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Case Report

Pyogenic granuloma in a 6-year-old boy - a rare case report

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ABSTRACT

The gingiva, also known as the gums, is the pink-coloured keratinized mucosa that surrounds and protects the teeth. Gingival enlargement or gingival overgrowth, a common trait of gingival disease, is characterized by an increase in the size of gingiva. Irritation fibroma is an exophytic soft tissue mass in the oral mucosa. Indeed, it is not a real neoplasm, but a focal hyperplasia of fibrous connective tissue induced by local trauma or chronic irritation. Pyogenic granuloma is one of the inflammatory hyperplasia seen in the oral cavity, majority are found on the marginal gingiva with only 15% of the tumours on the alveolar part. It predominantly occurs in the second decade of life in young females, male to female ratio is 1:99, and size of lesion varies in diameter from few millimetres to several centimetres. This article presents a case of pyogenic granuloma in an 6year old boy who presented with a gingival overgrowth in his mandibular left buccal surface region i.r.t 31 including marginal and attached gingiva. He had discomfort during mastication, interferes with occlusion there was episode of bleeding during brushing. The lesion was excised and histopathological report confirmed the diagnosis. Case was followed up for six months and no recurrence of the lesion. Etiological factors, clinical features, differential diagnosis and different treatment options are discussed based on the review of current literature available.

Keywords: Mandibular, Pyogenic granuloma, Anterior teeth, Reactive hyperplasia, Trauma

INTRODUCTION

The gingiva, also known as the gums, is the pink-coloured keratinized mucosa that surrounds and protects the teeth. It is perfused by multiple small arteries that originate from branches coming off the carotid artery. It receives innervation by nerves derived from the mandibular and maxillary divisions of the trigeminal nerve.[1] Gingival enlargement or gingival overgrowth, a common trait of gingival disease, is characterized by an increase in the size of gingiva.[2]

Irritation fibroma is an exophytic soft tissue mass in the oral mucosa. Indeed, it is not a real neoplasm, but a focal hyperplasia of fibrous connective tissue induced by local trauma or chronic irritation.[3]

Pyogenic granuloma (PG) is prudently common, tumor like growth in the oral cavity. It is neither granulomatous nor contains pus, hence the name is a misnomer.[4,5] In 1897, two French Surgeons Poncet and Dor initially named this lesion as a *Botryomycosis hominis*.[6] Hartzell in 1904 introduced term PG or *Granuloma Pyogenicum*. Other name given to this is Crocker and Hartzell's disease.[4] Histologically described it as a haemangiomatous granuloma" due to the occurrence of abundant blood vessels and the inflammatory nature of the lesion. Other name used for this lesion is *Granuloma telangiectacticum*.6

Based on the vascularity of the lesion color can be different from red to pink. More than alveolar mucosa, marginal gingival is prevalent. Apart from the gingiva, PG can occur on the buccal mucosa, lips, tongue and palate. Maxilla is more commonly affected than mandible.[7]

Buccal surface of the posterior teeth are more common rather than lingual surfaces anterior teeth. Initially, the lesion starts with a small growth, growing slowly from a few millimetres to centimetres and it remains asymptomatic and painless unless there is an infection. Occasionally, the size of the lesion increases rapidly.[7]

The lesion starts with small, exophytic growth, has a smooth or lobulated surface, erythematous papule, red in colour and can have pedunculated or sometimes sessile base. Only 15% of the lesions occur on the alveolar part but majority of them establish on the marginal gingiva and at times it causes significant bone loss.[8] Although PG can occur in all the ages, it is predominant in the second decade of life, females are more commonly affected than males due to hormonal changes.[9]

CASE REPORT

A 6-year-old boy complaint of overgrowth of gums in mouth pertaining to lower front tooth region since 10 days, which bled frequently and interfered with eating and brushing. His mother noticed the growth 10 days back and it was gradually increasing since then. There was no evident family and medical history. On extraoral examination no abnormality was detected. Intraoral examination revealed single growing exophytic, lesion which was pedunculated with stalk, measuring 0.5×1×0.8 cm in the lower anterior region. It was attached to the marginal and attached gingiva i.r.t 31 (Figure 1). It was oval in shape, had a smooth surface, reddish in colour, pedunculated, bled on probing and covered buccal surface of the teeth (Figure 2). These findings were confirmed by palpation of the lesion. In personal oral habits, parents gave history of nail biting i.r.t the affected site. Furthermore, there was presence of mobility in the involved tooth. Oral hygiene status seemed to be average. Blood picture showed all the values within the normal range.

