthesia (5). Nearly half of the cases in the sample were symptomatic (49.2%) with an average period of 22 months from first symptoms to presentation (6). COF is usually a unilocular lesion with a well-defined, thinly corticated margin radiographically (7). Surgical treatment consists of enucleation and curettage in small and well-defined lesions, while larger lesions are usually resected. Prognosis is good with a low recurrence rate even with enucleation and after long-term follow-up (9). Treatment results in a large osseous defect, utilization of a graft to fill the void accelerates healing and prevents complications that may result from failure to fill by the host response (10).

Case Report

A 23-year male reported to the Department of Oral and Maxillofacial Surgery, with the chief complaint of swelling in the lower jaw region for the past 8 months which was initially small in size and gradually increased to attain the present size. On extraoral examination, inspection reveals a diffuse swelling of about 4 x 3 cm in size, extending from the mandibular midline to the left angle of mandible producing facial asymmetry. The skin over the swelling appears normal. On palpation, it was hard in consistency, no evidence of tenderness or paraesthesia. On intraoral examination, inspection reveals a swelling over the lower left vestibular region from 31-36 region. The overlying mucosa was intact and erythematous in appearance with no discharge. On palpation, swelling was non-tender, bony hard in consistency with well-defined margin, non-fluctuant, non-compressible and non-pulsatile. TMJ examination found to be normal and all the movements were with in normal limit. On radiographic investigation, OPG reveals a diffuse radiolucent lesion extending from 36-45region and the Cone Beam Computed Tomography revealed a hypodense image in the body of the mandible extending from 36-46 region measured 28.9mm anteroposterior and 57.9 mm mediolateral. The Histo pathological examination with Incisional biopsy concluded the final diagnosis as ossifying fibroma of mandible. The treatment planned as curettage of the lesion under general anesthesia. Under general anesthesia, eyelets were placed in upper right first molar, between the two upper central incisors, upper left first molar, lower left first molar and lower right first molar regions. By placing mandibular vestibular incision, curettage of multiple septa of the lesion was done with inferior alveolar nerve ligation on the left side. On POD-1, platelet rich plasma (PRP) preparation was done by withdrawing <26ml of blood and placing them in 2 tubes of 13.5 ml each along with Anticoagulant Citrate Dextrose (ACD) and processing is done after which 4 ml of PRP was administered to the patient. PRP from the patient's blood was placed as an adjuvant to surgery on the resected area postoperatively to facilitate healing and to prevent pathological fracture.

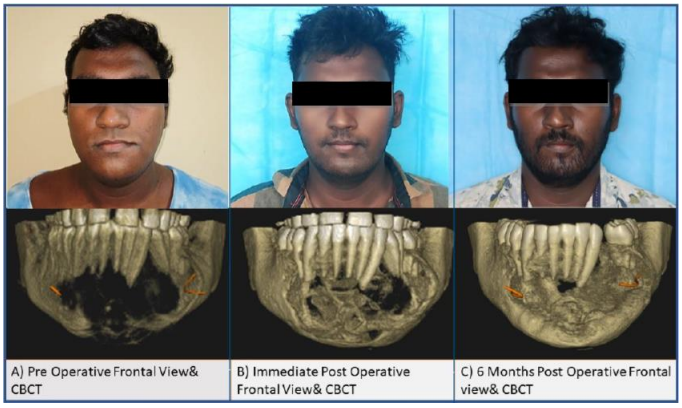

Figure 1A- Preoperative Frontal view &CBCT, 1B- Immediate Postoperative Frontal view &CBCT, 1C-6 months Post-operative Frontal view &CBCT

Discussion

COF often occurs in second to fourth decade of life with a definite female predilection and the mandible is involved far more often than the maxilla, especially the premolar and molar region (2). Su et al. reported that 52 (70%) of their 75 cases of COF were located in the mandible, with 43% located in the posterior region including the ramus area, followed by 22% in the posterior maxilla (2). The clinical presentation of is usually a round or ovoid, asymptomatic, pain free lesion which may expand cause significant facial asymmetry (3). Their growth is relatively slow. Pain and paraesthesia are only rarely associated with COF. Mobility and root reabsorption of the teeth involved are frequent findings and root divergence can be found in 17% of the cases (4)

Radiographically, COF is most often well defined and unilocular or multilocular with a sclerotic border (5,6). The lesion tends to be concentric within the medullary part of the bone, with an approximately equal outward expansion in all directions (1). Aggressive lesions may show loss of the limits at the edges, similar to perforations in cortical bone. On analyzing the radiographic images, it was observed that all the cortical bones had become ruptured (4). Usually well-defined margins (93.6%) were present and were easily identifiable from healthy surrounding bone. The majority of lesions irregular in shape (52.4%) followed by round shape (41.26%) while oval shape (6.34%) was least prevalent (6). Depending on with a mottled appearance (7). Root divergence or resorption of roots of teeth associated with OF may be seen. The lamina dura of the involved teeth is typically missing large COF of the mandible often demonstrate a characteristic downward bowing of the inferior cortex of the mandible (5). COF has the tendency to enlarge and cause displacement of different structures in the jaws including dentition, inferior alveolar canal and maxillary sinus (6).

