Case report:

Pyogenic granuloma - report of three cases in rare sites

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Abstract:
Pyogenic granuloma is a benign, localized mass of exuberant granulation tissue produced in response to various stimuli. It is inflammatory hyperplasia of oral cavity commonly seen on gingival area and rarely on other parts of oral cavity such as lips, tongue, palate and buccal mucosa. It is seen predominantly in 2nd to 3rd decade of life in young females. Clinically manifesting as small red erythematous exophytic lesion, it must be biopsied to rule out other serious conditions. This article aims to present three cases of extra gingival pyogenic granulomas occurring in rare sites such as buccal mucosa, anterior hard palate and alveolar mucosa of completely edentulous ridge in maxilla. Pyogenic granuloma on buccal mucosa and anterior hard palate were seen in female patients with age of 40 years and 34 years respectively and pyogenic granuloma on alveolar mucosa of edentulous ridge in maxilla was noted in 70 years old male patient. Surgical excision was performed for all the lesion and follow up of one year did not show any recurrence.
Please add little description of patient + treatment + followup results.

Key words: Buccal mucosa, extra gingival pyogenic granuloma, alveolar mucosa, palate, surgical excision

Introduction:

Soft tissue enlargements of the oral cavity often present a diagnostic challenge because, a diverse group of pathologic process can produce such lesions [1]. Pyogenic granuloma or granuloma pyogenicum is a relatively common soft tissue tumor of the oral cavity that is believed to be reactive and not neoplastic in nature, it is thought to represent an exuberant tissue response to local irritation or trauma [2, 3]. The name pyogenic granuloma is a misnomer since the condition is not associated with pus and does not represent a granuloma histologically[4, 5].

Hullihen's description in 1844 was most likely the first pyogenic granuloma that has been reported in English literature[6]., Poncet and Dor in 1897 first described pyogenic granulomal or granuloma pyogenicum [4], but the term pyogenic granuloma or granuloma pyogenicum was introduced by Hartezell in 1904[6]. There are two kinds of pyogenic granuloma namely lobular capillary hemangioma (LCH) type and non LCH type which differ histologically. Pyogenic granuloma of the oral cavity is known to involve the gingiva commonly [6]. Pyogenic granuloma are uncommonly seen elsewhere in mouth but

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may appear in areas of frequent trauma such as upper and lower lip, buccal mucosa and alveolar mucosa in edentulous mouth.[7] Pyogenic granuloma when occurs on rare location, there is a critical need for its proper diagnosis and, management. This article aims to present three rare cases of extra gingival pyogenic granulomas in rare sites such as buccal mucosa, anterior hard palate and alveolar mucosa of completely edentulous ridge in maxilla.

Case-1:*:* A 40 year old female patient presented with a chief complaint of growth on her left buccal mucosa. The lesion was of negligible size when patient first noticed it two months ago. There was gradual increase in size causing discomfort while eating and bleeds on minimal trauma. . Her past medical history was noncontributory.

Clinical examination revealed an exophytic, reddish, pedunculated lesion measuring approximately 1.5x1x1 cm in size, having smooth lobulated surface situated on left buccal mucosa below the line of occlusion in relation to 35 and 36 regions **(Figure .1a)**. Lesion was firm in consistency, nontender. There were 2-3 bleeding points on the lesion and lesion was minimally bleeding . Based on the above findings, provisionally diagnosis of extra gingival pyogenic granuloma in the buccal mucosa was made. Hemogram of the patient was within the normal limits and patient was taken for excisional biopsy under local anesthesia. and hHistopathologic evaluation was recommended as the diagnostic approach.. Histopathologic examination showed proliferating blood capillaries of varying sizes along with scattered chronic inflammatory cells. The overlying epithelium exhibited hyperplasia confirming confirmed the lesion to be pyogenic granuloma **(Figure .1b)**.

Case-2: A 34 years old female reported to department of Oral medicine and Radiology with complaint of growth in palate since 1 month. Patient revealed that growth started as small nodule a month back and developed to attain its present size. Patient's medical history was unremarkable. Intraoral examination revealed an exophytic, pedunculated, reddish growth measuring approximately 2.5x1x1cms in the left anterior hard palate **(Figure. 2a).** The lesion was firm in consistency, nontender with minimal bleeding. Occlusal radiograph revealed no bone loss in relation to the lesion. Based on its clinical signs and symptoms, a provisional diagnosis of pyogenic granuloma was made **(Figure .2b).** Excisional biopsy along with histopathologic evaluation was done. The sections revealed blood capillaries scattered throughout the connective tissue with few vessels very close to the overlying epithelium. The connective tissue had sparse amount of inflammation which confirmed the lesion to be pyogenic granuloma **(Figure .2c)**. Please add some histological features before confirmatory Dx.

Case-3: A 70 years male patient reported to department of Oral medicine and Radiology with complaint of growth in upper anterior alveolar ridge since 3-4 months. Patient's medical history was non contributory. Growth caused interference in speech and mastication. Patient lost all his teeth 4 years back and was not a denture wearer. Intraoral examination revealed edentulous maxillary and mandibular arches. There was exophytic, pedunculated growth measuring approximately 2.5x2x1 cms arising from the alveolar mucosa of edentulous maxillary ridge in left premolar region **(Figure .3a).** The growth was lobulated, firm, non tender and was minimally bleeding. Panoramic view did not reveal any bone loss in relation to the lesion did not reveal any bone loss in relation to the lesion **(Figure .3b)**. With the clinical signs and symptoms a provisional diagnosis of peripheral giant cell granuloma with differential diagnosis of pyogenic granuloma was made. His blood picture was within normal limits. The lesion was surgically excised under local anesthesia and histopathologic findings revealed numerous proliferating blood capillaries scattered in a dense connective tissue. These findings were consistent with the diagnosis of pyogenic granuloma **(Figure .3c)**. Please add some histological features before confirmatory Dx.

