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## The Tongue's Tumour – Decoding Enigmatic Pyogenic Granuloma.

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### ABSTRACT

Pyogenic granuloma is a benign vascular neoplasm of skin and mucous membranes. It is also known as Botriomycome. It results from inflammatory hyperplasia of mucosa or the skin. Females are more commonly affected probably due to the vascular effects of hormones that occur during puberty, pregnancy and menopause. Intraorally, gingiva is the most commonly (75%) affected and rarely have been reported on extralingival sites like palate, buccal mucosa, tongue and lips. Intraorally, the lesion appears as a hyperplastic inflammatory response to local irritation or trauma. Extra oral sites commonly involved are the skin of face, neck, upper and lower extremities, and mucous membrane of nose and eyelids. Clinically, pyogenic granulomas are characterized as a smooth or lobulated exophytic lesion with colour ranging from red/pink to purple. The mass may have a pedunculated or sessile base and is usually non tender but it can bleed on touch. Hereby we are reporting an unusual location of pyogenic granuloma on tongue.

**Keywords:** Tongue, Hormone, NBCA.

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### INTRODUCTION

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Pyogenic granuloma is a rapidly growing hyperplastic, vascular proliferation of the skin or mucous membrane. A benign lesion of unknown aetiology commonly associated with pregnancy, oral contraceptives and trauma.<sup>1</sup> It is a common benign growth seen in the skin and oral cavity. It predominantly occurs in females in second decade of life.<sup>2</sup> It presents as a localized, pedunculated or sessile, polypoid mass, or an ulcerative, painless growth of skin or mucous membrane.<sup>3</sup> The surface ranges from pink to red to purple, depending on the age of the lesion.<sup>4</sup> Surgical excision is the treatment of choice. To avoid the possibility of recurrence the lesion must be excised down to the underlying periosteum and predisposing irritants must be removed.<sup>5</sup>

### CASE REPORT:

A 30-year-old female in post-partum period of 3 months presented to our OPD with a chief complaint of swelling on the left lateral border of the tongue of 3 months duration. It was insidious in onset and gradually progressive in nature and was associated with intermittent bleeding. There was a history of tongue bite and oral hygiene was good. On examination, a solitary ovoid swelling was noted, approximately measuring 2x2cms at the junction of the anterior 2/3<sup>rd</sup> and posterior 1/3<sup>rd</sup> of tongue. (Figure 1).



**Figure 1: Image showing the swelling on left lateral border of tongue**

The swelling was pinkish red in colour, exophytic, non-tender, pedunculated and firm in consistency. There was no visible pulsations or pus discharge from the lesion. The mobility of tongue was normal. Rest of the oral cavity and oropharynx was normal. There was no cervical lymphadenopathy. A differential diagnosis of hemangioma or papilloma was made. MRI Neck was done which noted abnormality in the middle 3<sup>rd</sup> of left half of the tongue along lateral aspect measuring 7.8(TR) X 12.0(AP) X 5.5(CC) mm. It was isotense on T1wt images and intensely hypertense on T2wt images. (Figure 2).



**Figure 2: MRI Neck showing the lesion on tongue.**

Complete blood count was normal. Since the lesion was vascular in nature, embolization using N-Butyl cyanoacrylate (NBCA) mixed with 5% dextrose with surgical excision was planned. (Figure 3)



**Figure 3: Showing injecting NBCA into the lesion**

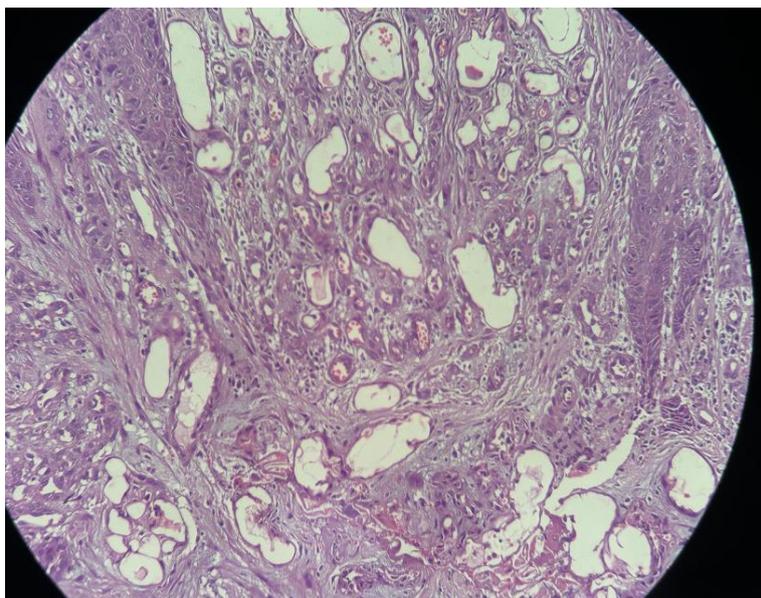
The mass was excised in toto (Figure 4) and sent for histopathological examination.



