

## PYOGENIC GRANULOMA: EXTRAGINGIVAL VARIANT - A REPORT OF 2 CASES

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### ABSTRACT:

Pyogenic granuloma is a benign, localized mass of exuberant granulation tissue occurring in all age groups showing a predilection for the gingiva. Pyogenic granuloma is also known to occur in extra gingival sites like dorsum of tongue, lower lip, buccal mucosa. Pyogenic granuloma presents as a single nodule or a sessile papule with smooth or lobulated surface. These may be seen in any size ranging from a few millimetres to several centimetres. We report two cases of extra gingival pyogenic granuloma occurring on the dorsum of tongue and buccal mucosa.

**Keywords:** pyogenic granuloma, extra-gingival, dorsum of tongue, buccal mucosa, swelling

### INTRODUCTION:

The first pyogenic granuloma reported in English literature was probably described by Hüllihen in 1844. Two French surgeons, Poncer and Dor described the lesion and named the lesion as "botryomycosis hominis" in 1897 and the word "granuloma pyogenicum" or "pyogenic granuloma" was given by Hartzell in 1904. Pyogenic granuloma is a common non neoplastic growth of the oral cavity or skin.<sup>[1]</sup>

### CASE DETAIL:

**Case report 1:** A 42 year old female patient, reported to our department with a complaint of swelling on the tongue since 20 days. History of noticing the swelling on the tongue about 1 month back which was small, about the size of a

pea, persisted for about 5-7 days, ruptured on its own with bleeding. Bleeding stopped on its own on application of pressure. Swelling was insidious in onset, not preceded by any trauma or toothache, initially small in size. Patient also reports re-growth of the swelling in the same location in about 15-20 days, which used to bleed on eating and the swelling had ruptured and bled on 8/1/15, which subsided on application of pressure and turmeric. The present swelling developed 20 days back which developed in the same location as the previous two swellings and has gradually and constantly grown to the present size. No history of decrease in the size of the swelling. Swelling is non-tender, causing discomfort on chewing or swallowing. Swelling bleeds on chewing food. No

history of trauma. No history of numbness / paraesthesia or associated symptoms.

On examination, a solitary ovoid, sessile swelling noted on the dorsum of the tongue, measuring about 0.5 x 0.5 cms extending from midline to 5mm laterally and 4cm away from the tip of the tongue, having a thickness of 2mm above the surface of the tongue. Mucosa overlying the swelling was erythematous and slightly ulcerated and surrounded by normal adjacent mucosa, swelling was non lobulated, non-pulsatile. All inspectory findings were confirmed. Swelling was non tender, non-lobulated, compressible and non-reducible and non-pulsatile. Swelling was soft to firm in consistency and did not blanch on application of pressure. (Figure 1)

Based on the above findings a provisional diagnosis of hemangioma was given and pyogenic granuloma, bacillary angiomatosis, A-V malformation, Angiolymphoid hyperplasia with eosinophilia, hemangiopericytoma were considered in the differential diagnosis. Excisional biopsy was performed under local anesthesia and the histopathologic findings were suggestive of pyogenic granuloma (figure 3). Post-surgical healing was uneventful and the lesion had not recurred upon followup visits.

**Case report 2:** A 27 year old male patient reported to our department complaining of pain and swelling in the right cheek since 15 days. Patient reports a history of noticing a small swelling in the right cheek following a habit of cheek biting under stress. The swelling was initially small and

gradually and constantly increased to the present size. No history any sudden increase or decrease in the size of the swelling. The swelling was initially asymptomatic and hence patient had not sort a consultation for the same. Patient noticed mild intermittent pain 15 days initiating in the morning and gradually subsides with time with no change in the size of the swelling. Patients medical and surgical history was non-contributory.

