

Pyogenic Granuloma: An extragingival hyperplastic lesion. A case report

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Abstract: Pyogenic granuloma is a fast growing reactive proliferation of endothelial cells commonly on the gingiva as a response to chronic irritation. It is a polypoid form of capillary hemangioma on the skin & mucosal surface, usually presenting as a single nodule or sessile papules, with smooth or lobulated surface of any size from a few millimetres to several centimetres. Pyogenic granuloma of the oral cavity is known to involve the gingiva commonly. Rarely, it could also occur extragingivally. Presenting a case of pyogenic granuloma on the palate of a 22 year old female patient caused due to a fish bone injury.

Keywords: benign neoplasm, hyperplastic lesion, pyogenic granuloma

I. Introduction

Pyogenic granuloma is the most common of all the oral benign tumor like growths. It is thought to represent an exuberant tissue response to various stimuli such as low-grade local irritation¹, traumatic injury, hormonal factors², or certain kinds of drugs³. Hullihen's in 1844 was the first to report pyogenic granuloma in English literature but the term "Pyogenic granuloma" or "granuloma pyogenicum" was introduced by Hartzell in 1904⁴. There are two kinds of pyogenic granuloma namely lobular capillary hemangioma (LCH) type and non-LCH type which differ histologically⁵. Clinically it often presents as a smooth or lobulated, painless, pedunculated or sessile exophytic growth of gingiva. These may be seen in any size from a few millimetres to several centimetres⁶. As lesions mature, the vascularity decreases and the clinical appearance is more collagenous and pink.⁷ The peak prevalence is in teenagers and young adults, with a female predilection ratio of 2:1^{6,7,8}. The increased incidence of these lesions during pregnancy may be related to the increasing levels of estrogen & progesterone⁷. Pyogenic granuloma of the oral cavity is known to involve the gingiva commonly (75% of all cases) followed by the lips, tongue, buccal mucosa, palate etc.^{1,2,9} This article reports a case of an extragingival pyogenic granuloma occurring on the hard palate of a young female patient.

II. Case Report

A 22 year old female patient reported to the outpatient Department of Periodontics, A. J. Institute of Dental Sciences, Mangalore, with a chief complaint of growth on hard palate in relation to 22,23 region. The lesion was of negligible size when the patient first noticed it 10 days ago. There was a gradual increase in size of the lesion causing discomfort while eating and used to bleed on being traumatized. The patient gave a history of initiation of the lesion as a result of trauma caused by a fish bone piercing in the same region. Patient gave no relevant medical history, but on routine blood investigation the patient was found to be diabetic and has been prescribed metformin 500mg since then. Patient had a poor oral hygiene and brushes her teeth with toothbrush and toothpaste in a horizontal stroke.

Clinical examination revealed an exophytic, red, pedunculated lesion measuring approximately 1.5 × 1.5 cm in size, having a smooth lobulated surface situated on hard palate in relation to 22 and 23 region. The lesion was firm in consistency, tender, noncompressible, and no pulsations were seen. The lesion presented with 2 to 3 bleeding spots and was easily bleeding on palpation. Considering all the above features a provisional diagnosis of pyogenic granuloma was made and excisional biopsy was planned. During the first visit a conventional non-surgical therapy with full mouth scaling and root planing was performed and a written consent was taken from the patient. The lesion was bleeding profusely during the treatment. However, it was controlled by applying pressure pack. The lesion was then excised under local anesthesia and sent for histopathological examination. The excision area was evaluated after one week and the healing was uneventful.



Fig. A and B: Pre-operative photo of the lesion in relation to 22 & 23



Fig. C: Surgical excision of the lesion, **Fig. D:** Biopsy specimen



Fig. E: Immediate post-operative, **Fig. F:** 1 week postoperative

III. Histopathological Examination

Biopsy was taken during the surgical phase and sent to the laboratory. The formalin fixed specimen was grossed, processed and embedded in paraffin wax and sectioning was done for the tissue blocks. The sections were stained with Hematoxylin and Eosin stains and viewed under light microscope. It revealed that the tumor mass was composed of lobular masses of hyperplastic granulation tissue, with a stratified Squamous epithelium showing hyperplasia with increased keratinization and proliferating rete pegs. The underlying connective tissue showed numerous proliferating blood vessels, formation of vascular spaces in fibrocellular stroma, infiltrated with inflammatory cells like lymphocytes, plasma cells & macrophages, confirming the clinical diagnosis of pyogenic granuloma.

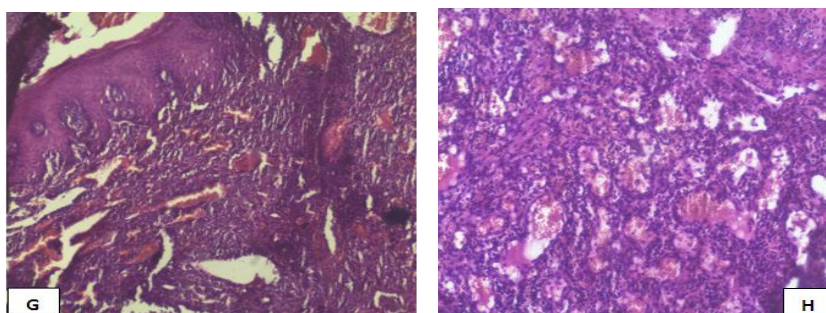


Fig. G: increased keratinization and proliferating rete pegs, **Fig. H:** Inflammatory cells like lymphocytes, plasma cells & macrophages,

IV. Discussion

While the terminology implies a benign neoplasm, approximately one-third of the lesions represent reactive focal fibrous hyperplasias due to trauma or local irritation. The term “pyogenic granuloma” is a misnomer because the lesion does not contain pus and does not represent a granuloma histologically. Over the years, various authors have suggested other names such as granuloma gravidarum / pregnancy tumors, Rocker & Hartzell’s disease, vascular epulis, benign vascular tumors, epulis telangiectium granulomatosa, & lobular capillary hemangioma. An intravenous counterpart of pyogenic granuloma was recognized by Cooper et al. This tumor is most common on the neck & upper extremity. It presents as a red-brown, intravascular polyp that can be easily mistaken for an organizing thrombus¹⁰. Although the term “focal fibrous hyperplasia” more accurately describes the clinical appearance and pathogenesis of this entity, it is not commonly used.

