Case Report

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PERIPHERAL ODONTOGENIC FIBROMA IN CHILDREN: A REPORT OF 2 CASES

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ABSTRACT:

This article describes two cases of peripheral odontogenic fibroma in children of which one is a male and the other one is a female patient. The history of one case was local irritation with a lead pencil but the other one was having no apparent cause. The lesions were slow growing, painless, sessile, firm, non-ulcerated and non-tender. Both the lesions were excised and sent for histopathological examination. The results were correlated with the clinical diagnosis and there is no history of recurrence till date. The purpose of this article is to discuss various types of such lesions developed in children which are remarkably similar clinically but differ histopathologically.

Keywords: fibroma, peripheral odontogenic fibroma, cementifying fibroblastic fibroma, peripheral cementifying fibroma

INTRODUCTION

Fibrous growths of the oral soft tissues are fairly common and they include a diverse group of reactive and neoplastic conditions. These are epulis, fibroma, peripheral odontogenic fibroma, neurofibroma, papilloma, peripheral giant cell granuloma, central giant cell granuloma and pyogenic granuloma [1,2,3] . However, epulis is a generic term used clinically to designate all discrete tumors and tumor like masses of the gingiva. All other lesions as mentioned above are specific but sometimes it is very difficult to differentiate from one another clinically. Therefore, the differential diagnosis of these lesions should be made on the basis of history, clinical presentation, radiographic evaluation and histopathological examination as well as hormonal analysis.

Oral fibromas usually arise from gingival tissues or periodontal ligaments due to local trauma or irritation. They are painless, slow growing, firm and nodular benign tumor of the gingiva. Usually, these lesions are sessile but they may be pedunculated. Sometimes, they may become soft and vascular as it is seen in the cases of pyogenic granuloma. The surface of the lesion is usually smooth but may be ulcerated due to trauma. Normally, the color of the lesion is of surrounding oral mucosa (figure 1 and 7) if not inflamed due to local infection and/or trauma.

Fibroma may occur at any oral tissue but it is most often seen on the buccal mucosa along the occlusal plane. They may be

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found on gingiva, lip, tongue and palate as well. The lesion is equally distributed between the maxilla and the mandible. It is more common in females than males[4-6] and the ratio is 2:1. It may occur at any age but 3rd, 4th and 5th decades are mostly affected with this lesion. The size of the lesion is small and may vary from 1 mm to 2 cm.

The peripheral odontogenic fibroma is a rather uncommon neoplasm believed to arise from the odontogenic epithelial rests of the periodontal ligaments or the attached gingiva itself [1,2,18]. The entity formerly confused with peripheral cemento-ossifying fibroma which is considered to be the extra-osseous counterpart of the central odontogenic fibroma of the WHO type[6]. It is a painless, firm, slow growing, sessile and nodular growth of the gingiva[7]. Children are mostly affected with this type of lesion although it may occur at any age. It is also more common in white than black and the lesion occurs more in the maxillary anterior teeth than the posterior teeth [4,5]. The treatment of such lesion is surgical excision and the recurrence is unlikely to occur. But in 2008, Armas et al have published a case where recurrence occur 3 times and the last time it occurred after 11 years.[8]

Histopathologically, the peripheral odontogenic fibroma is composed of an exceedingly cellular mass of connective tissue comprising large numbers of plump proliferating fibroblasts intermingled throughout a very delicate fibrillar stroma. The lesion is quite characteristic in its high degree of cellularity in contrast to the usual simple fibroma. In addition, vascularity is not nearly as common a feature as in the case of pyogenic granuloma. When the lesion contains calcified masses of osteoid or cementoid tissues the term peripheral ossifying or cementyfying fibroma is more applicable.

CASE DETAIL

Case 1: Hitesh, a 10 years old boy was complaining of a growth on his front tooth. The swelling was approximately 1.0x1.0x0.5 cm in diameter in relation to 21. The growth was firm, non-mobile, non-tender and sessile. The swelling covered almost half the crown of 21 which was arising deep into the sulcus. It was fused with the attached gingiva. The pocket depth was 5 mm in the affected tooth. There was no apparent color change of the growth neither there was ulceration present. The oral hygiene was good without calculus or plaque formation around the growth or the tooth. Apart from a history of pricking the gingiva with a sharp lead pencil, the boy was otherwise healthy. After taking proper history and examination of the lesion we planned to excise it and send it for histopathological examination. The operation was performed under local anesthesia in the department of Pediatric dentistry. In this case we performed gingivectomy after marking the pocket depth. Prior to surgery, routine x-ray, blood and urine examinations were carried out and the results were within normal limit. The surgical procedures and results are shown in the figures (1-6.)

Case 2: Pushpika, a 9 years old girl was complaining of a growth on her front tooth. On clinical examination the growth was noticed on attached gingiva of 11 on labial surface causing palatal movement of the same tooth. The size of the growth was 1x0.8x0.5 cm. It was a firm, non-mobile, non-tender, sessile growth which was covering half the crown of 11. Clinically, the swelling was arising from deep into the sulcus. The surface of the growth was smooth without any color change or ulceration. On palpation a bony hard mass was felt on the root of 11 which was due to the expansion of labial cortex of 11. Clinically, we could not separate the growth from the attached gingiva of the affected tooth. The pocket depth was normal in this present case. After thorough clinical examination of the lesion we decided to excise it and send it for histopathological examination.