Figure 1: Intra oral pictures showing the lesion of the mandible.

Figure 2: Intra oral pictures showing the pocket depth assessment of the lesion.

Figure 3: Intraoral picture showing uneventful healing of the lesion.

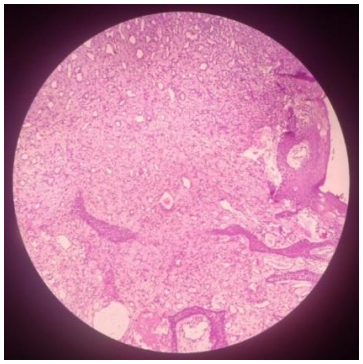

Figure 4: Histopathological impression of the excised lesion.

Based on the history and intra oral findings, provisionally it was diagnosed it as irritational fibroma. The differential diagnosis can be given as fibroma, haemangioma, peripheral ossifying fibroma and peripheral giant cell granuloma.

The treatment plan in this case was excision of the lesion and treatment was explained to the parents. The lesion was excised surgically using electrocautery and normal saline was used to irrigate the surgical site. Post-operative instructions were given, medication was prescribed, and excised lesion was sent for histopathological examination.

After two weeks, patient came for follow up and the healing site was satisfactory. Furthermore, patient was on

regular follow up for six months and there were no signs of recurrence (Figure 3).

Histopathological examination and impression

Macroscopic features

Received a small piece of soft tissue, measuring about 0.5×1×0.8 cm, reddish brown in colour, irregular in shape, lobulated in contour and firm in consistency. Section shows thin proliferating para keratinized stratified squamous epithelium with long rete ridges. The underlying connective tissue shows numerous enlarged capillaries with endothelial cells, proliferation, severe chronic inflammatory cells infiltrates and extravasated RBCs. Based on the histological features diagnosis was confirmed as a pyogenic granuloma (Figure 4).

DISCUSSION

The etiological factors for pyogenic granuloma are injury to the gingiva, vigorous tooth brushing habits which may lead to repeated trauma to gingiva, prolong use of cyclosporin and improper occlusal interferences.[10-12,14] In this case local trauma due to habit of nail biting was the probable cause.

Whenever size of the lesion was increased there will be occlusal interference while eating and brushing. Hence there will be release of endogenous and angiogenic factors leading to the increased blood supply to the affected area which tends to bleed.[11,14] Estrogen and progesterone hormones levels are increased during second decade of life, especially in females. Hence, they were more prone for occurrence of pyogenic granuloma rather than children, but it can be seen in all age groups.[13,15]

It can be differentiated from other lesions like haemangioma histologically as it showed proliferation of endothelial cells and lack of inflammatory cell infiltrate.[15] Peripheral odontogenic fibroma was seen absolutely on the gingiva but vascular competence was very minimal. Presence of multinucleated giant cells can be identified in case of peripheral giant cell granuloma.

Two types of PGs are reported in the literature as: lobular capillary haemangioma (LCH) and the non-lobular capillary haemangioma (non-LCH). Based on the biopsy report the lesion belongs to lobular type.

Depending upon the size of the lesion treatment varies. In this case the size of the lesion was small hence; surgical excision was done and it is also recommended treatment in the literature. Cryosurgery, flash lamp pulsed dye laser, sclera therapy, excision by Nd YAG laser, injection of corticosteroid or ethanol are other treatment modalities for pyogenic granuloma.

PG associated with dentin dysplasia type II have been reported by Nirmala et al.

CONCLUSION

Benign lesions like pyogenic granuloma at times may grow rapidly in size which disturbs the day-to-day activities by causing pain and discomfort to the patient especially in children. It also interferes in maintaining oral hygiene which in turn complicates the situation. Hence early diagnosis and prompt treatment is very important to prevent further complications. Dentists should have well informed knowledge regarding these types of lesions and it should first come into the knowledge of the pediatric dentist as early as possible to prevent discomfort as well as to improve quality of life of the children.

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