On examination multiple linear swelling was noted in the level of occlusion on the right buccal mucosa. The colour of the overlying mucosa has a reddish blue hue with no secondary changes. The swelling was non tender, soft to firm in consistency, non-reducible and non-compressible and non-fluctuant measuring about 2 x 3.5 cms. The lesion did not blanch on application of pressure and the lesion was provisionally diagnosed as hemangioma secondary to chronic trauma. (Figure 2)

Excisional biopsy was performed under local anesthesia. Hematoxylin and eosin stained sections showed stratified squamous para to non-keratinized epithelium with loosely arranged connective tissue stroma. The stroma contained varying sizes of blood vessels, extravasated red blood cells, adipose tissue, minor salivary acini and scattered inflammatory cells. The histopathological diagnosis of the lesion was "lobular capillary hemangioma". Further correlating the clinical and histopathologic findings, a final diagnosis of pyogenic granuloma was given. Patient has been on

regular follow up and no recurrence of the lesion was noted

## DISCUSSION:

Pyogenic granuloma was initially believed to be a mycotic infection contracted from horses and was claimed to result from a purulent change within benign oral tumors. Pyogenic granuloma is an hyperactive benign inflammatory lesion most commonly seen in the oral cavity with gingival, buccal mucosa, tongue and lips.<sup>[3,4]</sup>

Although it is a common disease in the skin, it is extremely rare in the gastrointestinal tract, except for the oral cavity where it is often found on keratinized tissue. The term is a misnomer since the condition is neither associated with pus formation nor does it represent a granuloma histologically. Pyogenic granuloma is predominantly seen in the second decade of life though it may occur in all age groups. Oral pyogenic granuloma shows a predilection for the gingiva accounting for 75% of all cases followed by buccal mucosa, tongue and lips. <sup>[2]</sup>

Synonyms are Botryomycosis hominis, Botryomycoma, Telangiectatic granuloma, Benign pedunculated granuloma, Pseudobotryomycosis, Fibroangioma, Croker and Hartzell disease, Septic granuloma, Haemangiomas granuloma, Lobular capillary haemangioma, Eruption capillary haemangioma<sup>[3]</sup>

It usually arises in response to various stimuli such as lowgrade local irritation, traumatic injury, hormonal factors, or

certain kinds of drugs. Pyogenic granuloma may occur in all age groups, though it is predominantly seen in young females in the second decade of life because of the hormonal changes in this period <sup>[2]</sup>

Nonspecific conditioned enlargement, or pyogenic granuloma, is a benign, localized mass of exuberant granulation tissue. It is considered as an exaggerated conditioned response to minor trauma or chronic irritation. Lesions are slightly more common on the maxillary gingiva than the mandibular gingiva; anterior areas are more frequently affected than posterior areas. Also, these lesions are much more common on the facial aspect of the gingiva than the lingual aspect; some extend between the teeth and involve both the facial and lingual gingiva. According to Vilmann et al., majority of pyogenic granulomas are found on the marginal gingiva with only 15% of the tumors on the alveolar part.<sup>[2]</sup>

Pyogenic granuloma is a pedunculated, hemorrhagic, inflammatory hyperplastic nodule that occurs most frequently on the gingiva and that has a strong tendency to recur after simple excision. Their friable, haemorrhagic, and frequently ulcerated appearance correlates with their histologic structure. Some factors such as inducible nitric oxide synthase, vascular endothelial growth factor, basic fibroblast growth factor or connective tissue growth factor are known to be involved in angiogenesis and rapid growth of pyogenic granuloma. <sup>[2]</sup>

The peak prevalence is in teenagers and young adults, with a female predilection of 2:1. The increased incidence of these lesions during pregnancy may be related to the increasing levels of estrogen & progesterone. There is a higher incidence of pyogenic granuloma in women during pregnancy which is also called granuloma gravidarum, occurs in the gingiva of pregnant women with the same microscopic appearance. Such lesions begin to develop in first trimester and their incidence increases up to 7<sup>th</sup> month of pregnancy. [5]

Oral pregnancy tumour on the other hand generally appears in the 2<sup>nd</sup> - 3<sup>rd</sup> trimester of pregnancy, with a tendency to bleed and a possible interference with mastication. The cause for the pyogenic granuloma in pregnancy is the raised levels of progesterone and estrogen and it is seen that the tumour usually regresses post parturition. The two most common extra gingival sites are the tongue (4%) and the lower lip (3%). [4]

