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RESEARCH ARTICLE

PYOGENIC GRANULOMA: A RARE SITE OF OCCURRENCE

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ABSTRACT

Pyogenic granuloma is an inflammatory hyperplasia affecting the oral tissues. It is a tumour-like growth of the oral tissues, which usually arises in response to nonspecific infection. Pyogenic granuloma shows high predilection rate for gingiva and less for extra-gingival site. A case of extra gingival pyogenic granuloma was reported with presence of exophytic growth on right corner of lower lip and had frequent tendency to bleed. Lesion was treated with surgical intervention. On histopathological examination, it was confirmed as pyogenic granuloma.

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INTRODUCTION

Pyogenic granuloma is a commonly occurring benign vascular lesion of the oral cavity which is painless and bleeds easily. Pyogenic granuloma exhibits an exuberant tissue response to various stimuli such as low-grade local irritation, traumatic injury, hormonal factors, and certain drugs. The gingiva is the most common site followed by the lips, tongue and buccal mucosa. It presents as single nodule or sessile papule with smooth, lobulated or ulcerated surface with various dimensions. According to researchers, the term pyogenic granuloma does not accurately express its clinical and histopathological features and is considered as a misnomer, since this condition is neither associated with pus formation nor with features of granuloma (Kamal *et al*., 2012).

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Thus, it is essential to histopathologically differentiate and diagnose the lesion.

Case Description

A 10 year old boy reported to the department of Pediatric and Preventive Dentistry with a chief complaint of swelling in the right corner of lower lip since 1 month associated with bleeding, with significant history of lip biting since 3-4 months and no systemic illness. The swelling gradually increased to the present size. Clinical examination showed a single pedunculated exophytic growth at the right corner of lower lip measuring approx. 10mm x10mm x 8mm in size, reddish black in color with irregular surface texture. On palpation, swelling was soft in consistency, tender and had a tendency to bleed [Figure 1]. Prior to proceeding with any investigations and surgical intervention, informed consent was obtained. Ultrasonography was advised for the lower lip, revealing a well-defined homogenous hypoechoic nodule which showed a feeding vessel with increased color flow with arterial wave form.

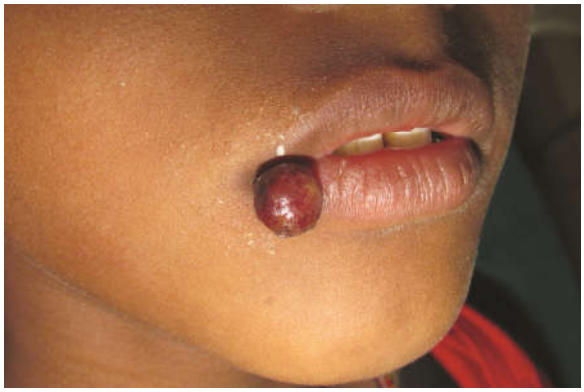

Figure 1. Clinical presentation

Based on this investigation, a digital substraction angiogram was advised to rule out the feeder vessel. Angiogram revealed that there was no evidence of abnormal draining veins except that the lesion was fed by right labial artery with no evidence of calcifications or phleoliths; thus, giving an impression of a vascular malformation. The Lesion was provisionally diagnosed as haemangioma. As the growth had bleeding predilection, it was ligated with BBS suture at the base of lesion. On recall after two days, lesion had shrunken in size with a change in color to black and no evidence of bleeding [Figure 2]. Lesion was excised under general anesthesia. Patient was recalled after 10 days and healing was uneventful .On three months recall, healing was satisfactory with presence of scars on right corner of lower lip [Figure 3].

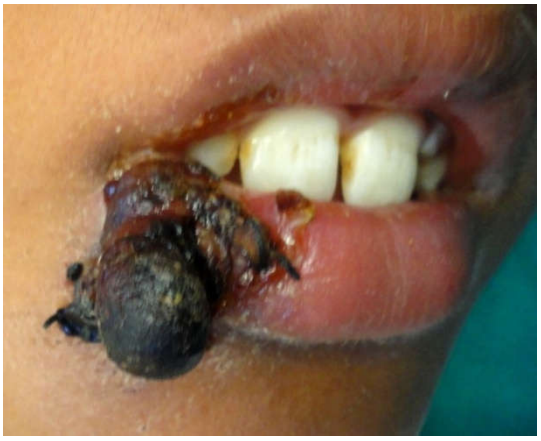

Figure 2. Post ligation

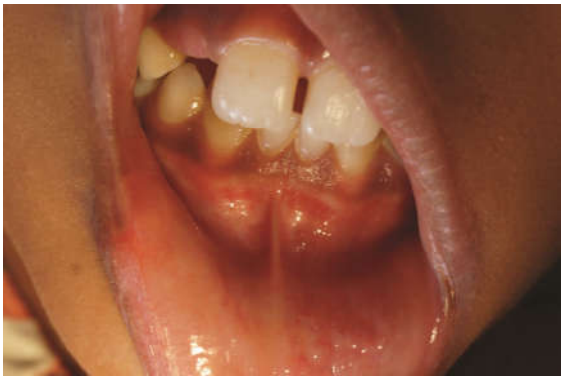

Figure 3. Follow up at 3 months

HISTOPATHOLOGICAL EXAMINATION

Histopathological investigation revealed presence of polypoidal tissue lined by stratified squamous epithelium with areas of ulcerations. Sub-epithelium showed proliferative small blood vessels in lobular pattern with lymphocytic infiltration. Dilated and congested vascular spaces were evident. Surface was covered with neutrophilic exudates and bacterial colonies, giving a picture of pyogenic granuloma [Figure 4].

