

Pyogenic Granuloma On Anterior Hard Palate In A Paediatric Patient: A Case Report

Dr.Sabeena PA¹, Dr.Thomas Manjooran.S², Dr.Hemjith Vasudevan³,
Dr.Reshma Rajan⁴, Dr.Anju SRaj⁵, Dr.Sangeetha JKadavan⁶.

¹Postgraduate student, Department of Pedodontics and Preventive Dentistry, P.S.M College of Dental Science and Research/KUHS, Kerala, India

²Professor and HOD, Department of Pedodontics and Preventive Dentistry, P.S.M College of Dental Science and Research/KUHS, Kerala, India

³Professor, Department of Pedodontics and Preventive Dentistry, P.S.M College of Dental Science and Research/KUHS, Kerala, India

⁴Reader, Department of Pedodontics and Preventive Dentistry, P.S.M College of Dental Science and Research/KUHS, Kerala, India

^{5,6}Senior Lecturer, Department of Pedodontics and Preventive Dentistry, P.S.M College of Dental Science and Research/KUHS, Kerala, India

Abstract:

Pyogenic Granuloma (PG) is a reactive hyperplasia of connective tissue in response to local irritants which may bleed on probing. Histologically, the surface epithelium may be intact, or may show foci of ulcerations or even exhibit hyperkeratosis. It predominantly occurs in the second decade of life with female predilection, and size of lesion varies in diameter from few millimeters to several centimeters, but rarely exceeds 2.5cm. Pyogenic Granuloma of the oral cavity is known to involve the gingiva commonly. Extralingually, it can occur on the lips, tongue, buccal mucosa, palate, and alveolar mucosa. This article presents a case of Pyogenic Granuloma in a 12-year-old female patient who presented clinically with pain and gingival overgrowth in the maxillary right anterior palatal surface of attached gingiva in relation to lateral incisor and canine. The lesion was excised and histopathological report confirmed the diagnosis as oral Pyogenic Granuloma.

Key words: Hard palate, Pyogenic Granuloma, Complete excision

Date of Submission: 01-06-2023

Date of Acceptance: 10-06-2023

I. INTRODUCTION:

As a pediatric dentist, to identify and treat soft tissue growth in oral cavity is of utmost importance and sometimes challenging due to their various differential diagnosis which falls into these categories; normal anatomical variations, cysts, developmental and lastly, neoplastic growths¹. Pyogenic granuloma is a type of inflammatory hyperplasia that affects the oral cavity's mucosal lining and the skin which can affect the pediatric age group and young adults². Pyogenic granuloma was first described by Poncet and Dor in 1897³. Oral pyogenic granuloma during pregnancy most commonly occur in female during second decades due to increased levels of hormones⁴. In a pediatric study, the average age at diagnosis was 6 to 10 years, with a male preponderance⁵. From the clinical point of view, pyogenic granuloma appears as a soft, rapid-growing mass, possibly pedunculated of variable size lobulated surface and reddish hue. It can be ulcerated and exhibits high propensity to bleeding⁶. It is considered a reactive tumor as its appearance is generated through various physical stimuli (trauma, tartar, and low intensity chronic irritation), chemicals (drugs, hormones) or dental and periodontal treatment⁷. The color of the lesion depends on the vascularity of the growth, so it can be red, purple or pink^{8,9}.

Its histology reveals proliferation of granulation tissue with inflammatory infiltrate and great angiogenic capacity; for these reasons, vascular neoformations of different diameter are normally present. These formations exhibit abrupt onset and completion within the tissue¹⁰.

Possible complications of lobular capillary hemangioma include, ulceration, hemorrhage from trauma to the lesion, secondary infections, cosmetic disfigurement, which may be of psychological distress to the patient, particularly when the lesion is on the face¹¹.

The treatment consists of the removal of the causal factor and, in the accomplishment of excisional biopsy.

II. CASE REPORT:

A 12 year old female patient, attended by her parents reported to the Department of Pedodontics, PSM College of Dental Science and Research, Akkikavu, Thrissur, Kerala with a chief complaint of pain and swelling in upper right anterior palatal region. Small swelling noticed one month back while having food which was bluish red in color, progressively increased to the current size (1.2x .7 cm) and changed to pale pink color, associated with intermittent episodes of sharp pain with incidental bleeding while having food. Pain was relieved on warm water gargling. The patient's past medical and dental history were insignificant with no positive family history.

