

## CEMENTO-OSSIFYING FIBROMA-A CASE REPORT

<sup>1</sup> Srinivasa Prasad B<sup>1</sup> Professor and Head<sup>2</sup> Koteswara Rao<sup>2</sup> Reader<sup>3</sup> Devaki Swathi<sup>3</sup> Intern

<sup>1,2,3</sup> Department Of Oral and Maxillo Facial Surgery, Dr.Sudha & Nageswara Rao Siddartha Institute Of Dental Sciences, Chinoutpalli, Vijayawada, Krishna District, Andhra Pradesh

### ABSTRACT

Mandibular resection and reconstruction was done with rib graft on right side for a boy suffering from cemento-ossifying fibroma. The defect secondary to surgical ablation of mandible have far reaching consequences like speech, respiration, mastication, deglutition and cosmetics and growth disturbances. Restoring these functions is a challenging task. However, fairly regular crop of complications do occur during these surgical reconstructions. This article reports a rare case of an 11years old boy diagnosed as cement ossifying fibroma who underwent mandibular reconstruction with rib graft and the details of the follow up of the case for 6 months.

**KEY WORDS :** Cemento-Ossifying Fibroma, Mandible, Resection, Rib Graft

### INTRODUCTION

The cemento-ossifying fibroma or ossifying and/or cementifying fibroma have been described as demarcated or rarely encapsulated neoplasms consisting of fibrous tissue containing varying amounts of mineralized material resembling bone and/or cementum<sup>1</sup>. It is a central neoplasm of the bone which causes considerable controversy because of confusing terminology and it is the criteria for diagnosis. This can result in differences of opinion and management of these lesions. Though previously considered as an odontogenic tumor, today it is best classified as osteogenic neoplasm<sup>1</sup>.

It can occur at any age, common in young adults (2<sup>nd</sup> and 3<sup>rd</sup> decades) with female predominance, generally asymptomatic until the growth produces a noticeable swelling and mild deformity, displacement of tooth may be an early clinical feature<sup>2</sup>. It is a relatively slow growing tumor and may be present for some years before clinical presentation<sup>1,2</sup>. The recurrence of these benign tumors following surgery is considered rare. In this paper, a case of large cement-ossifying fibroma occurring in a young patient and presenting with an accidental pleural puncture during rib grafting is described.

### Case Report:

An 11 year old boy reported to the department of Oral and Maxillofacial Surgery with the complaint of swelling in relation to the right lower jaw since 1 month (**Fig. 1**), which is increasing in size slowly. No previous histories of operations were carried out at the site of the lesion and his past medical and family histories were non contributory. The patient was generally healthy but an extra oral examination revealed a hard, non-tender bony swelling of right mandible. The overlying skin was intact with no anesthesia noted on his lower right lip. Regional lymph nodes were not palpable. Intraorally, the localized hard, bony swelling extended from canine to the 2<sup>nd</sup> molar region with buccal and lingual expansion. The lower right premolars and first molar teeth were mobile. The overlying mucosa was intact and normal in appearance. The teeth were all vital.

Radiographic examination revealed a multilocular and well circumscribed radiolucent lesion measuring 3x3cms and presenting with fairly patchy radio opacities(**Fig.2**). There was no evidence of root resorption in the 1<sup>st</sup> molar and there was incomplete root formation in relation to 1<sup>st</sup> and 2<sup>nd</sup> premolars. There was erosion of inferior cortex of the mandible. A preoperative diagnosis of

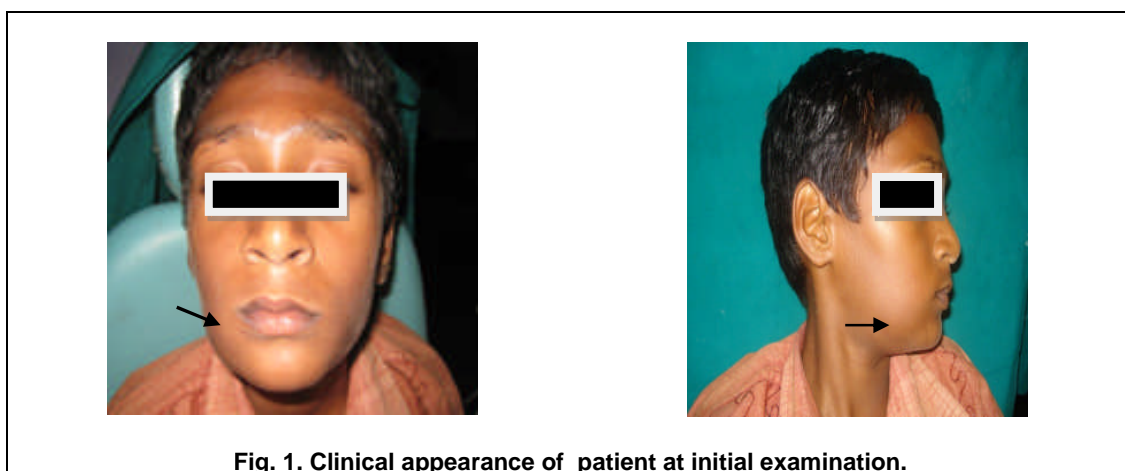


Fig. 1. Clinical appearance of patient at initial examination.

