



## Peripheral Cemento-ossifying Fibroma -treatment and Follow Up of a Recurrent Case

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### Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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Case Study

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### ABSTRACT

Peripheral cemento-ossifying fibroma is a non neoplastic growth of soft tissue which often arises from the interdental papilla and is mostly seen in teenagers and young adults. Here we discuss a case of peripheral cemento-ossifying fibroma in a 15 years old male which had been surgically excised previously and recurred after a period of 8 months in the same region. Keeping in mind the recurrence rate, meticulous surgical excision and aggressive curettage of the nearby tissues are to be done to prevent further recurrence.

*Keywords: Cement-ossifying; child; fibroma; peripheral; treatment; young.*

### 1. INTRODUCTION

Peripheral cemento-ossifying fibroma is a soft tissue tumor like growth which is found to be

focal, reactive and non neoplastic and it often arises from the interdental papilla [1]. The pathogenesis of this lesion is uncertain because of their clinical and histopathologic similarities,

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some peripheral ossifying fibromas are thought to develop initially as pyogenic granulomas that undergo fibrous maturation and subsequent calcification [2]. Lots of confusion still seems to be there over the nomenclature of this lesion, and several terms have been used to describe its variable histopathologic features [3]. The terms peripheral odontogenic fibroma and peripheral ossifying fibroma often were used interchangeably, but the peripheral odontogenic fibroma is now said to be a distinct and separate entity [3]. The peripheral cement-ossifying fibroma (PCOF) occurs exclusively on the gingiva. It appears as a nodular mass, which can be pedunculated or sessile and arises from the interdental papilla. The colour of the lesion ranges from red to pink, and surface is said to be frequently, ulcerated. The growth most often begins as an ulcerated lesion and the older ones demonstrating healing of the ulcer and an intact surface. Red, ulcerated, lesions are often confused for pyogenic granulomas whereas the pink non ulcerated ones are clinically similar to irritation fibromas. Most of the lesions are less than 2 cm in size, although larger lesions might occasionally occur. The lesion is said to be present for many weeks or months before the diagnosis can actually be made [4]. The PCOF is usually said to be a lesion of teenagers and young adults with peak prevalence between the ages of 10 and 19. Almost two-thirds of all cases occur in females. The maxillary arch is more often affected and more than 50% of all cases occur in the incisor-cuspid region. The teeth are unaffected, but there can be migration and loosening of adjacent teeth [5]. The microscopic pattern seen with PCOF is one of a fibrous proliferation associated with the formation of a mineralized product. The deeper fibroblastic component often is cellular specially in areas of mineralisation. The type of mineralized component is variable and may consist of bone, cementum like material or dystrophic calcifications. Frequently, a combination of products is formed. Usually, the bone is woven and trabecular in type, although older lesions may demonstrate mature lamellar bone [6].

The treatment of choice is deep surgical excision with submission of the excised specimen for the histopathologic examination. The mass should be excised deep down to periosteum so that recurrence does not occur. Recurrence is more likely if the base of the lesion is allowed to remain. In addition, the adjacent teeth should be thoroughly cleaned to eliminate any possible irritants. Although excision is usually curative

recurrence rate of 16% has been reported [7]. Here we present a case of peripheral cement-ossifying fibroma in a 15 years old male child where we had to surgically excise the lesion with curettage to prevent recurrence as the patient had a recurrence after undergoing excision of the same lesion one year back.

## 2. CASE REPORT

A 15 years old male child reported to the clinic with a slow growing asymptomatic growth on the anterior region of maxilla on right side (Fig. 1). The growth started four months back. He had visited the local dentist with a similar complaint around one year back. The growth was then surgically excised by the dentist without doing any histopathological evaluation. Again after a period of 8 months he noticed another asymptomatic growth on the same region. His past medical history did not contribute anything much to evaluate. He also gave history of trauma to the same region 1 year back. Intraoral examination revealed a well-circumscribed, erythematous sessile growth on the buccal aspect of maxilla adjacent to 12 and 13, measuring about 2.5 × 2 cm in diameter and originating from interdental papilla (Fig. 2). It was firm in consistency and non-tender. Overlying mucosa appeared erythematous. Intraoral examination also revealed fracture of 11 which was asymptomatic. His oral hygiene was fair. No other marked deformity was noted extraorally or intraorally. Maxillary occlusal and IOPA in relation to 12 & 13 were done and migration of 13 was noted (Fig. 3). Clinically, differential diagnosis included traumatic fibroma, peripheral cemento-ossifying fibroma, peripheral giant cell granuloma and pyogenic granuloma. After taking informed consent from parents of the patient, under profound local anesthesia, the lesion was completely excised with aggressive curettage of the surrounding tissues as well as the scaling of the involved teeth. The excisional biopsy was sent for histopathological analysis (Fig. 4). The histopathological examination confirmed it to be peripheral cement-ossifying fibroma (Fig. 5). The fractured tooth 11 went for composite build up (Fig. 6). The patient is under follow up for 9 months now and no recurrence has been reported.