On intra oral examination the swelling was located on anterior rugae region 1.2 cm away from interdental papilla of central incisor and lateral incisor and mesial margin touching the midpalatine region. The swelling was red, round, firm, pedunculated, having distinct margin with irregular surface. It was tender on palpation and showed blanching on application of pressure. The color changed to pale pink color on subsequent visits. (Figure 2). The patient also had cutaneous lesion, nevus flammeus (port-wine stain) on neck and hands (Figure 3). No deleterious habits reported.

Provisional diagnosis of Pyogenic Granuloma or Hemangioma was formed taking into account clinical signs and symptoms and an informed consent was taken from the parents for the procedure. Local anaesthesia was infiltrated around the lesion and an excision was performed with Number 15 blade, which was then completely excised from its base (Figure 4,5). Electrocautery (Figure 6) was used to remove the remaining lesion which produced good hemostasis and sutures were placed. An obturator was placed to protect surgical site made of cold cure acrylic resins (Figure 7).

Histopathological study showed (Figure 9, 10) polypoidal mass covered by hyperplastic parakeratinized stratified squamous epithelium with areas of ulceration. The stromal tissue is moderately collagenous and hypercellular. Numerous uniform plump endothelial cells with vesicular nucleus arranged in lobular pattern interspersed with many small vascular spaces are observed. Moderate infiltration with chronic inflammatory cells predominantly lymphocytes and proliferating fibroblasts also seen suggestive of Pyogenic Granuloma. Follow up was done under regular intervals to check the postoperative healing and recurrence.

III. DISCUSSION:

Pyogenic granuloma is a well-recognized inflammatory hyperplastic oral lesion which comprises about 1.85% of all oral pathologies, other than caries and gingivitis¹². The term "pyogenic granuloma" is a misnomer because the lesion does not contain pus and is not strictly speaking a granuloma. The scientifically accurate term for this entity is lobular capillary hemangioma¹³. Approximately one-third of the lesions occur due to trauma and poor oral hygiene may also be one of the precipitating factors¹⁴. Some authors regard pyogenic granuloma as an "infectious" entity. Kerr¹⁵ has reported staphylococci and botryomycosis, foreign bodies, and localization of infection in walls of blood vessel as contributing factors in the development of the lesion. Reichart et al.¹⁶ stated that granulation tissue in oral pyogenic granuloma may become contaminated by flora of oral cavity and its surface may often become covered by fibrin which may mimic pus. However, suppuration is not a characteristic of oral pyogenic granuloma to support infectious origin¹⁶. Ainamo¹⁷ suggested that trauma can cause release of various endogenous substances including angiogenic factors from the tumor cells and it may also cause disturbances in the vascular system of the affected area. Cutaneous lesion may also occur over vascular malformations, such as a nevus flammeus (port-wine stain) with a predilection for the head and neck region, followed by the trunk and extremities for children¹⁸. 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 hormones¹⁹. This paper presents a case of a pyogenic granuloma in the anterior hard palate managed by surgical intervention.

The histologic features of pyogenic granuloma in general shows exuberant granulation tissue which is covered by atrophic/hyperplastic epithelium that may be ulcerated at times and reveals fibrinous exudates. Presence of numerous endothelium-lined vascular spaces and proliferation of fibroblasts and budding endothelial cells are the characteristic features of pyogenic granuloma. Presence of mixed inflammatory cell infiltration is also observed.²⁰ Differential diagnosis of pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, fibroma, peripheral odontogenic fibroma, hemangioma, conventional

granulation tissue, hyperplastic gingival inflammation, Kaposi's sarcoma, bacillary angiomatosis, angiosarcoma, and NonHodgkin's lymphoma^{21,22}.

Treatment of oral PGS in many instances is surgical excision of the lesion followed by removal of all visible sources of irritation that can evoke the lesion²³. Diverse treatment modalities include drugs of intralesional steroids, flash lamp, cryosurgery, sclerotherapy, and different types of lasers like Nd: Yttrium-aluminum-garnet, Argon, CO₂²⁴. Positive results exist with use of Erbium ablative laser for the treatment of isolated mucosal PGs of pediatric patients. Vilmann et al.²⁵ noticed lesser recurrence rate with lesions from other oral mucosal sites when compared to gingival cases. Sapp et al.²⁶ asserted relatively high recurrence rate after simple excision²⁵. Higher recurrence rate makes the follow-ups essential part of treatment.

