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Pyogenic Granuloma: A Clinical Case Presentation

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Abstract

Exophytic growth of the oral cavity often presents a diagnostic challenge because a diverse group of pathologic process can produce such lesions. Inflammatory hyperplasia is one of the important etiology behind the exophytic growths of the oral cavity. The pyogenic granuloma is the most common type of inflammatory hyperplasia found in the oral cavity especially in the gingiva. This case report has described an inflammatory reactive lesion diagnosed as pyogenic granuloma in a 14 year old male patient.

Key Words

Inflammatory hyperplasia; pyogenic granuloma; traumatic fibroma

INTRODUCTION

Pyogenic granuloma is a well-known and common benign mucocutaneous lesion that occurs as a reactive inflammatory hyperplasia, due to exuberant tissue response to local irritation or trauma. The name for pyogenic granuloma is *misleading*. Because:-

a. It is not a true granuloma,[1] it is lobular capillary hemangioma[2] of lobular type.
b. It is not pyogenic as it is not pus draining.[1]

Clinically these lesions usually present as single nodule or sessile papule with smooth or lobulated surface and are red, elevated and usually ulcerated.[3] The peak prevalence is in teenagers and young adults, with a female predilection of 2:16.[3] Pyogenic granulomas of the oral cavity are known to involve the gingiva most commonly accounting for the 75% of all reactive lesions of the oral cavity. Uncommonly it can occur on the lips, tongue, buccal mucosa and palate.[3] This paper presents a case of pyogenic granuloma involving the right mandibular posteriors, where many lesions of the oral mucosa with similar clinical characteristics were considered before arriving at the final diagnosis through biopsy.

CASE REPORT

A 14-year old male patient from Bhaopalgarh village near Jodhpur reported to the Department of Periodontics and Oral Implantology, with a chief complaint of a growth in his lower right posterior region causing hindrance in chewing food since 1 month. The growth was initially of a peanut size which had gradually grown and had attained the present size. The growth was as such asymptomatic but it caused discomfort for the patient. Also the patient gives a history of self- induced trauma to the lesion from a sharp compass one week ago, after which the lesion grew excessively. Patient was otherwise healthy moderately built and nourished. He was alert, conscious, co-operative and well aware of the surroundings. Extraorally there was a slight facial asymmetry with respect to the right side. The submandibular lymph nodes on the right side were palpable and tender but not fixed. The swelling was associated with rise in temperature from the last two days. The patient did not take any medication for the same in this period. The patient Intraoral examination revealed a pedunculated, exophytic growth on the gingiva (involving marginal, interdental and attached) of the lower right quadrant involving 46, 45, 8E (root stumps) and 8D about 3×5cm in diameter, the surface was lobulated and with increased vascularity (Fig. 1 & Fig. 2). Patient has a mixed dentition with the over-retained 8E which was associated with this lesion. The growth was firm in consistency and non-tender. Intraorally the swelling had an extension to the lingual side from the interdental area between 46 and 8D. The lingual growth was size of 2x2 cm (Fig. 3). Based on the duration, considering the

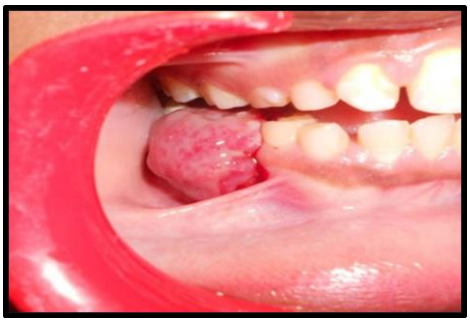

Fig. 1: Buccal view of the intraoral site with the swelling with respect to 46-8D