a fibro-osseous lesion such as a cement-ossifying fibroma or fibrous dysplasia was made. The lesion extended from right canine to distal surface of 1<sup>st</sup> molar tooth with bicortical expansion (of buccal and lingual plates).

Under local anaesthesia, an incisional biopsy was taken at the most expanded part of the buccal bone for histopathological examination which indicated the tumor to be cement-ossifying fibroma. Routine blood investigations were within normal range.

Treatment plan was resection of jaw tumor on right mandible from canine region to distal of 2<sup>nd</sup> molar (**Fig. 3**) and reconstruction of the defect done with 7<sup>th</sup> rib graft (**Fig. 4**) under general anesthesia. Grafting was done in this case in order to regulate the growth of the mandible as the patient is still in his pre-pubertal stage of growth and also with an intention to prevent any mandibular deviation at a later age.

The graft is placed at the resected area by using a 13 holed reconstruction plate. six screws were placed. On each side of the grafted area two

holes were drilled in the mandible and one in the graft to place the screws. This helps in proper stabilization of the graft thus preventing any post operative complications of mal union or non union etc.

The wound was closed in layers with vicryl 3-0 prolein 4-0. A suction drain placed and removed after 4 days. Inter maxillary fixation was done to prevent unwanted movements, proper healing of the graft and also to maintain proper occlusion on the other side.

**Complication:** Intra-operatively while taking rib graft, accidental pleural puncture/tear has been occurred, resulting in pneumo-thorax, for which the patient is kept with inter costal chest drainage (**Fig. 5**) for 6 days. Post-operative healing was uneventful and he was discharged after removal of sutures. Later wound healed primarily and patient had no chest infection or excessive hemorrhage. Moderate post-operative pain lasted for 2 weeks.

The patient was advised to report for follow up after 1 month and then after 6 months. Radiographs which were taken after 6 months showed proper take up of the graft with the adjoining mandible (**Fig. 6**).

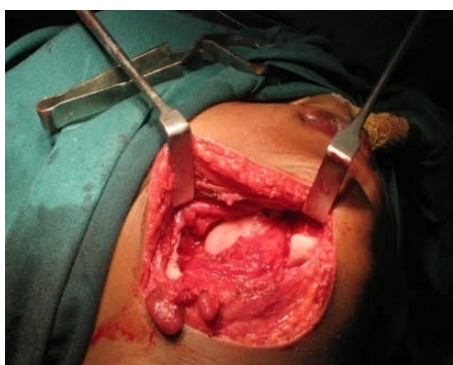


Fig.2. Orthopantomograph showing Well defined radiolucent lesion.

#### Histopathological report.

**Macroscopic findings:** The specimen consisted of a large hard solid mass measuring 3x3x2cms. These tissues were decalcified and routinely processed for histopathology.

**Microscopic findings:** Histopathological examination of the lesional soft tissue section



**Fig. 3- Cemento-ossifying fibroma has a smooth surface and is well demarcated from the bone**

revealed a well circumscribed and partly encapsulated fibro-osseous lesion consisting of abundant fibrous connective tissue with plump, stellate fibroblasts and areas of calcifications resembling cementum (**Fig.7**). Peripherally osteoid formation with few inflammatory cells is noticed. There is no evidence of malignant changes. The erupted teeth and partially erupted 2<sup>nd</sup> molar exhibited normal enamel, dentine and pulp. In the latter tooth the dental follicle contained focal areas of epithelial cell rests.

Correlating clinical, radiological and histological findings, the case was reported as a benign fibro-osseous lesion consistent with cement-ossifying fibroma.



**Fig. 4.- 7<sup>th</sup> rib graft placed at the region of the defect.**

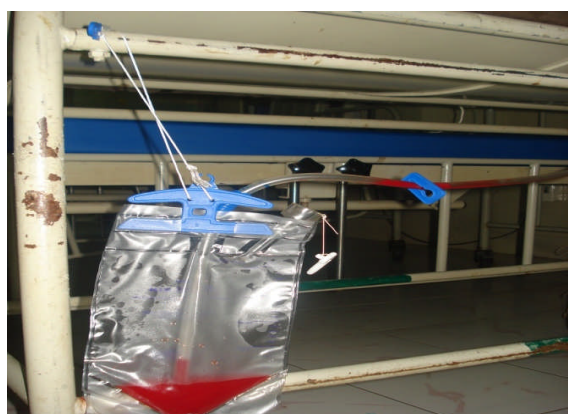
## Discussion

The term cemento-ossifying fibroma has been used to refer to all fibro-osseous lesions which were previously classified as ossifying or cementifying fibromas as they fall within the spectrum of same entity.