The differential diagnosis is generally made with other lesions that present mixed radiolucent–radiopaque internal structures, especially with fibrous dysplasia. These two types of lesion present similar clinical, radiographic and microscopic characteristics. The well-delimited clinical radiographic appearance of and the ease with which it can be separated from normal bone is the main differential in relation to fibrous dysplasia. Other lesions should also be taken into consideration as differential diagnoses: calcifying odontogenic cysts, calcifying odontogenic tumors (Pindborg) and adenomatoid odontogenic tumors (4).

The goal of treatment for ossifying fibroma should be complete surgical removal (8). Surgical management in the form of enucleation, curettage and resection are suitable forms of treatment as shown in this study by a very low recurrence rate reported. Conservative curettage is the treatment of choice for small well-defined lesions while enucleation should be performed in fairly large lesions with defined borders. Resection should be employed for extensive lesions that behave aggressively. Long term follow-up of patients is mandatory as recurrences can occur for up to 10 years

following treatment (6). When the surgical resection is extensive, additional reconstruction using bone grafts and implants may be necessary due to aesthetic and functional problems, especially when teeth are removed (4).

Platelet-rich plasma (PRP) is a biological product that is defined as the portion of plasma fraction of autologous blood with a platelet concentration above that of the original whole blood. The most important growth factors released by platelets in PRP include vascular endothelial growth factor (VEGF), transforming growth factor-b (TGF-b), platelet-derived growth factor (PDGF), fibroblast growth factor (FGF), epidermal growth factor (EGF), hepatocyte growth factor (HGF), insulin-like growth factors 1 and 2 (IGF-1 and IGF-2), matrix metalloproteinases 2 and 9, and interleukin-8.7,8. These bioactive molecules play important roles in different applications of regenerative medicine, including bone remodelling, wound healing, implant placement and reconstructive surgery of mandibular defects (10).

The distinguishing feature encountered in this case is that the patient exhibits a multilocular lesion unlike majority of patients who exhibit unilocular lesion. Usually reconstruction of such a lesion in the mandible can be done with Reconstruction plates. But since this patient has a very delicate intact lingual cortex, utilization of these plates is not preferred in this case, since these plates are load sharing and distributes the force on the mandible and there may a chance of pathological fracture. In order to eliminate this, reconstruction plates were not used instead the cavity was packed with bone wax and suturing was done after which PRP placement was done. The comparative evaluation of preoperative CBCT with 2 months postoperative CBCT revealed a considerable increase in density of bone.

References

1. Ossifying fibroma: report on a clinical case, with the imaging and histopathological diagnosis made and treatment administered Daniel Trivelato da Silveira, Fábio Oliveira Cardoso, Brisa Janine Alves e Silva, Cláudia Assunc¸ão e Alves Cardoso ∗, Flávio Ricardo Manzi Pontifícia Universidade Católica de Minas Gerais (PUC-MG), Belo Horizonte, MG, Brazil
2. Ossifying fibromas of the jaw bone: 20 cases Y Liu1 , M You1 , H Wang*,1, Z Yang1 , J Miao1 , K Shimizutani2 and T Koseki2 1 Department of Oral Radiology, West China College of Stomatology, Sichuan University, Chengdu, Sichuan, China; 2 Department of Oral Radiology, Osaka Dental University, Osaka, Japan
3. Shafer's Textbook of Oral Pathology- (th edition - Shafer, Hine, Levy
4. Burket's oral medicine- Greenberg, Glick, Ship- 11 th edition
5. Updated Classification Schemes for Fibro-Osseous Lesions of the Oral & Maxillofacial Region: A Review Dr.Karan Rajpal, Dr.Raghav Agarwal, Dr.Richie Chhabra, Dr.Maumita Bhattacharya
6. Ossifying fibroma of the jaws: a clinical study of 14 cases and review of the literature Katherine Triantafillidou, MD, DDS,a Grigoris Venetis, MD, DDS,b Georgios Karakinaris, MD, DDS,c and Fotis Iordanidis, MDd Aristotle University of Thessaloniki and "G. Papanikolaou" General Hospital of Thessaloniki, Thessaloniki, Greece
7. Ossifying fibroma of the nose and paranasal sinuses R. Peter Manes, MD1, Matthew W. Ryan, MD2, Pete S. Batra, MD2, Dianne Mendelsohn, MD3, Yisheng V. Fang, MD, PhD4, Bradley F. Marple, MD2-

8. Classification and nomenclature of fibro-osseous lesions-David MacDonald
9. Unusual radiographic appearance of ossifying fibroma in left mandibular angle-M.Araki , K. Matsumoto, N. Matsumoto, K. Honda, H Ohki and K Komiyama
10. Ossifying fibroma: analysis of treatment methods and recurrence patterns Dr. Fadi Titinchi, BChD, Postgrad Dip Dent (Oral Surg), Jean Morkel, BChD, MBChB, MChD, FCMFOS(SA), Prof.
11. Xu J, Gou L, Zhang P, Li H, Qiu S. Platelet-rich plasma and regenerative dentistry. Aust Dent J. 2020 Jun;65(2):131-142. doi: 10.1111/adj.12754. Epub:2020 Mar 24. PMID: 32145082; PMCID: PMC7384010