

# International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service Available Online at: www.ijdsir.com

Volume - 5, Issue - 4, August - 2022, Page No. : 66 - 70

Management of Peripheral cemento-ossifying fibroma in a child- A clinical case report

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**Citation of this Article:** Dr. Chirag Patel, Dr. Dhara Patel, "Management of Peripheral cemento-ossifying fibroma in a child- A clinical case report", IJDSIR- August - 2022, Vol. – 5, Issue - 4, P. No. 66 – 70.

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Type of Publication: Case Report

## **Conflicts of Interest:** Nil

## Abstract

Peripheral cemento-ossifying fibroma is a slow progressing, reactive lesion of gingiva with uncertain etiology. It predominantly affects adolescent and young adults Here we are presenting a rare case of peripheral cemento-ossifying fibroma of maxillary posterior region in an 8-year-old boy. Lesion was manged by complete surgical excision and histology shows presence of cementum like mineralized particles in its connective tissue trauma. At one year follow-up completely healed area without any sign of recurrence was seen. Clinical, radiographic and histological characteristics of PCOF along with recommendations regarding differential diagnosis, treatment and follow up are discussed.

**Keywords:** reactive gingival lesion, peripheral cementoossifying fibroma, pediatric patient, maxilla.

## Introduction

Localized reactive lesions of gingival tissues like focal fibrous hyperplasia, pyogenic granuloma, peripheral giant cell granuloma (PGCG) and peripheral cementoossifying fibroma (PCOF) are very common in oral cavity. This could be due to the presence of irritants like plaque, calculus or faulty restorations or appliances or trauma.<sup>1,2</sup> Though clinically these lesions look almost similar, they differ in their histologic characteristics and reported as different entities. Peripheral cemento-ossifying fibroma (PCOF) is a non-neoplastic, reactive lesion characterized by proliferation of fibrous gingival tissue with presence of cementum like mineralized tissue.<sup>3,4,5</sup>

Peripheral cemento-ossifying fibroma (PCOF) accounts for 3.1% of all oral Tumors nd for 9.6% of gingival lesions.<sup>6,7</sup> These types of lesions very rarely exceeds size of 2.0 cmand usually have more predilection for females and for anterior maxilla.<sup>8</sup>Although it may occur at any age, Neville et al. suggested its peak prevalence between 10 and 19 years of age affecting adolescents and young adults while few authors have suggested its peak incidence between the second and third decades.<sup>9,10,11</sup> Although etiology of the peripheral cemento ossifying

fibroma is unclear, suggestions for its origin from inflammatory hyperplasia of the periodontal ligament and possible hormonal influence have been made.<sup>6,9</sup> Therefore, the aim of the present article is to report a case of peripheral cemento ossifying fibroma occurring in the maxillary posterior region of an 8-year-old male child with one year follow up.

### **Case report**

An 8-year-old boy was presented to us with chief complaint of presence of gingival growth in upper left back palatal region. According to parents of the patient, this mass was present since around 3 months for which they have consulted general dentist who prescribed some topical gel which they didn't remember. There was no relevant information regarding medical history of child was obtained.

On extraoral examination, bilateral symmetric face with normal TMJ movement was present. Intraoral clinical examination revealed presence of a pedanculated fibrous gingival overgrowth, measuring approximately 1.5 cm x 1.5 cm in size, on palatal surface of left maxillary permanent first molar [Figure 1 & 2]. The lesion appear reddish-pink in colour having rough surface According to patient, the mass was interfering and sometimes painful while biting with occasional bleeding from lesion. On Radiographic examination normal bone pattern was observed without any abnormality.



Figure 1: clinical intraoral image of lesion



Figure 2: intraoral gingival lesion with pedanculated base



Figure 3: Excised specimen measuring about 1.5 x 1.5 cm in diameter



Figure 4: Histological examination showing cementum like material in connective tissue



Figure 5: clinical photograph at 1-year follow up showing no sign of recurrence.

Based on patient's history, clinical examination and radiographic features, regarding the lesion history, differential diagnosis of peripheral cement-ossifying fibroma, pyogenic granuloma, peripheral giant cell granuloma, and fibrous hyperplasia were made and complete excision of the lesion was planned. After administering 2% lignocaine, the lesion was excised and surgical specimen was sent for histopathological examination [Figure 3].