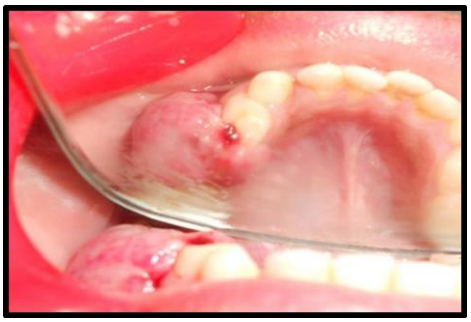

Fig. 2: Occlusal view (mirror view) of the intraoral swelling

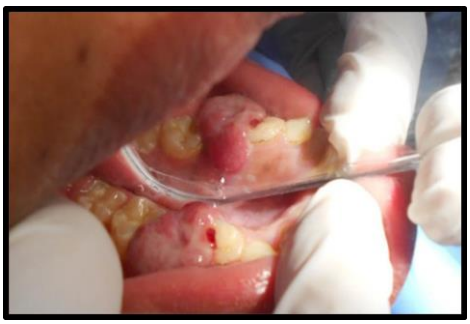

Fig. 3: Lingual extension of the intraoral swelling (mirror view)

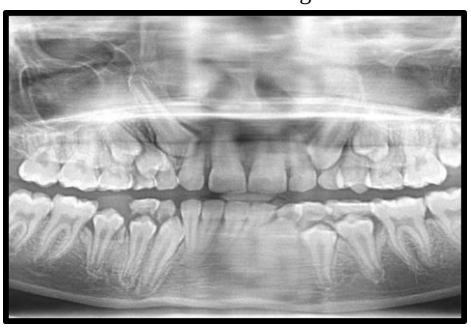

Fig. 4: OPG view

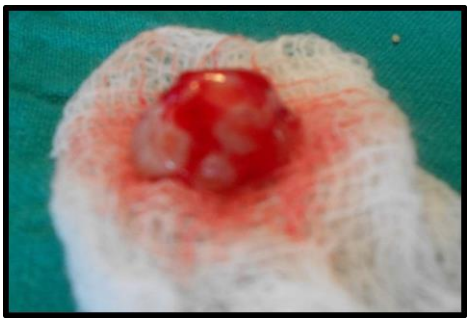

Fig. 5: Excised tissue

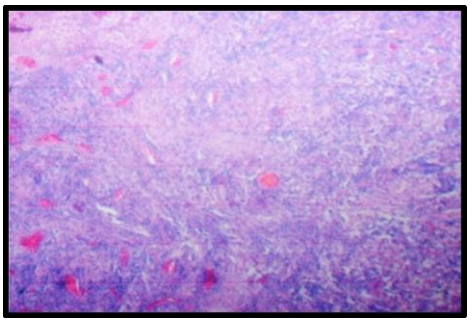

Fig. 6: Histopathological picture

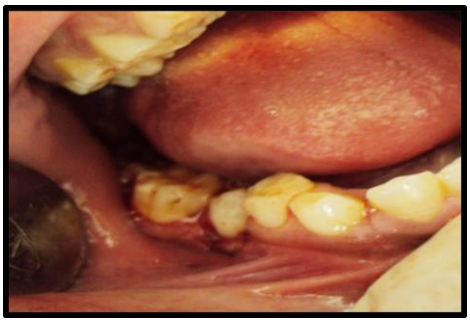

Fig. 7: Postoperative view after the surgical excision

patient's age and clinical features a working diagnosis of irritational fibroma was given. A differential diagnosis of traumatic fibroma and pyogenic granuloma were also considered. Investigations such as bleeding time, clotting time, haemoglobin percentage and total leukocyte count were carried out. Results of which were found to be normal. The OPG was taken of the whole dentition (Fig. 4). An incisional biopsy was carried out under antibiotic coverage along with the extraction of root stumps of 8E (Fig. 5). Biopsy results showed areas of ulcerated stratified squamous keratinized epithelium with underlying granulation tissue (Fig. 6). Numerous varied calibre of blood vessels arranged in lobular pattern were seen in the connective tissue suggestive of lobular capillary hemangioma, a histological terminology for pyogenic granuloma. Under standard aseptic conditions the treatment was carried out. Inferior alveolar nerve block along with long buccal and lingual nerve block was given with the local anaesthetic solution. The treatment plan proposed was first to mark the borders with electrocauttery so that the bleeding from the site could be limited, which was later followed by surgical excision. Post excision period was uneventful with a regular follow up of 1 month interval, which showed no evidence of recurrence (Fig. 7).