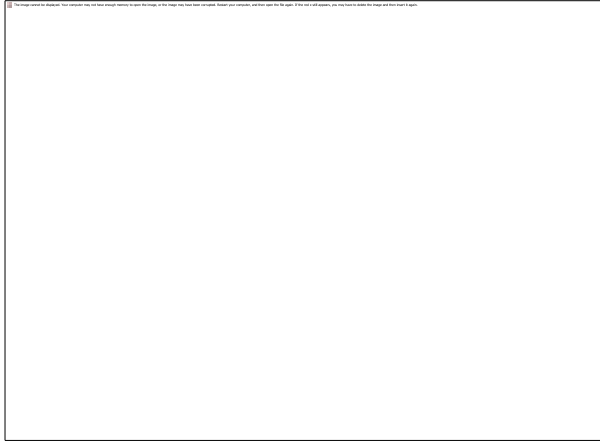
The site of surgical excision showed good healing with no scar formation and on subsequent recall visit showed no signs of recurrence after 6 months.

IV. CONCLUSION:

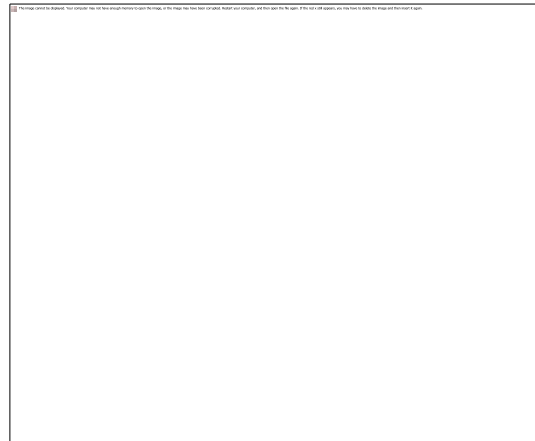
Pyogenic Granuloma is a well-known and a commonly present lesion of the oral mucosa which causes pain and discomfort to the patient especially in children. Hence early diagnosis and prompt treatment is very important to prevent further complications. Varied reasons are possible for its occurrence and can be presented in a wide variety of forms. So, it should always be kept in mind while diagnosing a reddish hyperplastic growth and adequate treatment should be done accordingly. The treatment should consist in the removal of the causal factor and subsequently in the excision of the specimen for histological evaluation in order to complete the diagnosis.

REFERENCES:

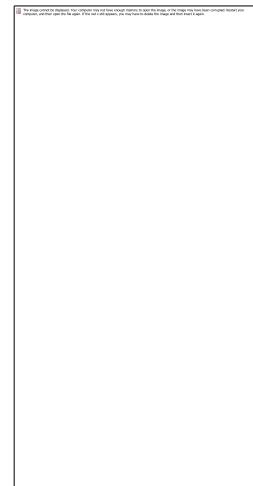
- [1]. Pallavi Yadav., et al. "Management of Misnomer Pyogenic Granuloma in 7 Year Old Paediatric Patient - A Case Report". *Acta Scientific Paediatrics* 4.7 (2021): 26-30.
- [2]. Kamal R, Dahiya P, Puri A. Oral pyogenic granuloma: Various concepts of etiopathogenesis. *J Oral Maxillofac Pathol* 2012;16:79-82.
- [3]. Poncet A, Dor L. Botryomycose humaine. *Rev Chir* 1897;18:996- 1003
- [4]. Ojanotko-Harri AO, Harri MP, Hurttia HM, Sewón LA. Altered tissue metabolism of progesterone in pregnancy gingivitis and granuloma. *J Clin Periodontol*. 1991 Apr;18(4):262-6. Doi: 10.1111/j.1600-051x.1991.tb00425. x. PMID: 1856307.
- [5]. Pagliai KA, Cohen BA. Pyogenic granuloma in children. *Pediatr Dermatol*. 2004 Jan- Feb; 21(1):10-3.
- [6]. Amirchaghmaghi, F. Falaki, N. Mohtasham, P.M. Mozafari. Extragingival pyogenic granuloma: a case report. *Cases J*, 1 (2008), pp. 371. <http://dx.doi.org/10.1186/1757-1626-1-371> | Medline
- [7]. Neville B, Damm D, Allen C, Bouquout J. *Oral and Maxillofacial Pathology*. 3th Edition. Saunders. 2009\
- [8]. Rai S, Kaur M, Bhatnagar P. Laser: a powerful tool for treatment of pyogenic granuloma. *J Cutan Aesthet Surg*. 2011; 4:144-147. Doi: 10.4103/0974-2077.85044.
- [9]. Asnaashari M, Mehdipour M, moradiabbasabadi F, Azari-Marhabi S. Expedited removal of pyogenic granuloma by diode laser in a pediatric patient. *J Lasers Med Sci*. 2015;6:40-44.
- [10]. H. Jafarzadeh, M. Sanatkhan, N. Mohtasham., Oral pyogenic granuloma: a review. *J Oral Sci*, 48 (2006), pp. 167-175. Medline.
- [11]. Kapadia SB, Heffner DK. Pitfalls in the histopathologic diagnosis of pyogenic granuloma. *Eur Arch Otorhinolaryngol*. 1992;249(4):195-200.
- [12]. Asnaashari M, Bigom-Taheri J, Mehdipour M, Bakhshi M, Azari-Marhabi S. Posthaste outgrow of lip pyogenic granuloma after diode laser removal. *J Lasers Med Sci*. 2014;5:92-95.
- [13]. Mills SE, Cooper PH, Fechner RE. Lobular capillary hemangioma: the underlying lesion of pyogenic granuloma. A study of 73 cases from the oral and nasal mucous membranes. *Am J Surg Pathol*. 1980 Oct;4(5):470-9.
- [14]. Bhaskar SN, Jacoway JR. Pyogenic granuloma: clinical features, incidence, histology, and result of treatment: report of 242 cases. *J Oral Surg* 1966; 24(5): 391-8
- [15]. Kerr DA. Granuloma Pyogenicum. *Oral Surg* 1951 4:158.
- [16]. Peter A. Reichart, Hans Peter Philipsen. *Color Atlas of Dental Medicine Oral Pathology*. Stuttgart: Thieme; 2000. P. 163.
- [17]. Ainamo J. The effect of habitual tooth cleaning on the occurrence of periodontal disease and dental caries. *Suom Hammaslaak Toim* 1971;67:63.
- [18]. Patrice SJ, Wiss K, Mulliken JB. Pyogenic granuloma (lobular capillary hemangioma): a clinicopathologic study of 178 cases. *Pediatr Dermatol*. 1991 Dec;8(4):267-76.
- [19]. Lawoyin J, Arotiba J, Dosumu O. Oral pyogenic granuloma: a review of 38 cases from Ibadan, Nigeria. *Br J Oral Maxillofac Surg* 1997; 35(3): 185-9..
- [20]. Shafer W. G., Hynes M. K., Lcvy H. M. *Shafer's Textbook of Oral Pathology*. 4th. Philadelphia, Pa, USA: WB Saunders; 1983.
- [21]. Peter A. Reichart, Hans Peter Philipsen. *Color Atlas of Dental Medicine Oral Pathology*. Stuttgart: Thieme. 2000:163.
- [22]. Wood NK, Goaz PW. *Differential diagnosis of oral and maxillofacial lesions*. 5th ed. Missouri: Mosby; 1998. P. 129.
- [23]. Lawoyin JO, Arotiba JT, Dosumu OO. Oral pyogenic granuloma. A review of 38 cases from Ibadan, Nigeria. *Br J Oral Maxillofac Surg*. 1997;35(3):185- 9.
- [24]. Jafarzadeh H, Sanatkhan M, Mohtasham N. Oral pyogenic granuloma: A review. *J Oral Sci* 2006;48:167-75.
- [25]. Vilmann A, Vilmann P, Vilmann H. Pyogenic granuloma: Evaluation of oral conditions. *Br J Oral Maxillofac Surg*. 1986;24:376-82.
- [26]. Sapp JP, Eversole LR, Wyoscki GP. *Contemporary oral and maxillofacial pathology*. 2nd ed. Missouri: Mosby; 1997. pp. 318-22.