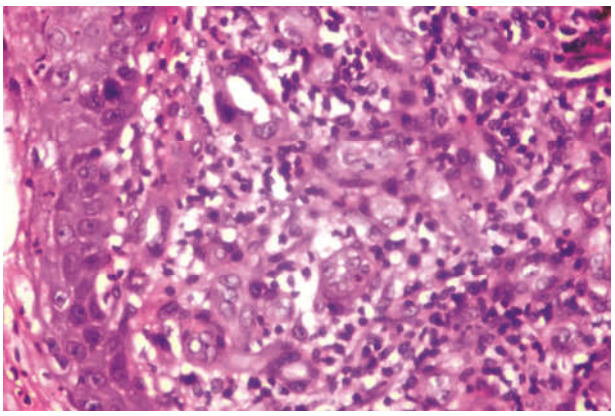

Figure 4. Histopathological section

DISCUSSION

Etiopathogenesis of pyogenic granuloma is not clearly understood. Many theories have been postulated one of which is a result of trauma to the tissues that provide a pathway for invasion of non- specific micro-organisms. The response of the tissues to these low-virulence organisms occurs in a unique manner by the overzealous proliferation of a vascular type of connective tissue (Sivapathasundharam and Gururaj, 2006). It was suggested that trauma can cause release of various endogenous substances including angiogenic factors from tumor cells & it may also cause disturbances in vascular system of the affected area (Ainamo, 1971). Two different clinical forms of pyogenic granuloma have been reported i.e. lobular capillary haemangioma (LCH type) and Non- lobular capillary haemangioma (Non-LCH type). LCH type occurs more frequently as a sessile lesion (66%) whereas Non- LCH type as a pedunculated lesion (77%) (Epivatianos *et al*., 2005). At many instances, clinical features of this lesion are ambiguous thus requiring biopsy for definitive diagnosis.

Therefore, biopsy of tissue specimens is often necessary for a definitive diagnosis. Histologically, the LCH type has proliferating blood vessels organized in lobular aggregates with no specific changes such as edema, capillary dilation or inflammatory granulation. The lobular area of the LCH type contains greater number of blood vessels with smaller luminal diameter than non-LCH type (Mills *et al*., 1980). The non-LCH type consists of a vascular core resembling granulation tissue with foci of fibrous tissue. The central area of non-LCH pyogenic granuloma shows a greater number of vessels with perivascular mesenchymal cells which are non-reactive for alpha smooth muscle actin (SMA) as compared to the lobular area of LCH type pyogenic granuloma (Bouquot and Nikai, 2001).

The presented exophytic pedunculated growth revealed evidence of proliferation of small blood vessels in lobular pattern with inflammatory cell infiltrate and bacterial colonies on histological examination. Thus microscopic features of the lesion favors towards LCH type pyogenic granuloma. Differential diagnosis for pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, hemangioma, conventional granulation tissue hyperplasia, Kaposi sarcoma, angiosarcoma and Non-Hodgkins lymphoma. Peripheral giant cell granuloma shows the presence of multinucleated giant cells histologically. Ossifying fibroma or peripheral ossifying fibroma occurs exclusively on the gingiva and has a minimal vascular component unlike a pyogenic granuloma (Trasad *et al*., 2011). A case of haemangioma shows endothelial cell proliferation without acute inflammatory infiltrate which is unlikely for pyogenic granuloma.

Kaposi sarcoma is distinguished from pyogenic granuloma which on microscopic examination shows proliferative dysplastic spindle cells, vascular clefts, extravasated erythrocytes and intracellular hyaline bodies (Jafarzadeh *et al*., 2006). Angiosarcoma can be differentiated from pyogenic granumloma by its lobular growth pattern, well formed vessels and cytologically bland endothelial cells (Pilch, 2000). Another consideration being Non-Hodgkin's lymphoma with primary sites at the Waldeyer rings, paranasal air sinuses, salivary gland, oral cavity and larynx in head and neck region ,which are unlikely in case of pyogenic granuloma (Raut *et al*., 2000).

Conclusion

At many instances, lesion may not be present at high predilection sites and clinical features might be misleading. A detailed history, clinical and histological examinations are helpful tools to achieve a final diagnosis of lesion. At the same time, a careful management helps in preventing complications and the recurrence of this benign lesion.

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