Pyogenic granuloma mimicking vascular tumour: A case report and literature review

Abstract

Pyogenic granuloma is a benign, rapidly proliferating vascular lesion of the oral cavity, commonly affecting the gingiva but rarely occurring in the floor of the mouth. We present a case of a 70-year-old male with a pedunculated bluish-pink growth in the anterior floor of the mouth, initially suspected to be a vascular tumor based on clinical and radiological findings. Contrast-enhanced computed tomography revealed a well-defined hypervascular lesion, further complicating the diagnosis. Complete surgical excision was performed, and histopathological examination confirmed the lesion as a pyogenic granuloma. Healing was uneventful with no recurrence during follow-up. This case underscores the diagnostic challenge of differentiating pyogenic granulomas from vascular tumors in uncommon sites and highlights the importance of histopathological confirmation and complete excision for definitive management.

Key words:

[pyogenic granuloma, floor of mouth, swelling, mass, tumour, excision]

Introduction

Pyogenic granuloma, also known as granuloma gravidarum or tumour of pregnancy is a benign, proliferative vascular lesion of the skin and mucous membranes and is characterized by rapid growth, a fragile surface prone to ulceration, and frequent bleeding. They are the most common hyperplasic reactive lesions in the mouth and are considered non-neoplastic[1]. The most common site for pyogenic granuloma is the gingiva, specifically the interdental papillae, with up to 75% of oral pyogenic granuloma's occurring there. Other common oral sites include the tongue, lips, and buccal mucosa. Extragingival locations in the oral cavity are also possible, especially in areas prone to trauma[2]. The floor of the mouth, the area beneath the tongue, is susceptible to a variety of vascular pathologies, common of which are haemangiomas, vascular malformations and angiolipomas[3]. Bhaskar et al reported that pyogenic granulomas account for 1.85% of all oral pathologies. This report describes a rare case of pyogenic granuloma in the floor of mouth, initially suspected to be a vascular tumor.

Case Report

A 70-year-old male patient came to the Department of Oral and Maxillofacial Surgery with a growth in the anterior floor of the mouth for a duration of 2 months. The growth was initially small and progressed slowly to the current size and was now causing difficulty in mastication. He had sought treatment at a local dental clinic; however no definitive management had been attempted. Patient had no other systemic illness or condition relevant to the current complaint.

No significant extraoral inspectory or palpatory findings were noted. Intraoral examination revealed a 2x2x2 cm well-defined pedunculated growth in the right anterior floor of mouth abutting the lingual frenum (Fig 1), but not involving the tongue. The surface of the growth was bluish pink in colour, smooth, and no ulcerations were noted on its surface. On palpation, the growth was soft in consistency, with no bleeding on probing.

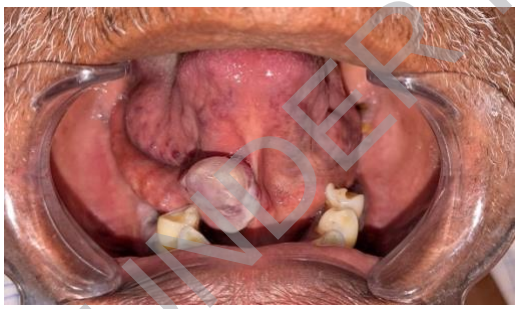


Fig 1. Pre-operative view of pyogenic granuloma.

Differential diagnosis of vascular anomaly, peripheral giant cell granuloma, fibroma, haemangioma, conventional granulation tissue was proposed[4].

Contrast- enhanced computed tomography imaging was done A small partly well-defined lobulated, heterogeneous avidly enhancing lesion measuring ~ 1.7 x 1.3 x 1.2 cm is noted in the right side of oral cavity at the ventral aspect of the tongue and was suggestive of a hyper vascular soft tissue proliferative lesion on the floor of mouth without evidence of bony destruction (Fig 2). This presented a confounding picture which was more indicative of a vascular anomaly as compared to a pyogenic granuloma.

