Inside the Oral Landscape: Exploring Pyogenic Granuloma's Intricacies

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Abstract

Pyogenic granuloma (PG) is a common benign vascular lesion of the oral cavity, often misdiagnosed due to its clinical resemblance to other lesions. Here, we present a case of a 28-year-old female with a gingival lesion presumptively diagnosed as PG. The management strategy involved a multidisciplinary approach including oral hygiene instruction, scaling and root planing, surgical excision and gingivoplasty. Histopathological examination confirmed the diagnosis of PG. Follow-up assessments demonstrated successful resolution of the lesion without recurrence over a 2 year period. This case highlights the importance of accurate diagnosis and appropriate management of PG to achieve favorable outcomes.

Conclusions: This case highlights the importance of a comprehensive approach to diagnosing and managing pyogenic granuloma (PG). By combining clinical assessment, histopathological examination, and personalized treatment strategies, clinicians can achieve successful outcomes while minimizing the risk of recurrence. Further research is needed to refine treatment approaches and deepen our understanding of PG's underlying causes. Through ongoing collaboration and evidence-based practices, healthcare providers can enhance patient care and outcomes for individuals affected by PG.

Keywords: Pyogenic Granuloma, vascular lesion, diagnosis, management, case report

INTRODUCTION

Oral pyogenic granuloma, also known as lobular capillary hemangioma, is a frequently encountered benign lesion within the oral cavity. Despite its misleading name, it does not involve pus formation nor does it represent a true granuloma. Rather, it is characterized by a reactive proliferation of blood vessels and connective tissue, often in response to various local stimuli.[1]

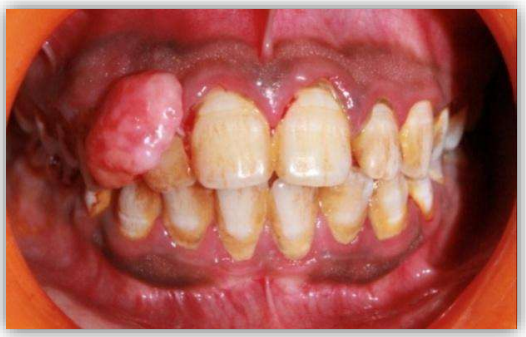
The prevalence of oral pyogenic granuloma underscores its clinical significance, particularly in dental and oral surgery practices. Understanding its pathogenesis and clinical behavior is crucial for accurate diagnosis and appropriate management. Furthermore, distinguishing oral pyogenic granuloma from other oral lesions with similar presentations is essential to avoid misdiagnosis and ensure optimal patient care.

Pyogenic granuloma typically manifests as a soft, rapidly growing mass with a variable lobulated surface and a reddish hue. It may have a pedunculated appearance and can be prone to ulceration, often leading to bleeding. Its primary location is the gums, accounting for approximately 75% of all cases. However, it can also occur less frequently on the lips, tongue, oral mucosa, and palate. The lesions are more commonly found in the upper jaw, particularly in anterior areas and the vestibular zone of the gingiva. In some cases, the lesions extend to the interproximal areas and involve both lingual and vestibular aspects of the gingiva.[2]

Case Reports

A 28-year-old female patient presented with a chief complaint of a soft tissue growth in the right maxillary anterior region (Figure 1). Clinical examination revealed a well-demarcated, erythematous, pedunculated lesion measuring 12mm in width and 11mm in height with a presumptive diagnosis of pyogenic granuloma (Figure 2 & 3). Treatment included oral hygiene instruction, followed by scaling (Figure 4), and subsequent surgical excision was chosen as the primary management approach under local anesthesia, the lesion was completely excised with a 2-mm margin of normal tissue to ensure thorough removal (Figure 5 6 7). The excised tissue growth was sent for histological analysis. Additionally, support periodontal therapy was advised, with periodontal maintenance sessions scheduled every three months for the first year.

Histopathological examination revealed pseudoepitheliomatous hyperplasia, vascular canals lined with endothelial cells, and an inflammatory infiltrate consisting of lymphocytes, plasma cells, histiocytes, and occasional polymorphonuclear leukocytes, confirming the clinical diagnosis (Figure 8).



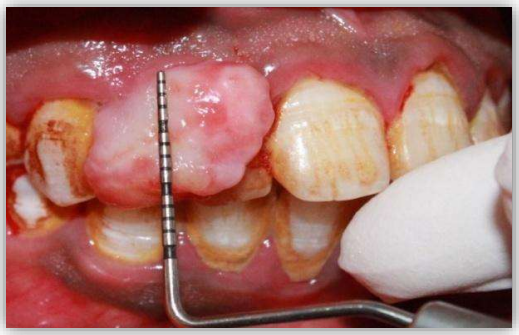


Fig. 3: Lesion height of 11 mm.

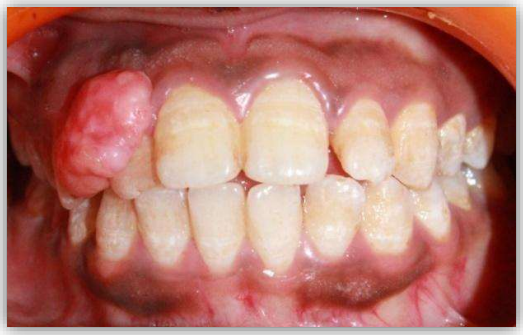


Fig. 4: Post Phase 1 Therapy.

