

# Pyogenic Granuloma of Hard Palate Masquerading as Papilloma

Viresh Arora<sup>1</sup>, Bhushan Kathuria<sup>2</sup>, SPS Yadav<sup>3</sup>, Sharad Hernot<sup>4</sup>

**Abstract:** *Pyogenic granuloma (PG) is a kind of reactive inflammatory hyperplasia seen in the oral cavity. Gingiva is the most common site of involvement (75%), other extra-gingival sites involved are lips, tongue and buccal mucosa. It is predominantly seen in females in second decade of life with male to female predilection of 1:1.5, possibly because of the vascular effects of female hormones. Here we report a case of pyogenic granuloma of hard palate in 4 year female an unusual age and site of presentation which was initially considered as a case of papilloma of hard palate but later on confirmed as pyogenic granuloma after surgical excision and histopathological examination.*

**Keywords:** pyogenic granuloma, papilloma, hard palate, histopathological examination

## 1. Introduction

Pyogenic granuloma is a primarily oral disease which appears in the mouth as an overgrowth of tissue considered to be non-neoplastic, inflammatory hyperplasia due to irritation, physical trauma or hormonal factors.<sup>1</sup> Pyogenic granuloma was first originally described in 1897 by two French surgeons, Poncet and Dor, who named this lesion *otomycosis hominis*. The name for pyogenic granuloma is misleading because it neither contains pus nor true granuloma. This term was introduced by Hartzell in 1904. In actuality, it is a capillary hemangioma of lobular subtype which is the reason they are often quite prone to bleeding.<sup>2</sup> Although pyogenic granuloma may occur in all ages, it is predominant in the second decade of life in young adult females, possibly because of the vascular effects of female hormones.<sup>3,4</sup>

## 2. Case Report

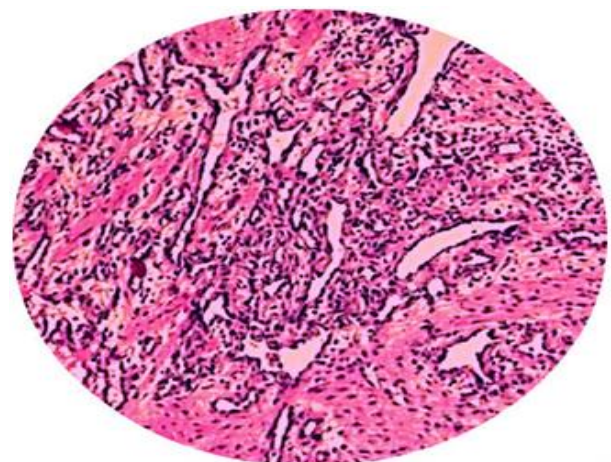
A 4 year old female presented with 4 months history of swelling over hard palate region. History revealed that the growth started as small nodule, which gradually increased to present size with history of occasional bleeding from lesion that prompted the patient to seek treatment. No other complaint of pain or feeding difficulty were present. Family and medical history revealed no abnormalities.

On Intraoral examination, single, well-defined, an exophytic, pedunculated lesion is evident in the mid-palatal region, measuring around 0.8 cm × 1.2 cm in size, irregular margins, surface lobulated and color appears purplish red. The growth is firm in consistency, non-tender, smooth surface and has a narrow pedunculated base with evidence of bleeding from lesion. The lesion surrounded by ulcerated mucosa anteriorly. (Figure.1) The oral hygiene status was fair. Systemic examination did not reveal any abnormal finding. Investigations were as follows: haemoglobin-13gm%, white cell count- $5.1 \times 10^9/l$  with a normal differential count and ESR of 2 mm/hr. Electrolytes, liver function tests and X-ray chest were normal. An excisional biopsy was taken and sent for histopathological examination.



**Figure 1:** shows exophytic mass hard palate with ulcerated mucosa anteriorly

Histopathological examination revealed Stratified squamous orthokeratinized epithelium covering cellular connective tissue. of a lobular arrangement of multiple capillaries lined by endothelial cells, and edematous stroma with inflammatory cell infiltration and fibroblast proliferation in routine hematoxylin and eosin (HE)-stained sections of formalin-fixed, paraffin-embedded materials. The connective tissue shows proliferating fibroblasts and collagen fibers interposed in lymphocytes and plasma cells. There was no evidence of atypia or malignancy. The clinical and histopathological findings confirmed it to be a case of pyogenic granuloma. (fig.2)



Histological slide showing the characteristic features of Lobular Capillary Hemangioma.