Histopathological analysis showed overlying squamous epithelium having focal ulceration with collection of inflammatory cells. The connective tissue stroma shows presence of proliferating fibroblasts and interspersed with fragments of cementum like mineralized material suggesting overall features of peripheral cementoossifying fibroma [Figure 4].

On 1-year follow-up visit, there was no evidence of recurrence of the lesion, and the child was asymptomatic [Figure 5]. Patient was adviced for maintaining oral hygiene and regular follow-up every 6 months.

### Discussion

Peripheral cemento-ossifying fibroma (PCOF) is a welldemarcated and occasionally encapsulated lesion. It consists of fibrous tissue with variable amounts of calcific material resembling bone (ossifying fibroma),

both.<sup>12</sup> (cementifying cementum fibroma), or Considerable controversy surrounding the nomenclature of intraoral peripheral ossifying fibroma prevails in the literature with various synonyms being used, e.g. peripheral cementifying fibroma, ossifying fibro epithelial polyp, peripheral fibroma with osteogenesis, peripheral fibroma with cementogenesis, peripheral fibroma with calcification, calcifying or ossifying fibroma epulis, and calcifying fibro blastic granuloma.<sup>13</sup> Based on the presence of mineralized tissues, these lesions can be described as 'ossifying fibroma' when bone predominates, while the term "cementifying fibroma" has been assigned when curvilinear trabeculae or spheroidal calcifications are presence and when bone and cementum both like tissues are observed, the lesions have been referred to as 'cemento-ossifying fibroma'.<sup>14</sup>

PCOF is thought to arise from the cells of the periodontal ligament due to trauma or local irritation such as by dental plaque, microorganisms, or ill-fitting appliances.<sup>4,13</sup> The reasons for considering periodontal ligament as an origin for PCOF include its occurrence from interdental papilla and presence of oxy Talan fibres within the mineralized matrix of lesions.<sup>13</sup> Hormonal influences may also play a role, as the lesions have shown a female predilection, with increasing occurrence in the second decade of age and declining incidence after the third decade.<sup>6</sup> Cuisia and Brannon<sup>10</sup> suggested peak incidence of the lesion between the second and third decade. However, Neville et al.<sup>9</sup> stated that it predominantly affects adolescents and young adults between 10 to 19 years of age. Kenney et al.<sup>6</sup> reported only 1.9% prevalence in children aged 0 to 9 years. With respect to race, there is a predominance in whites [71%], compared to blacks  $[36\%]^2$ 

Clinically PCOF usually originates from the interdental papilla as a pedunculated or a sessile nodular mass. Most

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of the time, size of lesion is less than 2 cm in diameter, although larger lesions were occasionally observed. About 60% of the Tumors occur in the maxilla and more than 50% of all cases affect the anterior.<sup>2</sup> Cases of tooth migration and bone destruction have been reported, but these are not common.<sup>10,15</sup> Although radiographic changes may not always be present in case of PCOF, sometimes diffuse radiopaque calcifications can be seen. Very rarely superficial erosion of bone and interdental bone loss is seen in some cases.<sup>2,15</sup> In present case, normal radiographic features were present without any abnormality.

Because of clinical resemblance of peripheral cement ossifying fibroma with other reactive lesions of gingival, histopathological evaluation of biopsy specimen is important to confirm the diagnosis. Histologically, PCOF shows a Para keratinized and hyperplastic epithelium and well- acellularized connective tissue containing mineralized components ranging from bone to cementum and, less frequently, dystrophic calcifications.<sup>16</sup> Most of these features were present in our case.

Treatment of choice for PCOF includes complete surgical excision of the mass and scaling of adjacent teeth. In case of incomplete removal or persistence of the local irritants, chances of the recurrence of PCOF is high.<sup>16</sup> The reported rate of recurrence for PCOF varies from 8.9% to 20%.<sup>4,6,10</sup> Therefore, regular follow-up of the case is mandatory. At one year follow-up period in present case, no sign of recurrence was seen.

### Conclusion

Peripheral cemento-ossifying fibroma (PCOF) is a reactive, non-neoplastic, slowly progressing enlargement of the gingiva with generally limited growth. Most cases are asymptomatic and treated with excision of lesion. Histo pathological examination is essential as there is possibility of misdiagnosing PCOF from other reactive lesions of gingiva due to its clinical resemblance. Because of high recurrence potential of PCOF, long term postoperative follow-up is required.

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