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Case Report

Pyogenic Granuloma - A Case Report with Literature Review

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ABSTRACT

Pyogenic granuloma is thought to represent an exuberant tissue response to local irritation or trauma. It is a tissue reactional to constant minor trauma and might be related to hormonal changes. Clinically these lesions usually present as single nodule or sessile papule with smooth or lobulated surface. The size at diagnosis may vary from a few millimeters to several centimeters. Pyogenic granuloma of the oral cavity is known to involve the gingiva more commonly (75% of all cases). Here we are describing a case of pyogenic granuloma presenting on left maxillary upper buccal gingival relation to (14 and 15) in a 38 - year old female patient.

Key words: Pyogenic granuloma, granuloma pyogenicum, hyperplasia, clinical features.

INTRODUCTION

Pyogenic granuloma (PG) is a benign non-neoplastic mucocutaneous lesion. [1] The name pyogenic granuloma is a misnomer since the condition is not associated with pus and does not represent a granulma histologically. PG is thought to represent an exuberant tissue response to local irritation or trauma. Some authors use the term lobular capillary hemangioma for this lesion or as vascular epulis, benign vascular tumor, hemangiomatous granuloma and pregnancy tumor when occurring in pregnant women. Occasionally nonspecific granulation tissue may proliferate from a recent extraction socket and resembles a PG, such lesions are called as "Epulis Granulomatosum." [2,3,4]

Jafarzadeh, et al [5] defined PG as an inflammatory overgrowth of the oral mucosa caused by minor trauma or irritation. According to Neville, et al [6] these injuries might be caused in the mouth by gingival inflammation due to poor oral hygiene, trauma or local infection. The pathogenesis of PG at the molecular level may be considered as the imbalance of angiogenesis enhancers and inhibitors. That is over production of VEGF- vascular endothelial growth factor; bFGF – basic fibroblast

growth factor and decreased amount of angiostatin, thrombopsondin-1, estrogen receptor lead to the formation of PG. [7] The increased incidence of these lesions during pregnancy may be related to the increasing levels of estrogen and progesterone. [1]

CASE REPORT

A 38- years- old female patient reported to department with a chief complaint of growth on the right upper back teeth region since one month. Patient had noticed the growth one month back which was initially smaller in size, and had suddenly increased to present size during the last 15 days. It was also associated with pain and bleeding during eating and brushing. Pain was intermittent with moderate intensity, pricking and, non-radiating.

The patient's medical history was unremarkable. Extra oral examination revealed enlarges right and left submandibular lymph nodes which were palpable, movable, tender, and soft to firm in consistency.

Figure1. Intra oral view showing the bilobed pedenculated growth on attached gingival in relation to 14 and 15.

Intra oral examination revealed (Figure 1) a solitary pedenculated growth on right buccal gingiva in relation to 14 and 15, measuring approximately 2cm x1.5cm in diameter with ulcerated mass whose borders were well defined. The surface appears lobulated (bilobed) and pebbly. The lesion was firm in consistency and non tender, with minimal bleeding. Patient also had poor oral hygiene (Figure 2) and root stumps with 16, 17, 18, 48 and missing 36, 37.

Figure 2. Intra oral view showing the poor oral hygiene of the patient.

Depending on the history and clinical examination we arrived at a provisional diagnosis of pyogenic granuloma with differential diagnosis of peripheral giant cell granuloma and peripheral ossifying fibroma. An excisional (Figure 3) biopsy, along with histopathologic evaluation was recommended as the diagnostic approach (Figure 4).

Figure 3. Photograph showing gross specimen of the lesion.

The histopathologic examination (Figure 4) revealed orthokeratinized stratified squamous epithelium overlying

connective tissue stroma with numerous proliferating endothelial lined blood vessels with chronic inflammatory cells in a few collagenous matrix. These findings were consistent with a histopathological diagnosis of pyogenic granuloma. The patient was followed up for next six months and there was no observed recurrence.

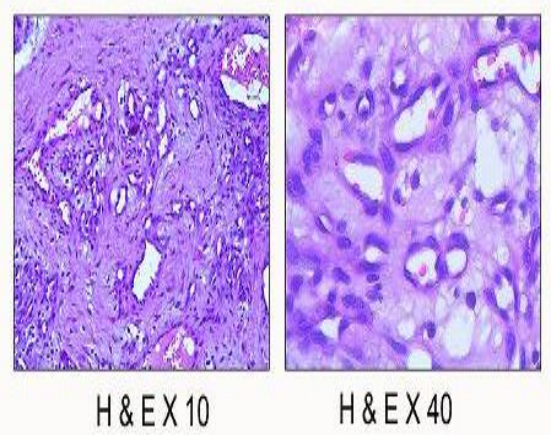

Figure 4. Low and high power Photomicrograph (H & E stained) showing hyperplastic parakeratinized epithelium, endothelium lined channels and inflammatory cell.