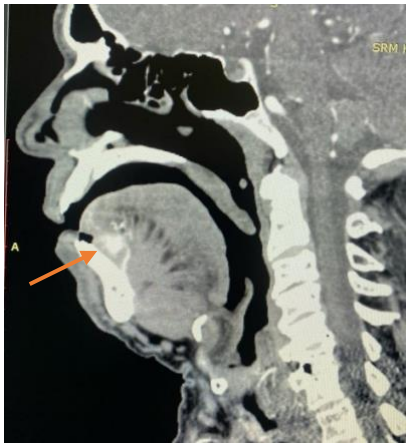
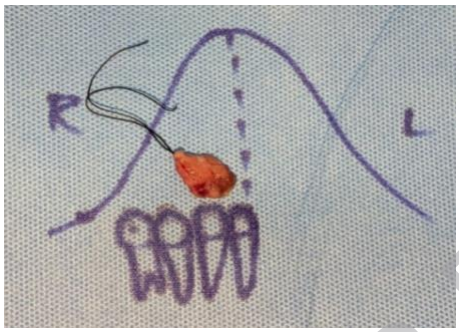
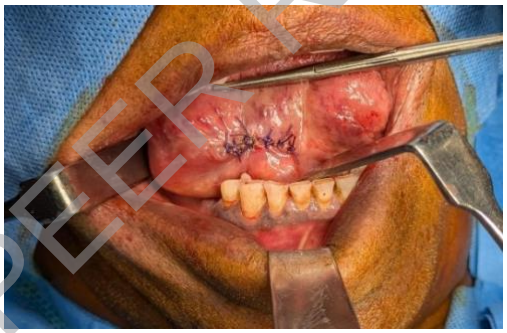


Fig 2. CECT Sagittal section.

Surgical excision in-toto was done with cautery from the base of the lesion, with careful dissection to identify any direct feeder vessels to or around the growth and primarily closed. (Fig 3 & 4)

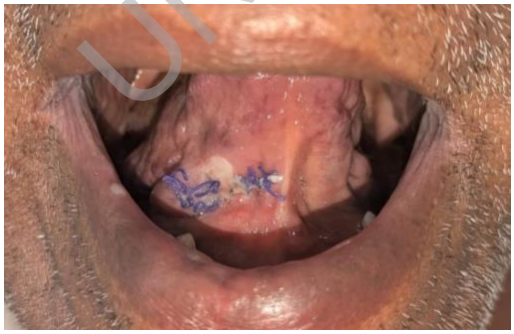
Fig 3. Excised specimen. Fig 4. Primary closure.

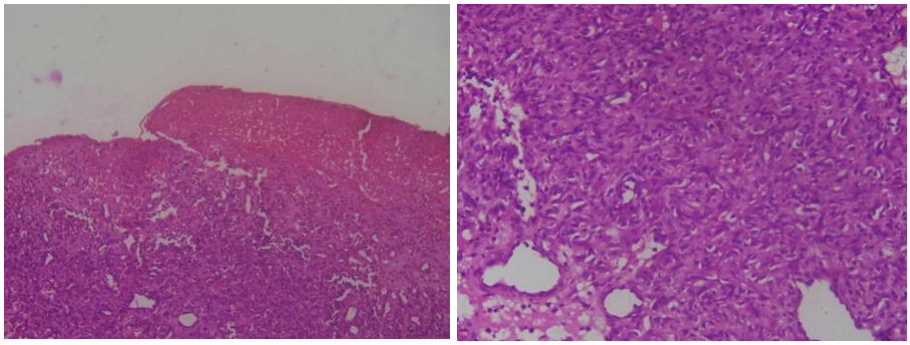




The excised specimen was sent for histopathological evaluation. Standard post-operative care was given to the patient and healing was uneventful (Fig 5). Final diagnosis of pyogenic granuloma was determined based on histopathological report (Fig 6a, 6b).

