Edisi Cetak Dentika Dental Journal, Juli 2011 (ISSN: 1693-671X)

CEMENTO-OSSIFYING FIBROMA ON THE ANTERIOR MANDIBLE REGION

(FIBROMA CEMENTO-OSSIFYING PADA REGIO DEPAN RAHANG BAWAH)

Isnandar*, Kasman Manullang*, Hendro Sudjono Yuwono**

* Department of Oral and Maxillofacial Surgery
Faculty of Dentistry, North Sumatera University
Jl. Alumni No. 2, Kampus USU, Medan 20155
* Department of Oral and Maxillofacial Surgery
Faculty of Dentistry, Padjajaran University
** Department of Vascular Surgery
Faculty of Medicine, Padjajaran University
Jl. Dr. Hasan Sadikin General Hospital, Bandung
Email: ndarbm@gmail.com

Abstract

Cemento-ossifying fibroma (COF) is a rare benign tumor which mostly affects the mandible and the most common site is in the premolar-molar region. It is a painless, generally slow-growing, benign lesion which enlarges in an expansive manner. It is usually detected in the third and fourth decade of life and is more common in women. Radiographically, they appear as well-defined unilocular or multilocular intraosseous mass in the premolar-molar region of the mandible. The lesion is invariably encapsulated and with mixed radiolucent density. Its histopathology shows fibrous tissues with calcified structures resembling bone or cementum. This article reports a rare case of a-20-year old male with history of swelling in the anterior mandible region at tooth region 33-43 causing difficulty in occlusion. We have performed marginal resection and put AO plate crossing the bone defect. There was no wound dehiscence and exposed AO plate after six months of close observation. In conclusion, the mass has been succesfully excised and reconstructed using AO plate. Patient has been referred to the prosthodontic department for having a denture.

Key words: cemento-ossifying fibroma, marginal resection, AO plate

INTRODUCTION

Cemento-ossifying fibroma (COF) is a rare benign tumour that usually arises from the mandible and maxilla, which mostly affects the mandible (62 - 89%) rather than maxilla. The premolar-molar region of the posterior mandibular region is the most common site (77%). The first presenting symptom of patient is usually facial asymmetry. Other locations within the head and neck have also been described. [1-3]

COF is a fibro-osseous lesion that arises from the periodontal membrane. This is a layer of fibrous connective tissue surrounding the roots. It contains of multipotential cells that are capable of forming cementum, lamellar bone, and fibrous tissue. This neoplasm occurs in patients with a wide age range, but the most number of cases are encountered during the third and fourth decade of life. There is a definite female predilection with female-to-male ratio is as high as 5: 1. If the lesion involves the adjacent teeth, then the teeth is often displaced and occasionally resorbed. It is a painless, generally slow-growing benign lesion which enlarges in an expansive manner and sometimes reaching a large size which may result in considerable deformity. [1,3-7,10]

Radiographically, they appear as a well-defined unilocular or multilocular intraosseous mass in the premolar-molar region of the mandible. The lesion is invariably encapsulated with mixed densities on X-ray. The term "cemento-ossifying fibroma" is used to describe fibrous lesions containing calcifications with strong similarity between bone and cementum. Although WHO and some authors regard the cementifying fibroma (CF) as an odontogenic tumor and consider ossifying fibroma (OF) separately as a non-odontogenic neoplasm, however

there is general agreement that CF and OF represent only histologic variants of the same lesion. Cementifying and ossifying fibromas are now considered as the same and categorized together as *cemento-ossifying fibroma.* [1,7,8,10]

Surgical excision or resection is the treatment of choice and it usually requires bone grafting or reconstructive surgery. Recurrence following complete excision is generally considered to be uncommon. However, in some series, it has been reported to be as high as 28%. [1-3,6]

This paper discussed about a rare case of COF in a 20 years old male on the mandible anterior region, marginal resection was performed followed by the installation of AO plate.

CASE

In February 2010, a-20-years old male patient came to the Department of Oral and Maxillofacial Surgery Dr. Hasan Sadikin Hospital and complained of a palpable, indurated mass in the anterior region of the mandibular bed. Patient also complained of ability to close the mouth and to chew food properly since ± 2 years ago. The medical, social and family histories were unre-markable. Patient was apparently asymptomatic since ± 10 years ago, it developed from a small swelling in the mandible anterior region, then gradually increased in size.