## 3. DISCUSSION

Ossifying fibroma is a benign neoplasm arising in orofacial bones, composed of proliferating fibroblasts with osseous products that include

bone and ovoid calcifications; these lesions are usually well demarcated from the adjacent bone. There are two types of ossifying fibromas: The central type and the peripheral type. The central type arises from the endosteum or the periodontal ligament adjacent to the root apex and can cause expansion of medullary cavity. The peripheral type occurs specifically on the soft tissues covering the tooth-bearing areas of the jaws. Ossifying fibromas elaborate bone, cementum and spheroidal calcifications, which has given rise to various terms for these benign fibro-osseous neoplasms. When bone predominates, 'ossifying' is the name given, while the term 'cementifying' has been stated when curvilinear trabeculae or spheroidal calcifications are encountered. When both bone and cementum-like tissues are observed, the lesions have been referred to as cemento-ossifying fibroma [8]. Although the etiopathogenesis of peripheral ossifying fibroma is uncertain, an origin from cells of the periodontal ligament has been suggested [9]. The reasons for considering periodontal ligament origin for peripheral ossifying fibroma include exclusive occurrence of peripheral ossifying fibroma in the gingiva (interdental papilla), the proximity of gingiva to the periodontal ligament, and the presence of oxytalan fibers within the mineralized matrix of some lesions. Excessive proliferation of mature fibrous connective tissue can be a response to gingival injury, gingival irritation, subgingival calculus or a foreign body in the gingival sulcus. Chronic irritation of the periosteal and periodontal membranes causes metaplasia of the connective tissue and resultant initiation of formation of bone or dystrophic calcification. The lesion may cause a separation of the adjacent teeth, and occasionally minimal bone resorption can be seen beneath the lesion [10]. The surface may be either intact or ulcerated. The reported case here has been diagnosed as cement-ossifying fibroma after histopathological examination. A definitive diagnosis can only be made by histopathological evaluation wherein we find benign fibrous connective tissue with varying content of fibroblasts, myofibroblasts and collagen, sparse to profuse endothelial proliferation and mineralized material which may represent mature, lamellar or woven osteoid, cementum like material or dystrophic calcifications [11]. Most of these features were present in our histopathological specimen too. Clinically it can be misdiagnosed as pyogenic granuloma, peripheral giant cell granuloma and other fibromas which have clinical features similar to the above

mentioned pathology. Further the cemento-ossifying fibromas tend to occur in second and third decade of life with a peak occurrence between 10-19 years which is also the case with our report as the child was 15 years old. It has also been mentioned to be more prevalent in females but in contrast to this finding we had a male reporting with the pathology [12]. The region mostly affected is maxillary incisor canine which is also the area affected in our case [13]. Reports of tooth migration has also been stated due to fibroma [14]. Tooth migration was also present in our case. The lesion has a high recurrence rate and that is the reason it has to be meticulously excised with curettage to lower the chances of recurrence.