Fig 5. Post-operative view.





(Fig 6a) Low-power photomicrograph showing ulcerated epithelium covered by pyogenic membrane and subjacent lobular vascular proliferation consistent with pyogenic granuloma.

(Fig 6b) High-power photomicrograph revealing numerous proliferating capillaries lined by plump endothelial cells within an edematous stroma, with mixed inflammatory cell infiltrate

Discussion

Pyogenic granuloma was first described in 1897 by Poncet and Dor, who reported four patients with "vascular tumours" on the fingers which they named "*Botrichomycosis hominis*"[5] The term "pyogenic granuloma" was introduced in 1904 by Hartzell[6]. However, the name is considered inappropriate as it is neither related to pus formation, nor is it histologically a true granuloma[7, 8.] Due to the controversy regarding its true pathological nature, this lesion has been given several names such as granuloma pediculatum benignum, benign vascular tumor, septic granuloma, hemangiomatous granuloma, vascular epulis, fibroangioma, polypoid capillary haemangioma, eruption capillary hemangioma, non-lobular capillary hemangioma, and Crocker and Hartzell's disease [9]. In the dermatological literature, Cawson et al. (1998) have described this disease as "granuloma telangiectacticum" due to the presence of numerous blood vessels observed in histological sections [10]. In current concept, some pyogenic granulomas are categorized as vascular tumours, according to the classification of the International Society for the Study of Vascular Anomalies (ISSVA, 2022) [11] .

Pyogenic granulomas can arise on any skin or mucosal surface and may exhibit a wide range of clinical behaviours[12]. They typically present as raised or pedunculated growths which may increase rapidly in size. However, they may also undergo periods of regression and recurrence. Haemorrhage is common due to the lesion's friable vascular structure. In some cases, particularly those located in unusual sites like the tongue or floor of mouth, pyogenic granuloma may mimic a vascular tumour, which are more likely to occur in these sites.

Histologically, pyogenic granulomas consist of a rich profusion of anastomosing vascular channels in an edematous inflammatory and fibrotic stromal background and can be divided into lobular and non-lobular variants [13]. A more significant number of proliferating blood vessels with mild or no specific changes suggests lobular form whereas the presence of dilated capillary channels and alignment with the endothelial cells indicates a non-lobular form[14]. Differential diagnosis for pyogenic granulomas includes peripheral giant cell granuloma, peripheral fibroma, sarcoma, angiosarcoma, lymphangiomas, and hemangioma[15].

Although the diagnosis of Pyogenic granuloma is usually straight-forward, can often be challenging because of the similar clinical presentation of many other intraoral vascular tumours. Thus, there is a need for in-depth clinical examination. Clinical and histological

features are used for differentiation, which aids in treatment planning and, consequently, improves prognosis. Pyogenic granuloma treatment entails removing all etiological causes and performing a total surgical excision to lower the chance of recurrence. Traditionally, incisional procedures are made with a stainless-steel scalpel [16]. Asnaashari et al., 2014, reported that the lesion recurrence rate following the conventional method was 16%. Other surgical methods include diode or CO_2, cryosurgery, flashlamp-pumped pulsed dye laser, laser resection, intra-lesional injection of corticosteroids or sclerosing agents, and nitrogen cryosurgery.

This case highlights the importance of considering Pyogenic granuloma in the differential diagnosis of rapidly enlarging masses. Timely surgical intervention not only resolves the clinical issue but also aids in ruling out pathology. Continued follow-up is recommended to monitor for recurrence.

Conclusion

Pyogenic granuloma, though benign, may clinically resemble vascular tumors, particularly in uncommon intraoral sites such as the floor of the mouth. Definitive diagnosis requires histopathological confirmation, and complete surgical excision remains the treatment of choice. Early identification and appropriate management are essential to prevent recurrence and ensure favourable outcomes.

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