**Figure 4: Showing the lesion excised in toto.**

The incision site was closed using 3-0 vicryl suture material. The antibiotics and analgesics were continued for 1 week.

Histopathological examination revealed hyperplastic stratified squamous epithelium with an underlying fibrovascular stroma that shows a large number of vascular channels which is infiltrated by plasma cells, lymphocytes and neutrophils was suggestive of pyogenic granuloma. (Figure 5)



**Figure 5: Histopathology showing proliferation of capillaries with intervening fibrous septa overlying squamous epithelium and infiltration by inflammatory cells (H & E, 40X)**

Post-operatively the patient was followed up regularly on 15<sup>th</sup> day, 1 month, 3 months and 6 months and there was no recurrence. (Figure 6).



**Figure 6: Images showing the left lateral of tongue healthy post-operatively.**

#### DISCUSSION:

Poncet and Dor described the pyogenic granuloma as a non-neoplastic inflammatory hyperplasia frequently appearing in response to chronic irritation.<sup>1</sup> There is no association with pus and does not have any resemblance histologically to granuloma, hence the term pyogenic granuloma was considered not proper.<sup>2</sup> Hence it is known as Botriomycoma and can be found anywhere in the oral cavity, including the lining of the lips, cheeks, palate and tongue.<sup>3</sup> The most common sites are in gingiva (61%), lip (14%), tongue (9%) and buccal mucosa (7%) and is mainly seen in the second decade of life in young adult females, mostly because of the effects of female hormones like progesterone on the vasculature.<sup>4</sup> It is an exaggerated localized connective tissue reaction to minor injury or irritation, which is now an accepted fact.<sup>5</sup> The usual clinical presentation is like a small, deep red to reddish-purple lesion which can be sessile or pedunculated with smooth, lobulated or warty surface, commonly ulcerated and can bleed either spontaneously or on trauma. It may be painless and soft or firm in consistency. The usual size ranges between 0.5 cm-2.5 cm. It can increase in size with a short period of time and can remain the same there after.<sup>6</sup> Approximately 25% of cases occur after trauma, especially the gingival type.<sup>7</sup> Similarly in our patient the cause can be attributed due to tongue bite history. Aguiló. L reported a formation of "P.G" around fractured crown of a temporary maxillary incisor.<sup>8</sup> Growth factors like basic fibroblast growth factor (bFGF), vascular endothelial growth factor (VEGF) that can cause angiogenesis may be released by the action of female hormones like estrogen and is considered to be a reason for pyogenic granuloma.<sup>9</sup> Drugs like cyclosporine is considered as one of the causes for pyogenic granuloma especially when the lesions are multiple. An infective cause can also be considered especially viral infections like herpes type I and Epstein-Barr virus.<sup>10</sup> Kanda. Y et al<sup>11</sup> reported a case of pyogenic granuloma of the tongue occurring after an allogenic bone

marrow transplant. Thus, in our case, trauma due to tongue bite, hormonal changes in the post-partum period led to an exaggerated response by excessive granulomatous tissue formation and can be the reason for a pyogenic granuloma. Treatment of choice of pyogenic granuloma is surgical excision with 2 mm margins from the base of the lesion under local anaesthesia if there is no spontaneous regression.<sup>12</sup> Mostly the removal of the causative agent can lead spontaneous resolution. Other surgical modalities are removal by Nd: YAG, CO2 and flash lamp pulsed dye lasers, cryosurgery using either liquid nitrogen spray or a cryoprobe, use of ethanol or corticosteroid injections, sclerotherapy by sodium tetradecyl sulphate and the use of ultrasonic scissors.<sup>13</sup> Some of the differential diagnosis of pyogenic granuloma are giant cell granuloma, peripheral bone fibroma, Kaposi's sarcoma, squamous cell carcinoma, angio sarcoma, fibro sarcoma and non-Hodgkin's lymphoma.<sup>14</sup> Clinically pyogenic granuloma can resemble to that of a primary or metastatic malignancy.<sup>4,15</sup> In our study, we did a surgical excision of the tumour after injecting a sclerosant (N-butyl cyano acrylate) mixed with 5% dextrose at the lesion and the stalk. We observed that the bleeding was very minimal unlike seen in excision of other tongue lesions and this can be attributed to the sclerosant injection.

#### CONCLUSION:

Pyogenic granuloma is an acquired benign proliferation of capillary blood vessels of the skin and oral cavity. Poor oral hygiene, local trauma, hormonal influences in pregnancy are considered as the leading cause for pyogenic granuloma. Although it is a non-neoplastic lesion of oral cavity, proper diagnosis and treatment is important. A histopathological examination is necessary for the confirmatory diagnosis of the condition. Good oral hygiene and elimination of local trauma is the first step in the treatment followed by surgical excision. New treatment modalities like cryo-surgery and the use of lasers such as Nd: YAG laser are also coming up. N-Butyl cyanoacrylate (NBCA) is a rapidly polymerizing cyanoacrylate plastic used for embolization. Application of sclerosing agents pre operatively should be considered when excision is planned.

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