DISCUSSION

Pyogenic granuloma (PG) of the oral cavity is a relatively common entity first described by Poncet and Dor in 1897 as human botryomycosis.[4] Hullihen's description in 1844 was most likely the first pyogenic granuloma reported in English literature, but the term "pyogenic granuloma" or "granuloma pyogenicum" was introduced by Hartzell in 1947. The incidence of PG has been described to be between 26.8 and 32% of all the reactive lesions.[5] Pyogenic granuloma occurs most commonly in the gingiva. Other sites include extragingival areas like lips, tongue and buccal mucosa. Jafarzadeh *et al.*, defined pyogenic granuloma as an inflammatory overgrowth of the oral mucosa which was caused by minor trauma or irritation.[6] According to Neville *et al.*, these injuries may be caused in the mouth by a gingival inflammation which was caused due to a poor oral hygiene, trauma or a local infection. In the present case, consistent trauma inflicted by the root stumps may be the cause for the lesion in this location. Originally, pyogenic granulomas were believed to be botryomycotic infection which was transmitted from horse to man. Subsequently it was proposed that these lesions are caused due to some pyogenic bacteria like *Streptococci* and *Staphylococci*. However there is no evidence of any infectious organisms isolated from the lesions confirming the unlikely relation to any infection and hence the name is a misnomer.[1] The tissues react in a characteristic manner resulting in overzealous proliferation of a vascular type of connective tissue. The reason attributed to such connective tissue proliferation varies from trauma to hormonal factors which along with poor oral hygiene cause tissue irritation and inflammation and contribute to the lesion development. The increased incidence of these lesions during pregnancy may be related to the increased levels of estrogen and progesterone. The hormonal imbalance coincident with pregnancy heightens the organism's response to irritation; however bacterial plaque and gingival inflammation are necessary for subclinical hormone alterations leading to gingivitis and pyogenic granuloma formation. The pathogenesis of pyogenic granuloma at the molecular level may be considered as the imbalance of the angiogenesis enhancers and inhibitors. There is over production of VEGF-the vascular endothelial growth factor; bFGF-the basic fibroblast growth factor and decreased amounts of angiostatin, thrombopsondin-1, and the oestrogen receptors lead to the formation of pyogenic granuloma.[7] Clinically, the lesion typically appears as red to pink nodular growth depending upon the duration and vascularity of the lesion.[3] The surface of the lesion can show areas of erythema and ulceration as was seen in the present case, which indicate impingement of the lesion during functions like mastication. Although pyogenic granuloma can be diagnosed clinically, atypical presentations lead to inappropriate diagnosis and should be further investigated by biopsy to rule out any other serious lesions. The histopathology of pyogenic granuloma of the gingiva shows proliferating vascular core in the connective tissue stroma with acute and chronic inflammatory infiltrates depending upon the etiology and duration of the lesion. Depending on its rate of proliferation and vascularity, there are 2 histologicalvariants of pyogenic granuloma called Lobular Capillary Hemangioma (LCH type) and Non lobular Capillary Hemangioma (non- LCH type). Numerous small and larger endothelium-lined channels are formed, that are engorged with red blood cells. These vessels are sometimes organized in lobular aggregates and some pathologists look for this lobular arrangement to make a diagnosis of lobular capillary hemangioma. In view of its clinical characteristics, the differential diagnosis of pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, irritation or traumatic fibroma, benign salivary gland tumour and Non-Hodgkin's lymphoma. Pyogenic granuloma is treated conservatively by surgical excision. Surgical excision and removal of causative irritants are among the choice of treatment. Other forms of treatment include Nd: YAD laser, electrocauttery, flash lamp pulsed dye laser, cryosurgery, intralesional injection of etanol or corticosteroid and sodium tetradecyl sulphate sclerotherapy have been produced.[8]

CONCLUSION

Although pyogenic granuloma can be diagnosed clinically, atypical presentations lead to inappropriate diagnosis and should be further investigated by biopsy to rule any other serious lesions, before the final diagnosis is made and adequate treatment is instituted.

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