### 3. Discussion

Pyogenic granuloma is a misnomer as the lesion is not associated with pus formation and histologically the lesion is composed of granulation tissue. Clinically, the lesion showed necrotic white material which resembled pus, thus impelled clinicians to refer to these lesions as pyogenic granuloma. Several authors preferred to term this entity as lobular capillary hemangioma based on the histological appearance.<sup>1</sup> Pyogenic granulomas of head and neck are uncommonly seen extralingually in areas of frequent trauma such as the lower lip, tongue and palate.<sup>5</sup>

Pyogenic granuloma is a smooth, lobulated and exophytic lesion manifesting as small, red, erythematous papules either on a pedunculated or sessile base. The size of Pyogenic granuloma varies from few mm to several cm rarely exceeding 2.5cm reaching its full size within weeks or months and remaining indefinitely thereafter. Clinical development of the lesion is slow, sometimes rapid and asymptomatic. The color ranges from pink to red to purple depending on the age of the lesion. The surface is characteristically ulcerated and friable.<sup>2</sup> The younger lesions are highly vascular causing considerable bleeding on minor trauma whereas the older lesions become more collagenized and pink. The hormones progesterone and estrogen influence the growth to grow faster and explains the high incidence in women, particularly pregnant and oral contraceptive consumers.<sup>3</sup> In general, it appears in second to third month of pregnancy, with the tendency to bleed and a possible interference with mastication.<sup>6</sup>

Histologically, pyogenic granulomas are classified as the LCH type and the non-LCH type.<sup>2</sup> Epivatianos et al. reported that the two types of pyogenic granuloma were clinically different and have different pathways of evolution. They found that LCH type PG occurred more frequently (66%) as a sessile lesion, whereas non-LCH type PG mostly occurred as pedunculated (77%).<sup>2</sup>

Pagliari and Cohen describing pyogenic granulomas in children used the terminology LCH to describe pyogenic granuloma as a benign, acquired, vascular neoplasm of the skin and mucous membrane.<sup>7</sup> Radiographic findings are usually absent.<sup>8</sup>

Differential diagnosis included peripheral giant cell granuloma, peripheral ossifying fibroma, metastatic cancer, hemangioma, pregnancy tumor, conventional granulation tissue hyperplasia, Kaposi's sarcoma, bacillary angiomatosis and non-Hodgkins lymphoma.<sup>9-12</sup> Peripheral giant cell granuloma can be histologically identified due to the presence of multinucleated giant cells and lack of an infectious source.<sup>9</sup> Ossifying fibroma or peripheral odontogenic fibroma occurs exclusively on the gingiva; however, it has a minimal vascular component unlike a pyogenic granuloma.<sup>12</sup> Due to the proliferating blood vessels differential diagnosis of pyogenic granuloma from a hemangioma is made histologically in which hemangioma shows endothelial cell proliferation without acute inflammatory cell infiltrate, which is a common finding in pyogenic granuloma.<sup>11</sup> Metastatic tumors of the oral cavity are rare and attached gingiva is commonly affected,

clinically they resemble reactive or hyperplastic lesions such as pyogenic granuloma, but microscopically they usually resemble the tumor of origin, which usually is distant from the metastatic lesion seen in the oral cavity.<sup>13</sup> The diagnosis of pregnancy tumor is based on the history and the apparent influence of the female sex hormones.<sup>3</sup> Conventional hyperplastic gingival inflammation resembles pyogenic granuloma in histopathologic sections and it is impossible for the pathologist to reach a diagnosis and in such cases the surgeon's description of the lesion is relied on.<sup>6</sup> Pyogenic granuloma is distinguished from Kaposi's sarcoma in Acquired immune deficiency syndrome due to the proliferation of dysplastic spindle cells, vascular clefts, extravasated erythrocytes and intracellular hyaline bodies none of which are seen in pyogenic granuloma.<sup>14</sup> Excision and biopsy of the lesion is the recommended line of treatment unless it would produce a marked deformity and in such a case incisional biopsy is recommended.