Oral and maxillofacial examination revealed a uniform round large swelling in the anterior mandible region at tooth region 33-43 (Figure 1A, B) which caused maloclusion and inability to close the mouth. The size of the lesion was 6 x 5 x 6 cm and the shape was ovoid. The overlying mucosa was pinkish in color and firm consistency on palpation. The texture was irregular with view ulceration which bled easily and had no fluctuation and crepitation

Figure 1. A. A 20 years old male with mass in the anterior region of the mandibular. B. Intra oral region showed mass at tooth region 33 - 43 which caused maloclusion and inability to close his mouth

Laboratory examinations of blood and urine, thorax X-ray, and panoramic X-ray were performed. The results of laboratory blood and urine tests showed within normal limits and thorax X-ray showed no abnormalities.

Panoramic radiologic examination revealed a large calcified radioopaque mass with clear well defined radiolucent border. The teeth adjacent to the lesion were displaced and resorbed from tooth regio 35 until 45 due to expansive the mass to the surounding tissue concerned, although there was no evidence of cortical erosion (Figure 2).

A biopsy was performed under local anesthesia and the specimen was sent for histopathology examination. Histologically, the specimen showed stratified squamous cell with normal nucleus. Fibrocolagen connective tissue showed hyperplastic growth with normal nucleus filled with inflammatory lymphocytes. Mature bone with psammoma-like bodies (cement like) were also found among the specimen. There was no malignant tumor seen hystopathologically (Figure 3A, B). A final diagnosis of cemento-ossifying fibroma was achieved.

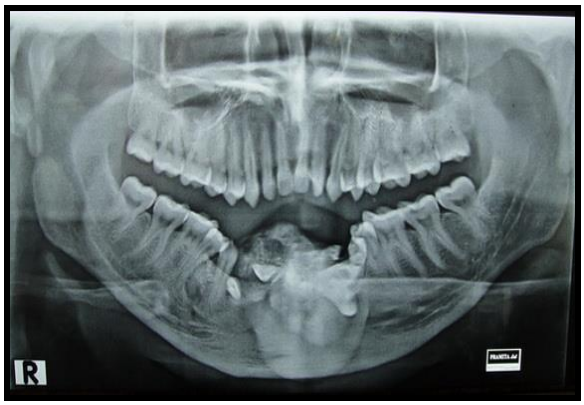

Figure 2. Panoramic X-ray showed the lesions had entered the mature stage showing entirely radiopaque lesion surounded by radiolucent border

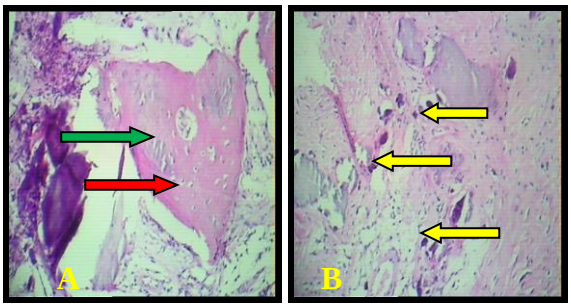

Figure 3. A. Photo-micrographs showed fibrous tissue (red arrow) with bone trabeculae or mature bone (green arrow), and B. showed psammoma bodies (cement-like) (yellow arrow)

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CASE MANAGEMENT

Patient had been hospitalized for 2 weeks, and an excisional biopsy continued marginal resection using bone plate was planned and a preoperative antibiotic had been administered for 2 days. Surgical excision of the mass with marginal resection of the anterior mandible region in concerned using striker and chisel followed by extraction of teeth 35, 34, 44 and 45 under general anesthesia was performed. AO plate was inserted crossing the bone defect (Figure 4A-D), and the wound was closed using silk sutures.