**Fig. 1. Pre-operative**



**Fig. 2. Maxillary arch showing the lesion**



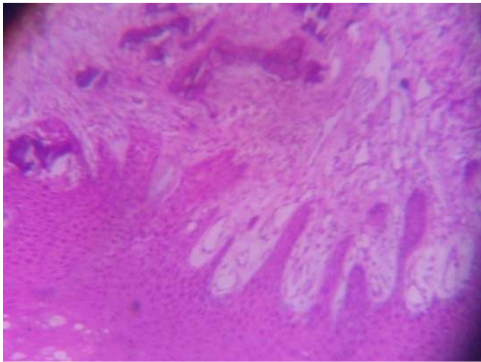
**Fig. 3. Tooth migration**

**Table 1. A brief summary of cases reported of peripheral cement-ossifying fibroma till date**

SL. no	Authors	Year	Place	Gender	Affected region	Recurrence period	Treatment
1	Yokoyama Y, Matsui Y, Nagumo M, Irie T [15]	2007	Tokyo	Female (55)	Upper edentulous gingival	No evidence	Surgical excision followed by curettage
2	Alam T, Dawasaz A, Thukral N, Jangam D [16]	2008	Pune, India	Female (40)	Maxillary front (11,21) region	No evidence	Diode laser beam surgery
3	Delbem A, Cunha RF, Silva JZ, Soubhia A [14]	2008	Sao Paulo State University	Female (5 yrs)	Right upper alveolar region (52,53)	4 yrs	Surgical excision including PDL and periosteum
4	Sarwar HG, Jindal MK, Ahmed SS [17]	2008	Aligarh, India	Male (11)	Maxillary anterior labial Region	No evidence	Surgical excision followed by curettage
5	Farquar T, Maclellan J, Dymont H, Anderson R [4]	2008		Female (12)	Maxillary front region	No evidence	Surgical excision by electrosurgery
6	Kamadajaja D [18]	2009	Indonesia	Male (21)	Maxillary left posterior	No evidence	Resection of maxilla followed by reconstruction
				Female (17)	Mandibular right posterior	No evidence	Hemimandibulectomy, resection of mandible
7	Yadav R, Gulati A [5]	2009	India	Female (30)	Mandibular right posterior	No evidence	Resection followed by ostectomy
				Male (30)	Mandibular right premolar Region	No evidence	Surgical excision
8	Yadav A, Mishra MB [19]	2011	India	Female (45)	Mandibular right molar region	Not found	Surgical excision by electrosurgery
9	Mishra AK, Bhusari P, Kanteswari K [20]	2011	MP, India	Female (47)	Upper central incisor region	No evidence	Localised excision and gingivectomy
10	Rangil J, Silvestre F, Bernal J [21]	2011	Spain	Female (41)	Mandibular anterior (right to left) (33-43)	No evidence	Surgical removal (Mucoperosteal flap ostectomy, curettage)
11	Santhadevy A, Vidyalakshmi S, Sivaramkrishnan M, Suganya R [22]	2013	India	Male (37)	Mandibular anterior (31,32,41,42)	No evidence	Surgically excised
12	Ganji K, Kumar A, Chakki AK, Nagaral S, Verma E [13]	2013	Indore, India	Male (21)	Upper right premolar to molar region	Not found	Surgical excision
13	Mishra A, Maru R, Vishnuprasad D, Jaiswal G, Kumar R, Heena P [23]	2013	Indore, India	Female (42)	Lower right posterior region	No evidence	Gingivectomy followed by flap elevation
14	Antony VV, Khan R [24]	2013	Libya	Male (45)	Upper anterior region	No evidence	Surgical excision and curettage
15	Acharya S, Gujjaria SK, Hegde U [25]	2013	India	Female (42)	Maxillary front (21,22) region	No evidence	Papilla preservation f flap surgery
16	Mukherjee J, Das D, Shatmag, Purandare B [26]	2013	India	Female (21)	Mandibular posterior region	No evidence	Surgical excision
17	Ghani B, Bhattacharya F, Manjunath R, Khan R [27]	2014	India	Female (36)	Mandibular left posterior (33,34)	No evidence	Surgical excision followed by curettage
18	Nidhi T, Shasikiran ND, Shilpy S, Shilpy T, Manisha T [28]	2014	India	Female (15)	Maxillary right anterior region	No evidence	Surgical excision followed by curettage
19	Sinha S, Enja S, Chandra S, Nethan S [29]	2014	UP, India	Female (60)	Lower right back jaw region	No evidence	Surgical excision
20	Sunil P, Raj AP, Kumar S, Darshan S, Vijaya RM [30]	2015	Karnataka	Male (23)	Maxillary ant palatal region	No evidence	Surgical excision
21	Present case	2015	Odisha, India	Male (15)	Maxillary anterior region (12,13)	8 months	Surgical excision and curretage



**Fig. 4. Excised tissue**



**Fig. 5. Histopathology**



**Fig. 6. Post-operative**

#### 4. CONCLUSION

Peripheral cemento-ossifying fibroma is a non neoplastic reactive lesion of the gingiva having a high recurrence rate. This lesion can be misdiagnosed as some other reactive lesion of gingiva. Therefore, histopathological examination is the best option to diagnose the lesion and manage the case properly. Here, we discussed a case of PCOF in a 15 years old male which recurred probably due to inadequate surgical excision. Complete excision with thorough

curettage of adjacent tissues can prevent the recurrence of this lesion.

#### ETHICAL APPROVAL

It is not applicable.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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