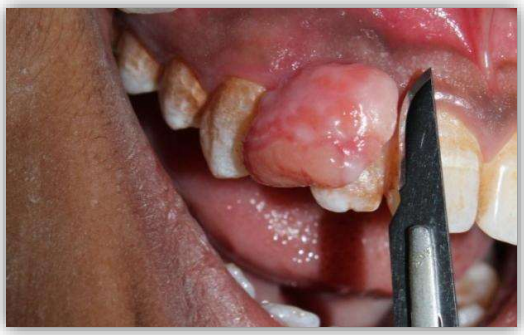


Fig. 5: Surgical excision of lesion with help of 15 no. B.P. blade.

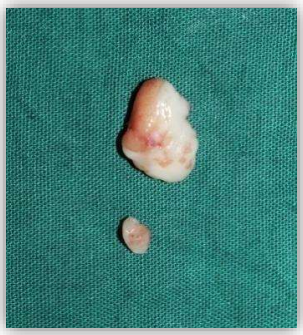


Fig. 6: Excised Tissue.

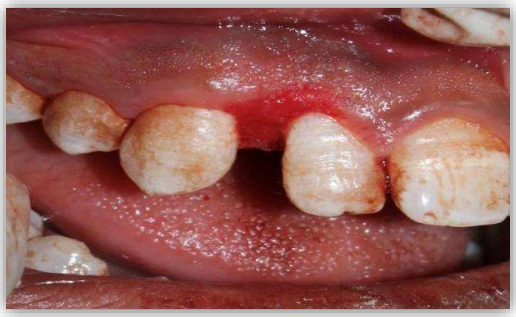


Fig. 7: Immediate Post OP.

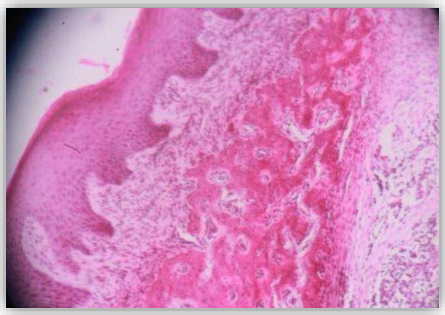


Fig. 8: Histological Examination.

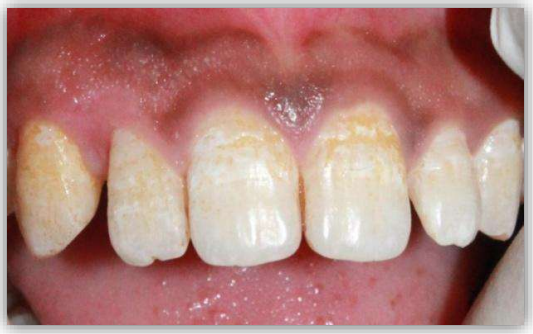


Fig. 9: 1 Week follow up.

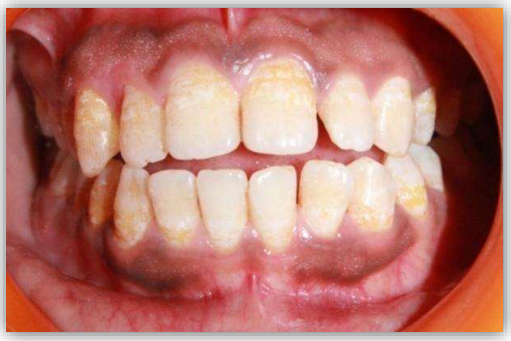


Fig. 10 : 1 Month follow up.

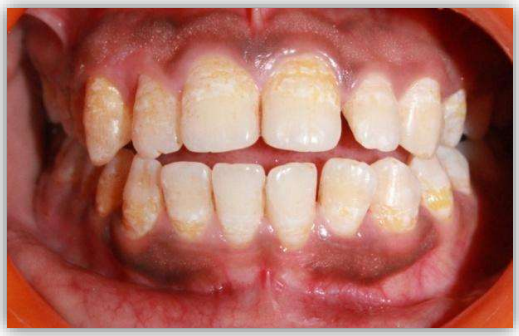


Fig. 11: 2 Year follow up.

The patient was scheduled for regular follow-up appointments to monitor healing progress and assess for recurrence. Follow-up assessments demonstrated reduced inflammation in the wound area after one week (Figure 9). At the 1 month follow-up, the surgical site showed satisfactory healing with no signs of recurrence (Figure 10). Subsequent controls showed improved oral hygiene and no recurrence of the lesion over a 2 year (Figure 11).

DISCUSSION

In our case, the initial diagnosis of pyogenic granuloma (PG) was primarily based on clinical examination, which emphasized the significance of recognizing typical features such as rapid growth, friable surface, and bleeding tendency. However, we acknowledge the importance of histopathological confirmation due to the potential overlap of clinical features with other lesions.