Clinically these lesions usually present as a single nodule or a sessile papule with smooth or lobulated surface. These may be seen in any size ranging from a few millimetres to several centimetres. As lesions mature, the vascularity decreases and they start appearing more collagenous and pink. Clinically, pyogenic granuloma is a smooth or lobulated exophytic lesion manifesting as small, red erythematous papules on a pedunculated or sometimes sessile base, which is usually hemorrhagic and compressible

and may develop as dumb-bell-shaped masses. [4]

Epivatianos et al. reported that the two types of pyogenic granuloma were clinically different. They found that LCH pyogenic granuloma occurred more frequently (66%) as a sessile lesion, whereas non-LCH pyogenic granuloma mostly occurred as pedunculated (77%). The size varies in diameter from a few millimeters to several centimeters. Rarely does pyogenic granuloma exceed 2.5 cm in size and it usually reaches its full size within weeks or months, remaining indefinitely thereafter.

Clinical development of the lesion is slow, asymptomatic and painless but it may also grow rapidly. The surface is characteristically ulcerated and friable which may be covered by a yellow, fibrinous membrane and its color ranges from pink to red to purple, depending on the age of the lesion. Young pyogenic granulomas are highly vascular in appearance because they are composed predominantly of hyperplastic granulation tissue in which capillaries are prominent. Thus minor trauma to the lesion may cause considerable bleeding, due to its pronounced vascularity, whereas older lesions tend to become more collagenized and pink.

The histopathological picture of the extra gingival pyogenic granuloma is quite similar to the ones occurring on the gingiva. Microscopically, it consists of many dilated blood vessels in a loose oedematous connective tissue stroma. There is typically a dense acute

inflammatory infiltrate, but this may be scanty or absent. Numerous small and large channels are formed which are engorged with red blood cells and lined by banal flat or plump endothelial cells that may be mitotically active.

The blood vessels often show a clustered or medullary pattern separated by less vascular fibrotic septa, leading some authorities to consider pyogenic granuloma as a polypoid form of capillary hemangioma or nothing more than an inflamed lobular hemangioma; others prefer to use the term granulation tissue-type hemangioma. Some pathologists require these vessels, which are sometimes organized in lobular aggregates, for diagnosis (lobular capillary hemangioma) [6]

There are two histological types of pyogenic granuloma. [6]

- The first type is characterized by proliferating blood vessels that are organized in lobular aggregates although superficially the lesion frequently undergoes no specific change, including edema, capillary dilation or inflammatory granulation tissue reaction. This histological type of pyogenic granuloma was called lobular capillary hemangioma (LCH type)
- the second type (non-LCH type) consists of highly vascular proliferation that resembles granulation tissue

One important differential diagnosis of pyogenic granuloma is hemangioma which is a developmental disorder, but small lesions may be clinically indistinguishable from pyogenic granuloma. Diascopy, the technique of applying pressure to a suspected vascular lesion to visualize the evacuation of coloration, supports the fact that patent blood-filled spaces constitute the lesion. Most oral hemangiomas are located on the tongue, where they are multinodular and bluish red

**Treatment:** If the lesion is small, painless and free of bleeding, clinical observation and follow up are advised. Simple excision is enough to prevent recurrence but the aetiology and pathogenesis must be known to understand its nature. Although conservative surgical excision and removal of causative irritants are the usual treatments, lasers may be used nowadays because of the lower risk of bleeding compared to other surgical techniques. [3,5]

Recently, the flash lamp pulsed dye laser, cryosurgery, sodium tetradecyl sulphate sclerotherapy were used. Particularly for highly recurrent lesions, intralesional injection of absolute ethanol, corticosteroids were successfully attempted. [4]

## CONCLUSION:

Pyogenic granuloma is a benign, localized mass of exuberant granulation tissue occurring in all age groups showing a predilection for the gingival presenting as a single nodule or a sessile papule with

smooth or lobulated surface. These may be seen in any size ranging from a few millimetres to several centimetres. The article highlights the occurrence of

pyogenic granuloma occurring in sites other than the gingiva like tongue and buccal mucosa.

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## FIGURES:

**Figure 1:** clinical photograph of the lesion on dorsum of tongue



**Figure 2:** clinical photograph of the lesion of buccal mucosa



**Figure 3:** photomicrograph showing H&E stained tissue section