Therefore we can say that the misnamed entity “Pyogenic Granuloma” is neither infectious nor granulomatous. It is now universally agreed that this lesion is formed as a result of an exaggerated localized connective tissue reaction to a minor injury or any underlying irritation¹¹. The irritating factor can be calculus, poor oral hygiene, nonspecific infection, over hanging restorations, cheek biting etc. Because of this irritation, the underlying fibrovascular connective tissue becomes hyperplastic and there is proliferation of granulation tissue which leads to the formation of a pyogenic granuloma⁴. Factors such as inducible nitric oxide synthase, vascular endothelial growth factor or connective tissue growth factor are known to be involved in angiogenesis & rapid growth of Pyogenic granuloma.¹²

Pyogenic granuloma may occur at all ages but is predominantly seen in the second decade of life in young adult females, possibly because of the vascular effects of female hormones⁴. The gingiva is the most common site affected followed by the buccal mucosa, tongue and lips³. Surface is smooth, lobulated, ulcerated & shows tendency for bleeding. Consistency of the lesion may be soft or firm. Pyogenic granuloma grows rapidly in size from a few millimeters to several centimetres but rarely exceeds more than 2.5cm & usually reaches its full size within weeks or months. Young pyogenic granulomas are highly vascular in appearance because they are composed predominantly of hyperplastic granulation tissue in which capillaries are prominent. Whereas older lesions tends to become more collagenized & pink. In rare cases, they are known to cause significant bone loss.

Treatment of pyogenic granuloma involves a complete surgical excision. Pyogenic granuloma in general, does not reoccur when excised along with its base and all the causative factors are removed. The recurrence rate for pyogenic granuloma is said to be 16% of the treated lesions and re-excision of such lesions might be necessary. Various other benign soft tissue lesions need to be differentiated from pyogenic granuloma such as peripheral giant cell granuloma, pregnancy tumor, irritational fibroma, capillary hemangiomas, metastatic tumor etc.⁵

V. Conclusion

In oral cavity, pyogenic granuloma shows a striking predilection for the gingival with interdental papillae being the most common site in 70% of cases. Most studies demonstrate a definite female to male ratio of 2:1. Although pyogenic granuloma is a non-specific growth in the oral cavity, proper diagnosis, prevention, management & treatment of the lesion are very important. This patient gave a history of trauma in the area and had abundant local deposits with anterior traumatic bite, so removal of causative irritants is the major line of treatment. Excisional surgery was the treatment of choice as the lesion does not regress by itself. Therefore it is concluded that the combinations of various etiological factors might have caused the inflammatory tissue to cross the threshold from regular gingivitis to granuloma formation.

References

- [1]. Regezi JA, Sciubba JJ, Jordon RCK. Oral pathology: clinical pathological considerations. 4th ed. (Philadelphia, Pa, USA: WB Saunders 2003)
- [2]. Mussalli NG, Hopps RM, Johnson NW. Oral pyogenic granuloma as a complication of pregnancy and the use of hormonal contraceptives. *Int J Gynaecol Obstet* 1976;14(2):187-91.
- [3]. Miller RAW, Ross JB, Martin J. Multiple granulation tissue lesions occurring in isotretinoin treatment of acne vulgaris: successful response to topical corticosteroid therapy. *J Am Acad Dermatol* 1985;12 (5):888-9.
- [4]. Verma PK, Srivastava R, Baranwal HC, Chaturvedi TP, Gautam A, Singh A. “Pyogenic Granuloma - Hyperplastic Lesion of the Gingiva: Case Reports”. *The Open Dentistry Journal*, 2012,6:153-156.
- [5]. Hamid jafarzadeh, majid sanatkhani, nooshin mohtasham. Oral pyogenic granuloma: a review. *Journal of oral science*. 2006;48(4):165-175.
- [6]. Amirchaghmaghi M, Falaki F, Mohtasham N, Mozafari PM. Extrajingival pyogenic granuloma: a case report. *Cases Journal* 2008, 1:371.
- [7]. Svirsky J. Oral pyogenic granuloma. 2007 [http://www.emedicine]. (10 pages), web med Accessed Mar 10, 2007
- [8]. Sangamesh NC, Poornima B, Vidya KC, Sakri SB. Extrajingival pyogenic granuloma: a rare case report. *Journal of the scientific society*, 2013;40(1): 49-51
- [9]. Neville BW, Damm DD, Allen CM, Bouquot JE: Oral and maxillofacial pathology. Second edition. (W.B. Saunders Co;2004):444-449.
- [10]. Swati Gotmare, Avinash P. Tamgadge, S . S .Bhalerao, T. Pereira, Mrs. S. Tamgadge. Pyogenic granuloma – a case report. *Scientific Journal Vol. III – 2009*.
- [11]. Mathur LK, Bhalodi AP, Manohar B, Bhatia A, Rai N, Mathur A. Focal fibrous hyperplasia: a case report. *Int J Dent Clin* 2010;2(4):56-7.