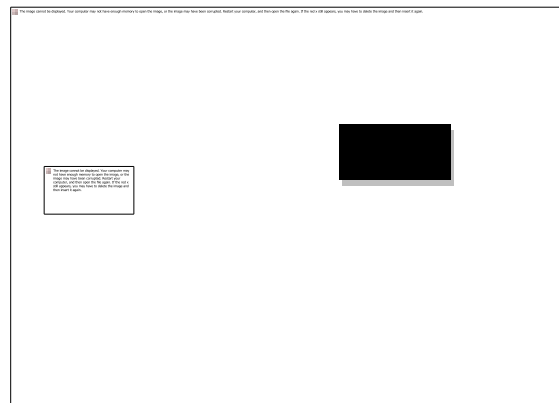
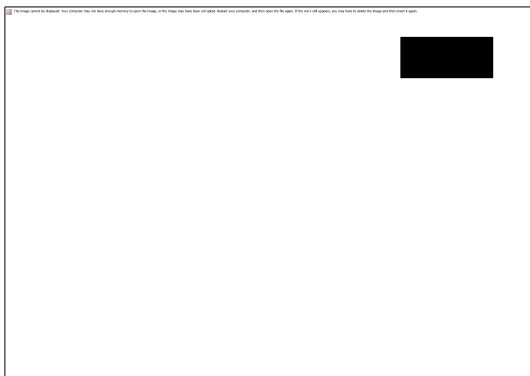
Photograph from first visit(Fig 1)



Pre operative photograph (Fig 2)



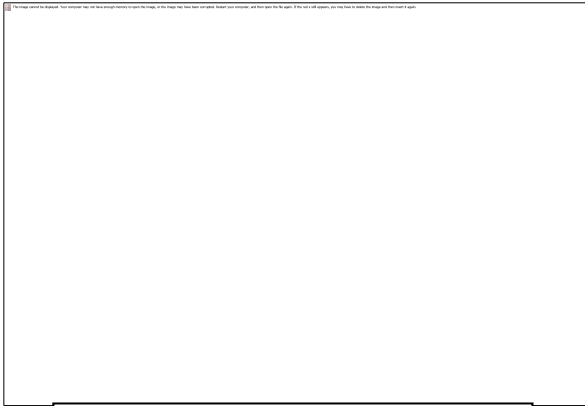
Nevus flammeus (port-wine stain)(Fig 3)



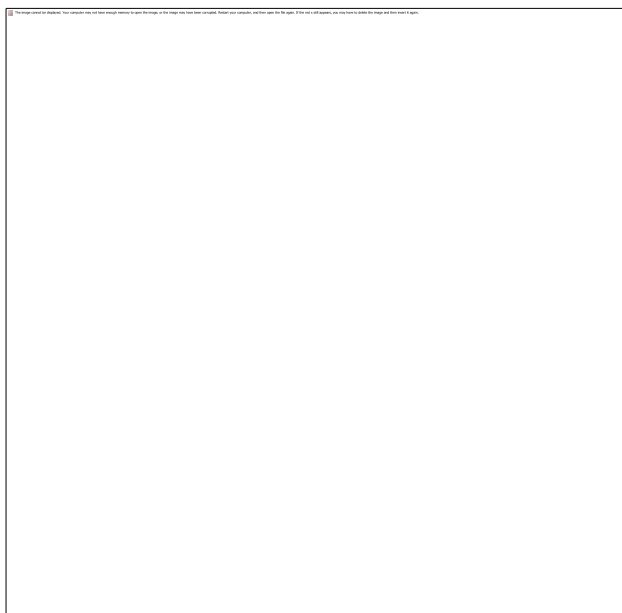
Surgical excision (Fig 4)



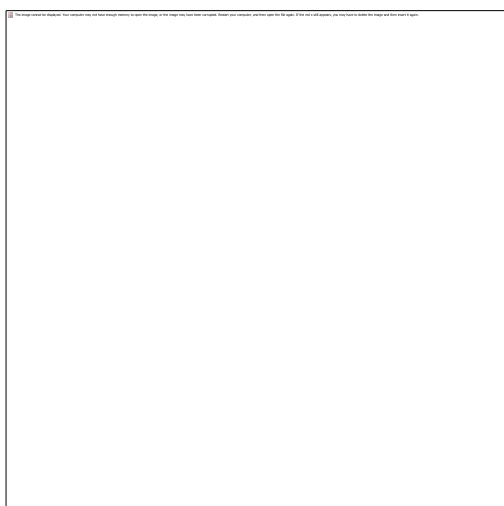
Electro cauterization (Fig 5)



After excision (Fig 6)



Placement of obturator(Fig 7)



Histo pathologic features

**Post surgical review after one month
(Fig 8)**



Photomicrograph showing H & E section showing numerous vascular spaces, endothelial cell proliferation and dense infiltration of chronic inflammatory cells.



Photomicrograph showing H & E section showing dense aggregation of plump endothelial cells surrounding vascular spaces. (40X) (Fig 10)