

Case Report

Management of pyogenic granuloma in pediatric patient: a case report

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Abstract

Pyogenic granuloma is a relatively common, soft tissue tumor of oral cavity that is believed to be reactive and not neoplastic in nature with various clinical and histopathological forms. PG may occur in all ages. The peak age of incidence is usually the second decade of life with female predilection. The present article describes the management of pyogenic granuloma by surgical excision in 6-year-old male child.

Key word: pyogenic granuloma, gingival hyperplasia, pediatric.

INTRODUCTION

Pyogenic granuloma is a relatively common, soft tissue tumor of oral cavity that is believed to be reactive and not neoplastic in nature. The name pyogenic granuloma is a misnomer since the condition is not associated with pus and does not represent a granuloma histologically. Some authors use the term lobular capillary hemangioma for this lesion.¹ It was first described by Hullihen in 1844 and the term pyogenic granuloma or granuloma pyogenicum was introduced by Hartzell in 1904. (2,3)

PG is considered to be a reactive tumor-like lesion which arises in response to various stimuli such as chronic low grade local irritation, traumatic injury, hormonal factors or certain kinds of drugs. Agulio reported formation of PG as a result of injury to a primary tooth and Milano et al reported a case of PG associated with aberrant tooth development. It has been stated that even eruption of teeth can be a precipitating factor of pyogenic granuloma development.⁴ PG may occur in all ages. The peak age of incidence is usually the second decade of life, although a preference for children has been reported by some investigators. It is also more common in young adult females, possibly because of vascular effects of female hormones.⁵

The increased incidence of these lesions during pregnancy may be related to the increasing levels of estrogen & progesterone. Pyogenic granuloma of the oral cavity is known to involve the gingiva commonly (75% of all cases). Uncommonly it can occur on the lips, tongue, buccal mucosa, palate and so on.¹ The differential diagnosis of PG includes peripheral giant cell granuloma, peripheral ossifying fibroma, hemangioma and inflammatory gingival hyperplasia. Final diagnosis is mainly based on biopsy and histopathological examination.⁵

Various treatment techniques have been described for PG. Conservative surgical excision and removal of the causative irritant or source of trauma are the usual treatments. Also cryosurgery, cauterization with silver

nitrate, sclerotherapy, Nd: YAG (NeodymiumDoped Yttrium Aluminium Garnet) and CO₂ (Carbon Dioxide) laser as well as laser photocoagulation have been proposed as treatment options.^{5,6}

CASE REPORT

A 6 years old male patient was referred to the department of pedodontics and preventive dentistry at government dental college and hospital, Ahmedabad with complaint of gingival overgrowth and bleeding. The lesion was of negligible size when the patient first noticed it (3 months ago), but had grown rapidly over the past 20 days to attain the present size.

Extra oral examination and review of system did not reveal any systemic disorder.

The lesion was firm in consistency and non-tender, with minimally bleeding. In addition, the patient had history of constant trauma by wooden stick.

On clinical examination solitary sessile, exophytic mass, red in color and soft in consistency which was about 25×13mm in diameter was seen on the right mandibular buccal gingiva 1st primary molar to 1st permanent molar. The lesion was lobulated with a smooth surface which was ulcerated and covered with fibrino leukocyte exudate on some areas (Figure 1, 2). It also bled on touch. Panoramic radiograph (figure :3) of the patient was not associated with any bony lesions (Figure 3). Based on clinical findings a provisional diagnosis of pyogenic granuloma was made.



Figure 1. clinical appearance of the lesion: an exophytic pedunculated lesion with pseudomembrane on the surface.



Figure 2. clinical appearance of the lesion : an exophytic pedunculated lesion with pseudomembrane on the surface.



Figure 3. panoramic radiograph of the patient

Based on clinical and radiographic evidence, surgical excision of the lesion was planned, and the treatment and outcome of the surgery were well explained to the father of child. The subject being minor, the written consent for surgery was obtained from his father for excising the lesion. After infiltration of local anesthesia (1:80,000), excisional biopsy of the lesion was done. The excised specimen was fixed in 10% formalin and was submitted to the department of oral pathology for histopathological analysis.



Figure 4. view of surgical removal of the lesion.



The patient was discharged with necessary post-operative instructions for maintenance of good oral hygiene and keeping the area clean. analgesic and antibiotic were recommended.

Figure 5: view immediately after removal of the lesion



Figure 6: view after 24 hr of removal of the lesion



Figure 7: view after 1 month of removal of the lesion.



Figure :8 View after 6 months of removal of the lesion.

Follow up examination after 24hours, ,1 month and 6 months was done to confirm uneventful healing and any recurrence figure ^{6,7,8} The histopathologic examination revealed granulation tissue with non-neoplastic proliferation of endothelial cells with blood cells formation and infiltration of acute and chronic inflammatory cells in a few collagenous matrix. Surface of the lesion was consistent with hyperplastic Para keratinized

stratified squamous epithelium with areas of atrophy and ulcer and fibrinoleukocytic membrane. These findings were consistent with a histopathological diagnosis of pyogenic granuloma.

