

Oral Pyogenic granuloma: Retrospective Review of 49 Cases in a Tertiary Care Dental Institution of Odisha

Ipsita Mohanty¹, Swagatika Panda², Neeta Mohanty³, Radhaprasanna Dalai⁴, Sreepriti Champatray⁵, Priyanka Sukla⁶

¹Assistant Professor, ²Professor, ³Professor & Head, Department of Oral Pathology and Microbiology, ⁴Assistant Professor, Department of Public health and Preventive Dentistry, ⁵Assistant Professor, Department of Oral Pathology and Microbiology, ⁶Intern (2019-2020), Institute of Dental Sciences, Siksha 'O' Anusandhan, Deemed to be University, Bhubaneswar, Odisha, India

Abstract

Pyogenic granuloma (PG) also known as “Lobular capillary hemangioma,” appears as an overgrowth of tissue due to irritation, physical trauma, or hormonal changes in the oral cavity. This present study is on a series of cases comprising of 49 cases of pyogenic granuloma is the first of its kind reported from Eastern India. Even though patients usually do not report the hospital for pyogenic granuloma unless the lesion is large and incapacitating, such number in four years is not very less. Therefore it may be deduced that pyogenic granuloma is not rare in this part of India.

Keywords: Pyogenic Granuloma, hemangioma, gingival, Buccal mucosa, palate

Introduction

Pyogenic granuloma (PG) also known as “Lobular capillary hemangioma,” [1] appears as an overgrowth of tissue due to irritation, physical trauma, or hormonal changes in the oral cavity.[2] It was first reported in the English literature by Hullihen in 1844.[3] The term Pyogenic granuloma was termed by Hartzell in 1904.[4] The name is ambiguous because it is neither a granuloma nor its origin is infectious, it is a capillary hemangioma of the lobular subtype, are often prone to bleeding. It is not truly “pyogenic”. Frequently seen in young females usually in the second decade of life, due to various to hormonal changes. Clinically appears to be reddish pink to purple depending on the vascularity, with smooth or lobulated surface, pedunculated or sessile mass with a broad base. Painful when associated with continuous physical trauma. These lesions often

bleed profusely with little trauma. The most common site is the gingiva (approximately 75%) followed by lips, tongue, buccal mucosa, palate, and floor of the mouth.[5] Histopathologically, PG is classified into lobular capillary hemangioma (LCH) & non-lobular capillary hemangioma (non-LCH) [6]. Confirmatory diagnosis is done only after the study of histopathological sections.

Methodology

Patient records of Department of Oral Pathology and Microbiology, Institute of Dental Sciences, Siksha 'O' Anusandhan Deemed to be University were retrospectively reviewed from December 2015 to December 2019 for identification of patients diagnosed with Pyogenic granuloma. Clinical and histopathological features of those cases were identified and tabulated. The frequency of each feature was observed. Clinical features like age, gender, site, and clinical size were recorded. Histological types of pyogenic granuloma were categorized as lobular and non-lobular capillary hemangioma.

Result

Upon reviewing the patient record, 49 cases were

Corresponding author:

Ipsita Mohanty:

Assistant Professor, Department of Oral Pathology and Microbiology, Institute of Dental Sciences, Siksha 'O' Anusandhan, Deemed to be University, Bhubaneswar, Odisha: 751003, India, ipsitamohanty@soa.ac.in

identified. The mean age of the study population was found to be 34 with male to female ratio as 11:38. Gingiva was found to be the predominant location (n=39/49) followed by buccal mucosa (n=4/49), tongue(n=3/49) and palate(n=3/49). The median size of the lesion was found to be 1.5cm with a minimum of 0.5cm to a maximum of 8cm. histological two types were identified, lobular (n=4) and non-lobular (45) capillary hemangioma. Results have been tabulated in table number 1.

Table 1.