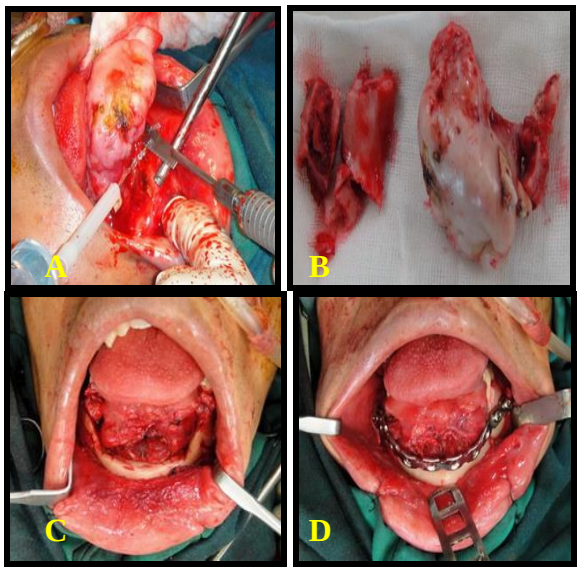

Figure 4. Intra operative procedure A. Mass excision and marginal resection of mandible anterior region. B. Tumor mass and bone involved immediately after excision. C. Showed bone remaining after marginal resection, good and free of tumor. D. AO plate was inserted crossing the bone defect to prevent future fracture of the bone and better support of the surounding soft tissues

The excised mass was sent to the pathology department for histopathological examination. Antibiotics, antiinflamatory and analgetic agents were continued for the next one week. The sutures were removed on the 7th day postoperative day. The wound showed good signs of healing and the patient was quite satisfied because he could eat food without any difficulty (Figure 5A, B).

One month after the surgery the patient came to the Oral Surgery Clinic in Dr. Hasan Sadikin Hospital for routine control, and panoramic X-ray was performed, which showed that the lesion had regressed, there was neither wound dehissence nor any exposed AO plate (Figure 6A, B). Patient returned six months after surgery and showed a satisfactory outcome both clinically and radio-logically whithout signs of recurrence (Figure 7A, B). Patient was then referred to the Department of Prostodontic for expert management of denture

Figure 5. The 10th day postoperative day. A. The wound showed good signs of healing. B. Patient was quite satisfied

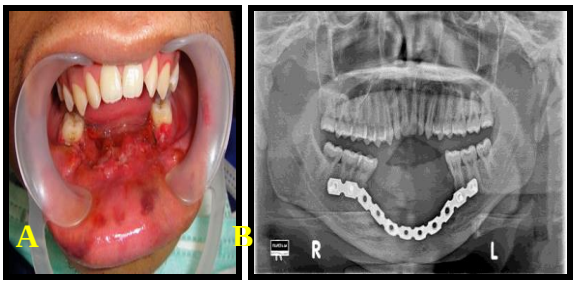

Figure 6. One month post operation. A. That the lesion had regressed, there was neither wound dehissence nor any exposed AO plate. B. Panoramic X-ray showed the bone plate was attached too

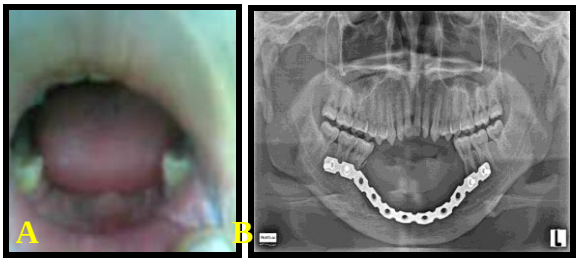

Figure 7. Six months of post operation. A. Showed a satisfactory outcome whithout signs of recurrence. B. Panoramic X-ray showed the AO plate was installed properly

DISCUSSION

COF is a well-demarcated benign fibrous neoplasm that contains of varying amounts of calcified tissue resembling bone, cementum, or both. The incidence is far higher in the mandible rather than maxilla. On the clinical features that have been presented in preeliminary literature, our case is rarely encountered, because our patient was a 20 year old

male, with the complaint arising since 12 years ago. The lesion was also found in the anterior mandible region. The clinical picture is slightly different from literatures which states that the lesion was more frequent in women during the 3rd and 4th decade of life, and frequently found in the posterior mandible region. [1,2,4,6,9,10]

Studies have shown that the biologic behavior of histology, causing expansion of the cortical plates, replacement of normal bone with neoplastic cellular fibrous tissue, and formation of spherical calcifycations and irregular, randomly oriented bony structures. COF may have areas of cementum, appearing as psammoma bodies embedded in a benign fibrous stroma. Spiet et al. supported Reed's classification and started that the predominant pattern of bone architecture is usually apparent and allows one to differentiate between the two types of lesions. This statement is in accordance with the histopathological picture of our patient, which it should be the discovery of fibrous tissue with bone trabeculae (mature bone) and trabeculae-like picture of psammoma bodies (like cement).[3-5,8,9]