DISCUSSION

The incidence of PG has been described as between 26.8 and 32% of all reactive lesions. Clinically these lesions usually present as single nodule or sessile papule with smooth or lobulated surface. These may be seen in any size from a few millimeters to several centimeters. [1] As lesions mature, the vascularity decreases and the clinical appearance are more collagenous and pink. Ulcerations are usually present in areas where the tumor is subjected to trauma like chewing, biting or prosthetic appliances. [1,5] Rarely PG exceeds 2.5 cm in size and it usually reaches its full size within weeks or months, remaining indefinitely thereafter. Young PGs are highly vascular in appearance because they are composed predominantly of hyperplastic granulation tissue in which capillaries are prominent. [6,8] Thus, minor trauma to the lesion may cause considerable bleeding, due to its pronounced vascularity. Clinical development of the lesion is slow, asymptomatic, and painless, but it may also grow rapidly. [1,5,8]

A higher frequency of PG is observed in the second decade of life, with peak prevalence in the teenagers and young adults especially among women, probably because of the vascular effects of female hormones. [1,2] The lesions are more common on maxillary than on mandible, and anterior areas are more frequently affected than posterior and facial aspect more commonly affected than lingual or palatal aspect. PG of the oral cavity is known to involve the gingiva commonly (75% of all cases), although occurrence of these lesions on the lips, tongue, oral mucosa, palate and fingers has also been reported. [4] PGs affecting the labial mucosa are rare. Gingival irritation and inflammation that result from poor oral hygiene, dental plaque and calculus or over-hanging restorations may be precipitating factors in many cases. [6] PG of head and neck are uncommonly seen, extragingivaly the PG occurs in the area of frequent trauma such as the lower lip, tongue and palate and buccal mucosa. In the present case the cause may be gingival inflammation due to poor oral hygiene could have been the etiology behind the growth. [4,6,9]

Differential diagnosis of PG includes, peripheral giant cell granuloma, peripheral ossifying fibroma, hyperplastic gingival inflammation, non-hodgkin's lymphoma, hemangioma, binign salivary gland tumors and metastatic tumors to oral soft tissues, kaposi's sarcoma and leiomyoma. Although pyogenic granuloma can be diagnosed clinically with considerable accuracy, radiographic and histopathological investigations, aid in confirming the diagnosis and treatment. [1,5] Radiographs are advised to rule out bony destruction suggestive of malignancy or to identify a foreign body. Definitive diagnosis

of PG can only be made by histopathologic examination of biopsied tissue. PG histologically shows a highly vascular proliferation that resembles granulation tissue. Numerous small and larger endothelium- lined channels are formed that are engorged with red blood cells. These vessels sometimes are organized in lobular aggregates and some pathologists require this lobular arrangement for the diagnosis (lobular capillary hemangioma). The surface that is usually ulcerated replaced the thick fibrinopurulent membrane. [1,4] A mixed inflammatory cell infiltrate of neutrophils, plasma cells, and lymphocytes is evident. Neutrophils are more prevalent near the ulcerated surface; chronic inflammatory cells are found deeper in the specimen. Older lesions may have areas with a more fibrous appearance. Many gingival fibromas probably represent PG that has undergone fibrous maturation. [1.4,5]

PG is a benign lesion; therefore, surgical excision is the treatment of choice. Other conventional surgical modalities for the treatment of PG reported is cryosurgery in form of either liquid nitrogen spray or a cryoprobe, which has been used for eradication of the lesion. It is a safe, easy, and inexpensive technique suited for out patient's clinic setting. [2,6] Nd: YAG and CO_2, and flash lamp pulsed dye lasers have also been used for the PG. [6,8] Lasers have shown to be a successful option for the excision of PG with advantages of minimal pain and invasiveness and the lack of need for suturing or packing. [8,9] There is relatively high rate of recurrence (about 16%) after simple excision. Recurrences after surgery of extragingival pyogenic granuloma is however uncommon. [6,8,10]

CONCLUSION

The diagnosis of oral mucosal lesions is complex. The clinical features of pyogenic granuloma of the oral cavity although helpful in making a diagnosis it is inadequate for a definite diagnosis in a given case. Further its clinical resemblance to other inflammatory lesions as well as some true neoplasms of the oral cavity necessitates the appropriate, microscopic examination of a biopsy specimen, before the final diagnosis is made and adequate treatment is instituted.

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