Cement-ossifying fibroma, a benign fibro-osseous lesion of the jaws consists of cellular fibroblastic tissue containing rounded or lobulated masses of calcified cementum like tissue.

Clinically, the cement-ossifying fibroma presents as a painless, slowly increasing expansion of the jaw. It occurs mainly in the second to fourth decades of life and is more common in women than





**Fig. 5. Inter costal chest drainage.**

men<sup>2,4,5</sup>. The commonest site of cement-ossifying fibroma is mandible. The majority of the lesions arise from the premolar-molar region and appear to be more aggressive in younger patients<sup>2,6,7</sup>. Mainly presented as a unilateral facial bone swelling. In this case the tumor arose from the posterior part of the mandible with a progressive increase in size of the tumor over a period of 1 month with resultant facial asymmetry correlated well with the clinical characteristics of this entity.

Radiographically, it commonly presents as a well circumscribed radiolucent area with a speckled appearance and mostly multilocular in pattern<sup>8</sup>. When the lesion is large, there may be root resorption, displacement of teeth in the tooth-bearing region, and in the mandible, erosion of the inferior cortex<sup>8,9</sup>.

Histologically, they consist of cementum-like material and metaplastic bone<sup>1,3</sup>. At microscopic level, the principal differential diagnosis for this case includes fibrous dysplasia, juvenile (aggressive) ossifying fibroma and benign osteoblastoma.



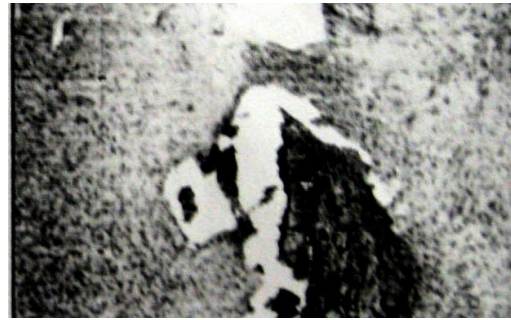
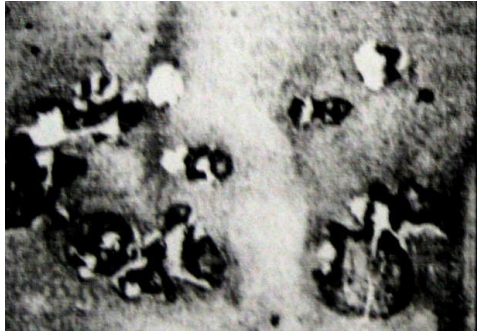
**Fig. 6- Post-operative radiograph taken after 6 months.**

Treatment of cement-ossifying fibroma generally has been by conservative enucleation/curettage or radical surgery. Radical treatment of the tumor such as en-bloc resection should only be considered if there are recurrence due to its aggressive nature<sup>9</sup>. Once radical treatment is chosen as the line of treatment then

reconstruction and rehabilitation of the lost defect by a graft is taken into consideration. During such grafting procedures complications are not a rare occurrences. In this case during costo-chondral rib grafting complications likely to be occurred are pneumothorax, lung collapse, pneumonia etc.

## CONCLUSION

Tremendous advances have been made in reconstruction and rehabilitation of the patient with oral cavity cancer. However, persistent problems continue to thwart our efforts to restore these patients to their predisease state. When surgical treatment is carried out at early age, cementifying fibroma seldom recur. Their successful management therefore depends largely on the establishment of accurate clinical diagnosis aided by extensive investigation and careful interpretation of radiographs and medical, family and dental history. Most patients seek treatment for cosmetic reason therefore, unless there is a significant disturbance of function, it is advisable to defer surgery until the cessation of general skeletal growth.



**Fig. 7- Lesional tissue consists of cellular fibrous connective tissue stroma with areas of calcifications resembling cementum.**

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## Corresponding Author

**Dr.B.Srinivasa Prasad M.D.S.,**  
Professor and Head.  
Department Of Oral and Maxillo Facial  
Surgery  
Dr.Sudha & Nageswara Rao Siddartha  
Institute Of Dental Sciences  
Chinoutpalli, Vijayawada, Krishna District  
Andhra Pradesh  
Ph: +91 - 98481 21876  
E-mail: [aswini.dental@gmail.com](mailto:aswini.dental@gmail.com)