DISCUSSION

Pyogenic Granuloma is an inflammatory hyperplastic lesion. The exact reason behind PG is not yet known. Gingival irritation and inflammation that result from poor oral hygiene, dental plaque and calculus or overhanging restorations may be precipitating factors in many cases.¹

Namazi et al. (2012) state that “trauma, hormonal influences, viral oncogenes, underlying microscopic arteriovenous malformation, the production of angiogenic growth factor and cytogenic abnormalities have all been postulated to play a role”^{7,8} Literatures have suggested many factors such as trauma, viral oncogenes, infection, hormonal influences, poor oral hygiene, defective restorations, and residual roots^{9,10}. In the present case, the constant trauma inflicted by wooden stick on the buccal gingiva could have been the etiology behind the growth of the lesion.

Differential diagnosis of pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, haemangioma, conventional granulation tissue, hyperplastic gingival inflammation, and in some cases even malignant lesions such as metastatic carcinoma, amelanotic melanoma and nonHodgkin’s lymphoma^{11,12,13} Although pyogenic granuloma can be diagnosed clinically with considerable accuracy, radiographic and histopathological investigations, aid in confirming the diagnosis and treatment. Radiographs are advised to rule out bony destruction suggestive of malignancy or to identify a foreign body¹

All clinically suspected pyogenic granulomas must be biopsied to rule out more serious conditions as mentioned previously.¹ Treatment of pyogenic granuloma consists of conservative surgical excision which is usually curative. There is a relatively high rate of recurrence (about 15%) after simple excision.¹⁴ Recurrence of these lesions is due to inadequate removal of etiological factors, repeated trauma, or failure to maintain oral hygiene.¹⁵ Vilmann et al.,¹⁶ emphasized that there is a need for followup, especially in pyogenic granuloma of the gingiva due to its higher recurrence rate. The present cases were followed up for a period of 6 months, and no recurrence was observed.

CONCLUSION

Although pyogenic granuloma arises due to a combination of etiological factors and is non-neoplastic in origin, removal of irritants like plaque, calculus, overhanging restorations, and other foreign substance is a must. Surgical excision of the lesion in toto is the treatment of choice for pyogenic granuloma. Proper oral hygiene maintenance is utmost essential to avoid any chance of recurrence.

REFERENCES

- 1 Amirchaghmaghi, M., Falaki, F., Mohtasham, N., & Mozafari, P. M. (2008). Extragingival pyogenic granuloma: a case report. *Cases journal*, 1(1), 371. <https://doi.org/10.1186/1757-1626-1-3718>. Hullihen SP. Case of aneurism by anastomosis of the superior maxillae. *Am J Dent Sci*. 1844; 4:160–2
2. Hartzell MB. Granuloma pyogenicum. *J Cuttan Dis Syph*. 1904; 22:520–5.
3. Jafarzadeh H, Sanatkhani M, Mohtasham N. Oral pyogenic granuloma: a review. *J Oral Sci*. 2006; 48(4):167-75.
- 4 Asnaashari, M., Mehdipour, M., MoradiAbbasabadi, F., & Azari-Marhabi, S. (2015). Expedited removal of pyogenic granuloma by diode laser in a pediatric patient. *Journal of lasers in medical sciences*, 6(1), 40–44.

5. Jafarzadeh H, Sanatkhani M, Mohtasham N. Oral pyogenic granuloma: a review. *J Oral Sci.* 2006; 48(4):167-75.
6. Rai S, Kaur M, Bhatnagar P. Laser: a powerful tool for treatment of pyogenic granuloma. *J Cutan Aesthet Surg.* 2011; 4(2):144-7.
7. Namazi Esmacil, Baliga Sharmila, Muglikar Sangeeta, Rahul K. A case report of pregnancy tumor and its management using the diode laser. *Journal of Dental Lasers.* 2012;6(2):68- 71.
8. Regezi JA, Sciubba JJ, RC J. *Oral pathology: Clinical pathologic considerations.* 4th ed. Philadelphia: WB Saunders; 2003. pp. 115-6.
9. Vasconcelos MG, Vasconcelos RG, Mafra RP, LMG Q. Pyogenic granuloma on the lower lip: An unusual location. *Stomatos.* 2012;18(35):34-8.
10. Akyol MU, Yalciner EG, Dogan AI. Pyogenic granuloma (lobular capillary hemangioma) of the tongue. *Int J Pediatr Otorhinolaryngol.* 2001 May 11;58(3):239-41
11. Rai S, Kaur M, Bhatnagar P. Laser: a powerful tool for treatment of pyogenic granuloma. *J Cutan Aesthet Surg.* 2011 May;4(2):144-7.
12. Kamal R, Dahiya P, Puri A. Oral pyogenic granuloma: Various concepts of etiopathogenesis. *J Oral Maxillofac Pathol.* 2012 Jan;16(1):79-82.
13. Greenberg MS, Glick M, JA S. In: *Burkett's textbook of oral medicine.* 11th ed. USA: BC Becker Inc; 2008. pp. 131-2.
14. Svirsky J: Oral pyogenic granuloma. 2007 [<http://www.emedicine>]. (10 pages), web med Accessed Mar 10, 2007.
15. Regezi JA, Sciubba JJ, Jordan RC. *Oral Pathology: Clinical Pathological Considerations.* Philadelphia: WB Saunders ; 2003,. p. 115-116.
16. Vilmann A, Vilmann P, Vilmann H. Pyogenic granuloma: Evaluation of oral conditions. *Br J Oral Maxillofac Surg.* 1986;24:376-382.