The operation was carried out under local anesthesia in the department of Pediatric dentistry. First, we gave a releasing incision to separate the growth from the attached gingiva and then two vertical incisions were made on either side of the flap keeping the base wide and the apex narrow to allow more blood supply into the flap. We raised the labial flap with the help of a periosteal elevator as a routine procedure. The growth was then removed with a small curette and excavator and was sent for histopathological examination. Prior to surgery routine x-ray, blood and urine examinations were carried out, the results were within normal limit. The surgical procedures and results are shown in figure (7-12).

DISCUSSION

The present cases are interesting because both the cases have occurred in children of which one is a male and the other one is a female patient. The boy and his parents gave a history of chronic irritation of the gingiva with a sharp lead pencil which may be the predisposing factor for its development. In our review of literatures various authors also stated that chronic irritation and trauma are thought to be the etiology of development of peripheral odontogenic fibroma. Both the lesions have originated from the periodontal ligaments which might have caused bone destruction of the associated teeth (figure 3 and 9). The second case has developed from deep into the periodontal ligaments of root of 11 causing expansion of the labial cortex of bone of the affected tooth (figure-9). There was palatal tooth movement of the affected teeth in both the cases due to the presence of these lesions creating malocclusions (figure 1-12). It was not clear from the history whether this malocclusion was due to pressure exerted by the growth itself or it was pre-existing.

The pathogenesis of development of peripheral odontogenic fibroma has been suggested by various authors and found that high level of periodontal ligament activity (e.g. formation and degradation) is responsible for development of such lesions in children. There are constant irritation associated with both primary tooth exfoliation and permanent tooth eruption can contribute for increased prevalence of such lesions in children too[2,3,5]. We exclude the hormonal

influence of its development since both the children were below pubertal or pre-pubertal age. On contrary, pregnancy tumor or pyogenic granuloma has got some hormonal influence for its pathogenesis.

The prevalence of peripheral odontogenic fibroma is said to be about 3 percent of all histopathological examination of oral biopsies[1]. They are more common in the maxilla than in the mandible and anterior teeth affect more than posterior teeth as reported by many authors[4,5]. The involvements of incisor-cuspid region with peripheral odontogenic fibroma is said to be 55-60 percent.[1,2,4] The present cases are also no exception and both the cases have occurred in maxillary anterior teeth which are un-aesthetic too. Since they cause bone destruction and malocclusion, these lesions should be excised as and when they are diagnosed to prevent various complications as described above.

In this present investigation, we performed two different types of operations (Figure 3 and 9) which was dictated by the growth themselves and not merely by our choice. In case of second operation, we had separated the growth from the attached gingiva with a simple incision before raising the flap (figure 8) where as the first one needed gingivectomy (figure 3). We performed gingivectomy type of operation of case 1 to eliminate the pocket depth. When the growth can be separated clinically or it can be isolated from surrounding tissue with an incision, one should go for flap surgery provided there is no need to eliminate pocket depth simultaneously. It is to remember that these types of growth may transform into malignant lesion should be sent for routine histopathological examination for confirmation of the diagnosis as well as to rule out of any possibility of malignancy.

Peripheral odontogenic fibromas are slowly progressing growths which may take months or years to be noticed by the patient or parents[15]. The degree of ulceration, bone loss, malocclusion, interference with occlusion and other discomfort will dictate its presence in the oral cavity [1,4]. When it is present on anterior tooth the parents are often anxious about it and seek early treatment. In these present cases the parents gave a history of 5-6 months before they reported to us for treatment. One of the parents was very much anxious about the lesion of their child and thought of oral cancer developed to their kid who came to us for early treatment. We assured them before surgery and after biopsy it was clear that both the lesions are benign peripheral odontogenic fibromas.

Intraoral odontogenic fibromas or ossifying fibromas have been described in the literature since 1940s. Many names have been given for such lesions and a few of them we have already mentioned earlier. The other names of such lesions are peripheral ossifying fibroma, peripheral fibroma with osteogenesis, peripheral fibroma with calcification, peripheral cementifying fibroma, calcifying fibroblastic fibroma and peripheral cemento-ossifying fibroma

[16,17]. This indicates that there are lots of controversies surrounding the classification of these lesions. Moreover, the clinical appearance of these various lesions can be remarkably similar; therefore, the classifications of these lesions should be based on histopathological appearance rather than clinical presentation. Gardner stated that peripheral ossifying fibroma is so characteristic that a histological diagnosis can be easily made with confidence regardless of presence or absence of calcification. He suggested that the lesion contains excessive proliferation of fibroblasts in a delicate stroma of collagen fibrils which is absent in simple fibroma.[19]

CONCLUSION

These are slow progressing lesions for which the patient or the parents may report to the dentist after months or years as it is painless and there are lack of symptoms associated with them. The surgical excision of the growth should be followed by histopathological examination as a routine procedure because there are reported cases of malignant transformation. A close observation is required to prevent any unwanted incidences or relapse.

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FIGURES:

Figure 1: pre-operative photograph showing a soft tissue growth in the gingiva of left maxillary central incisor (21)

Figure 2: the pocket depth of the associated tooth was marked

Figure 3: the lesion was excised under local anaesthesia (note the deeper origin of the lesion)

Figure 4: surgical co-pack was applied on 21

Figure 5: post-operative photograph after 1 month

Figure 6: post-operative photograph after 6 month

Figure 7: pre-operative photograph showing a soft tissue growth in the gingiva of right maxillary central incisor (11)

Figure 8: the lesion was separated from the attached gingiva and two releasing incision was made

Figure 9: the lesion was excised under local anaesthesia (note the deeper origin of the lesion)

Figure 10: the flap was closed with sutures

Figure 11: excised lesion with the root

Figure 12: post-operative photograph after 1 week.