Characteristics	Number of cases (%)
MEAN AGE	34
GENDER	
Male	11
Female	38
SITE (n=851)	
Gingiva	39
Buccal mucosa	4
Tongue	3
palate	3
TUMOUR SIZE (in cm)	
Median	1.5
Range	0.5-8
HISTOPATHOLOGY	
Lobular	4
Non-lobular	45



Figure 1. Pyogenic granuloma in buccal mucosa



Figure 2. Pyogenic granuloma in gingival



Figure 3. Pyogenic Granuloma in the palate

Discussion

The present series comprising of 49 cases of pyogenic granuloma is the first of its kind reported from Eastern India. Even though patients usually do not report the hospital for pyogenic granuloma unless the lesion is large and incapacitating, such number in four years is not very less. Therefore it may be deduced that pyogenic granuloma is not rare in this part of India.

Pyogenic granuloma has been considered as a reactive lesion arising as a response to various stimuli such as chronic low-grade irritation [7,8], trauma [7,8], hormones [9], and few drugs[10]. Although the lesion does not manifest pus formation and does not suffice granuloma definition

[7,8] still the misnomer terminology ‘Pyogenic granuloma’ is prevailing. Trauma plays a role, especially in extra gingival PG. poor oral hygiene is also reported to be an etiologic agent. [7,8]

Mean as well as the median age of the study population was found to be 34 years with a female predominance. Female prevalence has also been observed by [11-13]. Unusually high female prevalence in

this study may be due to the age of presentation of PG during puberty or pregnancy. The principal oral site to be affected was found to be gingiva. This is invariably reported by every author. [11, 12, 14-17]. Mandibular gingiva was found to be a more frequent location compared to maxillary gingiva {21/37}. This finding is contradicted by with few authors. [11-12] Uncommon locations are palate, lip, tongue, and buccal mucosa. [7,8,18] Cases in our study cohort also demonstrated an unusual location like buccal mucosa (n=4), tongue (n=4) and palate (n=4). Clinically it is manifested as a lobulated exophytic erythematous lesion. It may be pedunculated or sessile. Size usually does not exceed 2.5 cm [8] whereas the maximum size in our study cohort was 8cm. eight cases were above 3 cm. The larger size may be attributed to late presentation. The development is usually slow and painless. The surface of the lesion is characteristically ulcerated and friable covered by a fibrinous membrane.

Microscopically PGs can demonstrate two types of arrangement, lobular and non-lobular capillary hemangioma. 45 out of 49 in this case series were non-lobular capillary hemangioma. Numerous small and large blood vessels are seen in lobular or diffuse arrangements in lobular and non-lobular capillary hemangioma respectively. Those blood vessels are lined by mitotically active plump endothelial cells or flat endothelial cells. [19] Attributed to a few structural and immunohistochemically differences Toida et.al [13] have suggested different pathogenic factors for lobular and non-lobular capillary hemangioma.

Differential diagnosis of PG includes benign lesions like peripheral ossifying fibroma, peripheral giant cell granuloma. [8] Malignant neoplasm like a metastatic tumour, Non-Hodgkin's lymphoma, angiosarcoma and Kaposi's sarcoma [11, 20] also needs to be differentially diagnosed.

Adequate follow-up data is not available in this study population. Adequate excision is the usual treatment of choice. Recurrent lesions may be the result of inadequate excision or employing non-surgical techniques for treating PG. a further well-planned retrospective study on immunohistochemical features of this lesion would throw light upon many unanswered questions regarding Etiopathogenesis and nature of vascular proliferations.

Funding: None

Ethical Statement: This study was approved by the institutional ethical committee.

Conflict of Interest: The author declares that there was no conflict of interest.