DISCUSSION:

The incidence of pyogenic granuloma has been described as between 26.8 to 32% of all reactive lesions[1,8,9]. Pyogenic granuloma was first thought to be botryomycotic infection contracted from horses[4,10,11.] Subsequently it was claimed without scientific evidence that pyogenic granuloma results from purulent changes within benign oral tumors[1,10]. Some investigators regarded pyogenic granuloma as begnin benign neoplasm earlier but now it is considered it to be reactive tumor like lesion which arises in response to various stimuli such as low grade local irritation[5], injury, hormonal

factors or certain kinds of drugs such as cyclosporine[6]. Immunochemistry of pyogenic granuloma shows angiogenesis associated factors such as Tie2, angiopiotin1, angiopiotin2, ephrinB2 and EphB4[1,10]. Some studies conclude initial traumatic conditions are main etiologic factors for development of pyogenic granulomas[1].

Around 80% of extra gingival pyogenic granuloma gave positive information about preceding injury to site[1] and these are more commonly seen in the areas of frequent trauma[2]. Poor oral hygiene, dental plaque, calculus, overhanging restoration may be the precipitating factor[6]. In the present cases constant trauma inflicted by the hard rotis and betel nut (people of this geographic area have a habit of eating hard rotis and betel nuts which may cause trauma to oral tissues) could have made the tissue respond in characteristic manner by overzealous proliferation of vascular type of connective tissue resulting in formation of the present types of pyogenic granulomas in rare sites.

Pyogenic granuloma occur in all ages but predominant in second decade of life in young adult females, possibly because of vascular effects of female hormones[4, 6]. Incidence is increased in pregnancy which is related to be increased level of estrogen and progesterone[6]. Though PG are more commonly seen in females , case-1 and 2 were noted in females but case-3 in the present paper was noted in old male patient of 70 years which is unusual and rare. Author presented a male patient also, please highlight discussion on this issue too.

In oral cavity pyogenic granuloma shows striking predilection for gingival with interdental papilla being most common site in 70% [2]. Other studies reveal 87.09% of pyogenic granuloma occur on gingival, 9.67% occur on lip site and 3.22% occur with buccal mucosa.[12] Other sites in the head and neck occurring extragingivally in which the lesions tends to occur as a result of trauma include buccal mucosa, alveolar mucosa of edentulous ridge, the palate, the lower lip which are very rare[7]. All our cases are were seen in such rare sites.

A through literature search and review reveals that the pPrevalence of pyogenic granuloma on buccal mucosa and palate has not been widely reported[12-13].[12] Shaik et al. [143] reported a case of large pyogenic granuloma with indentations of upper anterior teeth on its superior surface, occurring on alveolar mucosa of completely edentulous mandibular ridge, . But in the present paper (case-3) the pyogenic granuloma was seen in anterior maxilla in completely edentulous maxillary and mandibular ridge.(Can we use the sentence ‘As per the knowledge of the authors’) As per our concern Pyogenic granuloma in completely edentulous mouth has never been reported in the literature.

Pyogenic granuloma usually appear as localized solitary lump with sessile or pedunculated base with smooth or lobulated surface and is deep red or purplish in color. Development of lesion is slow, asymptomatic, and painless but sometimes grows rapidly[6]. Sometimes surface may be ulcerated and friable, may be covered by yellow fibrinous membrane causing erroneous clinical impression of malignant tumors [4]. Older pyogenic granulomas resemble fibromas due to more fibrous appearance[6]. Radiographic findings are absent in pyogenic granuloma, however rare cases of localized alveolar bone resorption have been documented in the literature. This also can aid in ruling out any other lesions mimicking pyogenic granuloma [2, 4, 6].

Clinical diagnosis of extra gingival pyogenic granuloma can be challenging task. Such an atypical presentations as seen with our cases can be rather confusing and lead to erroneous diagnosis of other serious lesion such as peripheral giant cell granuloma, peripheral odontogenic or ossifying fibromas, vascular lesions such hemangiomas, and malignant lesions such as Kaposi’s sarcoma, squamous cell carcinoma, basal metastatic carcinoma etc which have similar clinical appearance. Although pyogenic granuloma can be diagnosed clinically with considerable accuracy, radiographic and histopathological investigations aid in confirming the diagnosis and planning the treatment. Histopathological picture of extra gingival pyogenic granuloma is quite similar to the ones occurring on the gingival or other parts of body showing proliferating vascular core in connective tissue stroma with the presence of acute or chronic inflammation infiltrates depending on the etiology and duration of the lesion [2,4,7]

As pyogenic granuloma is benign lesion, surgical excision of the lesion followed by curettage of

underlying tissue is the recommended treatment of choice. Other conventional surgical modalities for treatment of pyogenic granulomas are cryosurgery, Nd: YAG, Co_2 and flash lamp pulsed dye lasers have also been used.[1,6,7] Alternative modalities include cryosurgery, injection of ethanol or corticosteroids or sodium tetradecyl sulphate.[6,13] 15% recurrence rate has been reported, however recurrences after surgery of extragingival pyogenic granuloma is uncommon[1, 4, 6, 7, 2,4]

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