The radiographic appearance is of utmost importance in the diagnosis of COF because it is often needed to separate it from other fibro-osseous lesions. The lesions may be either unilocular or multilocular with smooth contours. The maturity of the lesion will determine the degree of radiopacity and radiolucency. In the early stages (immature) the lesions are small and usually completely radiolucent. As they enlarge, increased amount of irregularly shaped radio pacities appear within the radiolucent area. In the later, more mature stage, the radiopaque structures enlarge and coalescence, often forming a nearly radiopaque lesion within rim of radiolucency separating it from the surounding normal bone. Root resorption and displacement of teeth are frequent findings. Panoramic X-ray of patients describes that the lesions had entered the mature stage showing entirely radiopaque lesion surounded by radiolucent border. This was caused by ± 10 years of slow progresing tumour, and also involved of the teeth in the 35-45 region which were displaced and the tooth roots partialy resorbed, but the clinical picture only involved in tooth regions 33-43. Therefore we decided to extract from the region of 35-45 during the surgery. [1,5,8,9]

Treatment was surgical removal with the extent depending on the size and location of the individual lesion and the extent of any capsule formation. Some lesions have succesfully been removed with curettage and local excision, whereas others required aggressive curettage, localized surgical resection, and segmental/block mandibular resection with bone grafting originating from either patient's own bone from iliac and fibular or derived from other donors in the more aggressive lesions/large lesions and multiple recurrences are common. Prognosis is good. In this case we did not perform segmental resection as recommended in the literature, but performed only marginal resection because patient was young and when during intra-op, the bone involved had no extension up to the border of the mandible. To prevent future fracture of the bone and better support of the surounding soft tissues, we installed AO plate which also enhances bone growth. In this case a bone graft was not done due to the patient's limited funds. To ensure the absence of relapse or recurrence, we conducted follow-up six months after surgery, with panoramic X-ray showing no recurrence. Clinically, patient had satisfactory results both in terms of aesthetics and function for mastication. Patient was further referred to the Prostodontic Department for expert management of denture to achieve more optimal results. [1,3,6,9,11]

In conclusion, a male of 20 years of age suffered from Cemento-ossifying fibroma in the anterior mandible has been succesfully excised and reconstructed using a AO plate. Patient has been referred to The Prosthodontic Department for having a denture.

References

1. Balaji SM. Text book of oral and maxillofacial surgery. New Delhi: Elsevier, 2007: 383-84.
2. Tamiolakis D, Thomaidis V, Tsamis I, Lambropoulou M, Alexiadis G, Seretis K, *et al.* Cementifying-ossifying fibroma of the maxilla : A case report. The Internet J Dental Science 2005; 2 (2): 319-21.
3. Gaillard F. Cemento-ossifying fibroma. April 07 2010. <http://www.radiopaedia.org/articles/cemento-ossifying-fibroma.htm> (July 25, 2010].
4. Wray D, Stenhouse D, Lee D, Clark AJ. Text book for general and oral surgery. London: Churchil Livingstone, 2003: 282.
5. Sarwar HG, Jindal MK, Ahmad SS. Cemento-ossifying fibroma a rare case. J Indian Soc Pedod Prev Dent 2008; 26 (3): 128-31.
6. Jung SL, Choi KH, Park YH, Song HC, Kwon MS. Cemento-ossifying fibroma presenting as a mass of the parapharyngeal and masticator space. AJNR Am J Neuroradiol 1999; 20 (9): 1744-6.
7. Stergiou GC, Zwahlen RA, Gratz KW. Multiple Cemento-ossifying fibromas of the Jaw: a very rare diagnosis. Schweiz Monatsschr Zahnmed 2007; 117(3): 236-44.
8. Dalghous A, Alkhabuli JO. Cemento-ossifying fibroma occurring in an elderly patient. A case report and a review of literature. Libyan J Med 2006; 95-8.

9. Sapp JP, Eversole LR, Wysocki GP. Contemporary oral and maxillofacial Pathology. 2nd ed. St. Louis: Mosby Company, 2004: 116-18.
10. Whaites E. Essential of dental radiography and radiology. 3rd ed. London: Churchil Livingstone, 2002: 331-32.
11. Pogrel MA. Benign Nonodontogenic Lesions of the Jaws. In: Miloro M. Peterson's principles of oral and maxillofacial surgery. 2nd ed., London: BC Decker Inc, 2004: 599-600.

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