Various other treatment modalities such as use of Nd: YAG laser, carbon dioxide laser, flash lamp pulse dye laser, cryosurgery, electrodesiccation, sodium tetradecyl sulfate sclerotherapy and use of intralesional steroids have been used by various clinicians.<sup>15</sup>

Vilman et al. emphasized the need of follow-up, especially in pyogenic granuloma of the gingiva due to its much higher recurrence rate (16%). Incomplete excision, failure to remove etiologic factors or repeated trauma contributes to recurrence of these lesions.<sup>16</sup>

### 4. Conclusion

We would like to conclude that though pyogenic granuloma of hard palate are less common in paediatric age group, but their possibility should always be kept in mind whenever dealing with the swellings of hard palate. So the surgical excision should always be followed by histopathological examination.

### References

- [1] Greenberg MS, Glick M, Jonathan A. 11th ed. Hamilton: BC Decker; 2008. *Burket's Oral Medicine*; pp. 133–4.
- [2] Epivatianos A, Antoniadou D, Zaraboukas T, Zairi E, Pouloupoulos A, Kiziridou A, et al. Pyogenic granuloma of the oral cavity: Comparative study of its clinicopathological and immunohistochemical features. *Pathol Int.* 2005;55:391–7.
- [3] Ojanotko-Harri AO, Harri MP, Huttia HM, Sewón LA. Altered tissue metabolism of progesterone in pregnancy gingivitis and granuloma. *J Clin Periodontol* 1991;18:262–6
- [4] 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;14:187–91.
- [5] Akyol MU, Yalçiner EG, Doğan AI. Pyogenic granuloma (lobular capillary hemangioma) of the tongue. *Int J Pediatr Otorhinolaryngol.* 2001; 58:239–41.
- [6] Sills ES, Zegarelli DJ, Hoschander MM, Strider WE. Clinical diagnosis and management of hormonally

- responsive oral pregnancy tumor (pyogenic granuloma)  
J Reprod Med. 1996; 41:467–70.
- [7] Pagliai KA, Cohen BA. Pyogenic granuloma in children. *PediatrDermatol* 2004; 21:10-3.
- [8] Kamal R, Dahiya P, Puri A. Oral pyogenic granuloma: Various concepts of etiopathogenesis. *J Oral MaxillofacPathol* 2012;16:79-82
- [9] Eversole LR. *Clinical Outline of Oral Pathology: Diagnosis and Treatment*. 3<sup>rd</sup> ed. Hamilton: BC Decker; 2002. p. 113-4
- [10] Tumini V, Di Placido G, D'Archivio D, Del GiglioMatarazzo A. Hyperplastic gingival lesions in pregnancy. I. Epidemiology, pathology and clinical aspects. *Minerva Stomatol* 1998;47:159-67
- [11] Calonje E, Wilson-Jones E. Vascular tumors: Tumors and tumor like conditions of blood vessels and lymphatics. In: Elder D, Elenitsas R, Jaworsky C, Johnson B Jr, editors. *Lever's Histopatology of the Skin*. 8<sup>th</sup> ed. Philadelphia: Lippicott-Raven; 1997. p. 895.
- [12] Wood NK, Goaz PW. 5th ed. St. Louis: Mosby; 1997. *Differential Diagnosis of Oral and Maxillofacial Lesions*; pp. 549–50.
- [13] Jafarzadeh H, Sanatkhan M, Mohtasham N. Oral pyogenic granuloma: A review. *J Oral Sci* 2006;48:167-75.
- [14] Bouquot JE, Nikai H. Lesions of the oral cavity. In: Gnepp DR, editor. *Diagnostic Surgical Pathology of Head and Neck*. Philadelphia: WB Saunders; 2001. p. 141-233
- [15] Parisi E, Glick PH, Glick M. Recurrent intraoral pyogenic granuloma with satellitosis treated with corticosteroids. *Oral Dis* 2006;12:70-2.
- [16] Vilmann A, Vilmann P, Vilmann H. Pyogenic granuloma: Evaluation of oral conditions. *Br J Oral MaxillofacSurg* 1986;24:376-82.