Histologically, our findings were consistent with the characteristic features of PG, including pseudoepitheliomatous hyperplasia, vascular proliferation, and an inflammatory infiltrate. Specifically, the inflammatory infiltrate comprised lymphocytes, plasma cells, histiocytes, and occasional polymorphonuclear leukocytes, as described by Gomes et al. (2008). [3]

A study by Bhaskar and Jacoway (1966)[4] provided valuable insights into the clinical features, incidence, histology, and treatment outcomes of PG by reporting on 242 cases. Their findings underscored the importance of accurate diagnosis and appropriate treatment selection based on lesion size and patient characteristics. Similarly, Saravana and Lavanya (2015)[5] conducted a retrospective review of 137 PG cases, further validating the clinical presentation and treatment modalities described by Bhaskar and Jacoway.

The management of PG requires a tailored, multidisciplinary approach. In our case, we opted for surgical excision as the primary treatment modality. This approach ensures complete removal of the lesion and minimizes the risk of recurrence. During the surgical excision, we employed meticulous techniques to achieve adequate margins while preserving surrounding healthy tissue. Hemostasis was carefully maintained throughout the procedure to minimize bleeding and optimize wound healing. Our approach to surgical excision aligns with findings from Salehinejad et al. (2010).[6]

While surgical excision is considered the gold standard for larger lesions, non-surgical interventions such as oral hygiene instruction and scaling and root planing may suffice for smaller lesions, as supported by Mighell et al. (1996).[7] Additionally, adjunctive therapies such as laser therapy, cryotherapy, or sclerotherapy may be considered to enhance treatment outcomes, as suggested by Regezi et al. (2008)[8] and the study by Woo and Soames (1986).[9]

Follow-up assessments in our case demonstrated successful resolution of the lesion without recurrence over a 2 year period. This underscores the importance of regular monitoring to ensure treatment efficacy and prevent relapse. Long-term studies assessing recurrence rates and patient satisfaction following different treatment modalities, such as those by Verma et al. (2012)[10] and Patil et al. (2010)[11], would provide further insights into the optimal management of PG.

Furthermore, the study by Akyol et al. (2001)[12] contributed valuable insights into the clinical presentation and treatment outcomes of PG, augmenting the existing body of literature on this topic.

CONCLUSION

This case highlights the importance of a comprehensive approach to diagnosing and managing pyogenic granuloma (PG). By combining clinical assessment, histopathological examination, and personalized treatment strategies, clinicians can achieve successful outcomes while minimizing the risk of recurrence. Further research is needed to refine treatment approaches and deepen our understanding of PG's underlying causes. Through ongoing collaboration and evidence-based practices, healthcare providers can enhance patient care and outcomes for individuals affected by PG.

Conflict of interest: No conflict of interest

BIBLIOGRAPHY

1. Jafarzadeh H, Sanatkhani M, Mohtasham N. Oral pyogenic granuloma: a review. J Oral Sci. 2006;48(4):167-175.
2. Buchner A, Calderon S, Ramon Y, Kaffe I. Peripheral giant cell granuloma: clinicopathologic study of 606 cases. J Oral Maxillofac Surg. 1993;51(8):828-834
3. Gomes SR, Shakir QJ, Thaker PV, Tavadia JK. Pyogenic granuloma of the oral cavity: a case report. Cases J. 2008;1:373.
4. Bhaskar SN, Jacoway JR. Pyogenic granuloma—clinical features, incidence, histology, and result of treatment: report of 242 cases. J Oral Surg. 1966;24(5):391-398.
5. Saravana GH, Lavanya N. Pyogenic granuloma: a review of 137 cases. J Oral Maxillofac Pathol. 2015;19(4):377-381.
6. Salehinejad J, Yazdani J, Zare-Mahmoodabadi R, Ghazi N, Ashayeri M. Comparison of the efficacy of curettage and cryosurgery in the treatment of oral pyogenic granuloma. J Oral Sci. 2010;52(3):409-414
7. Mighell AJ, Robinson PA, Hume WJ. Pyogenic granuloma associated with guided tissue regeneration. J Clin Periodontol. 1996;23(11):1060-1062.
8. Regezi JA, Sciubba JJ, Jordan RCK. Oral Pathology: Clinical Pathologic Correlations. 5th ed. St. Louis, MO: Saunders; 2008.

9. Woo VL, Soames JV. A laser surgical and histochemical study of pyogenic granulomas. a Br J Oral Maxillofac Surg. 1986;24(5):376-384.
10. Verma PK, Srivastava R, Baranwal HC, Chaturvedi TP, Singh AK. Pyogenic granuloma: an alarming oral lesion. J Oral Maxillofac Pathol. 2012;16(1):131-135.
11. Patil K, Mahima VG, Lahari K. Pyogenic granuloma of the gingiva presenting in a pediatric patient: a case report. Int J Dent. 2010;2010:621905.
12. Akyol M, Güneri P, Kükrer D, Baran I. Pyogenic granuloma (lobular capillary hemangioma) of the tongue. Int J Pediatr Otorhinolaryngol. 2001;57(3):239-241.