References

1. James, William D, Berger, Timothy G. 10th ed. Philadelphia: Saunders Elsevier; 2006. Andrews' Diseases of the Skin: Clinical Dermatology.
2. Jafarzadeh H, Sanatkhani M, Mohtasham N. Oral pyogenic granuloma: A review. J Oral Sci. 2006;48:167-75.
3. Hullahen SP. Case of aneurism by anastomosis of the superior maxillae. Am J Dent Sci. 1844;4:160-2.
4. Hartzell MB. Granuloma pyogenicum. J Cuttan Dis Syph. 1904;22:520-5.
5. Parisi E, Glick PH, Glick M. Recurrent intraoral pyogenic granuloma with satellitosis treated with corticosteroids. Oral Dis. 2006;12:70
6. Sternberg S. S., Antonioli D. A., Carter D., Mills S. E., Oberman H. *Diagnostic Surgical Pathology*. 3rd. Philadelphia, Pa, USA: Lippincott Williams & Wilkins; 1999.
7. DDS BWN, DDS DDD, MSD CMA DDS, DMD ACC. Oral and Maxillofacial Pathology. Elsevier Health Sciences; 2015. 928 p.
8. Regezi JA, Sciubba J, Jordan RCK. Oral Pathology - E-Book: Clinical Pathologic Correlations. Elsevier Health Sciences; 2015. 492 p.
9. Mussalli NG, Hopps RM, Johnson NW. Oral pyogenic granuloma as a complication of pregnancy and the use of hormonal contraceptives. Int J Gynaecol Obstet Off Organ Int Fed Gynaecol Obstet. 1976;14(2):187-91.
10. Miller RA, 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 May;12(5 Pt 1):888-9.
11. Al-Khateeb T, Ababneh K. Oral pyogenic granuloma in Jordanians: a retrospective analysis of 108 cases. J Oral Maxillofac Surg Off J Am Assoc Oral Maxillofac Surg. 2003 Nov;61(11):1285-8.
12. Lawoyin JO, Arotiba JT, Dosumu OO. Oral pyogenic granuloma: a review of 38 cases from

- Ibadan, Nigeria. *Br J Oral Maxillofac Surg.* 1997 Jun;35(3):185–9.
13. Toida M, Hasegawa T, Watanabe F, Kato K, Makita H, Fujitsuka H, et al. Lobular capillary hemangioma of the oral mucosa: a clinicopathological study of 43 cases with a special reference to the immunohistochemical characterization of the vascular elements. *Pathol Int.* 2003 Jan; 53(1):1–7.
 14. Alwan AH, Zardawi FM, Gul SS, Hussain AA. Prevalence and Distribution of Gingival Pyogenic Granuloma in Sulaimani population – Kurdistan Region – Iraq. *Biomed Pharmacol J.* 2018 Mar 25;11(1):105–11.
 15. Koo MG, Lee SH, Han SE. Pyogenic Granuloma: A Retrospective Analysis of Cases Treated Over a 10-Year. *Arch Craniofacial Surg.* 2017 Mar;18(1):16–20.
 16. Krishnapillai R, Punnoose K, Angadi PV, Koneru A. Oral pyogenic granuloma—a review of 215 cases in a South Indian Teaching Hospital, Karnataka, over 20 years. *Oral Maxillofac Surg.* 2012 Sep 1;16(3):305–9.
 17. Sharma D, Tripathi GM, Dixit S, Pillai A, Thomas S. Prevalence and pattern of lobular capillary hemangioma in Eastern Madhya Pradesh, India: A clinicopathological analysis. *Indian J Dent Res.* 2017 Jan 7;28(4):424.
 18. Amirchaghmaghi M, Falaki F, Mohtasham N, Mozafari PM. Extralingival pyogenic granuloma: a case report. *Cases J.* 2008 Dec 3;1:371.
 19. Gnepp DR. *Diagnostic Surgical Pathology of the Head and Neck E-Book.* Elsevier Health Sciences; 2009. 1224 p.
 20. Mentzel T, Calonje E, Fletcher CD. [Vascular tumours of the skin and soft tissue. Overview of newly characterized entities and variants]. *Pathol.* 1994 Oct;15(5):259–70.