



Journal homepage: www.mcmed.us/journal/ijacr

PYOGENIC GRANULOMA OF RIGHT DORSUM OF HARD PALATE IN A 13 YEAR OLD GIRL: A CASE REPORT

Richa Wadhawan^{1*}, Gaurav Solanki², Arjun Deo Singh¹, Anubhav Jain¹

¹Institute of Dental Education & Advance Studies, Gwalior, Madhya Pradesh, India.

²Jodhpur Dental College, Jodhpur, India.

Corresponding Author: - Richa Wadhawan

E-mail: richawadhawan@gmail.com

Article Info

Received 15/04/2015

Revised 27/05/2015

Accepted 10/06/2015

Key words:

Pyogenic granuloma,
Maxilla, Benign
Lesion, Surgical
Excision, Unusual
Etiology.

ABSTRACT

Pyogenic granuloma is a relatively common benign mucocutaneous lesion occurring intra orally or extra orally. The exact etiopathogenesis remains unknown, although contributory factors include trauma, inflammation and hormonal alterations. Intraoral lesions are sometimes associated with pregnancy. It is manifested as a sessile or pedunculated, resilient, erythematous, exophytic and painful papule or nodule with a smooth or lobulated surface that bleeds easily. It predominantly affects the gingiva, but may also occur on the lips, tongue, oral mucosa and palate. Treatment is surgical excision to exclude angiomatic proliferation. The condition is frequently associated with recurrence, and has more predilections towards females. Here by, presenting a case of pyogenic granuloma in a 13 years old female child on right posterior dorsum of hard palate.

INTRODUCTION

Pyogenic granuloma also known as a "Eruptive hemangioma", "Granulation tissue-type hemangioma", "Granuloma gravidarum", "Lobular capillary hemangioma", "Pregnancy tumor", "Tumor of pregnancy", Crocker and Hartzell's disease, Vascular epulis, Benign vascular tumor, Hemangiomatosis granuloma, Epulis teleangiectaticum granulomatosa [1]. The term inflammatory hyperplasia is used to describe a large range of nodular growths of the oral mucosa that histologically represents inflamed fibrous and granulation tissue. There are two kinds of pyogenic granuloma namely lobular capillary hemangioma (LCH type) and non LCH type, which differs in their histological features. Pyogenic granulomas usually present as smooth or lobulated red-to-purple masses that may be either pedunculated or sessile. These tumors are soft to palpation. It is a vascular lesion that occurs on both mucosa and skin, and appears as an overgrowth of tissue due to irritation, physical trauma or hormonal factors [2]. It is often found to involve the gums, the skin and nasal septum, and has also been found far

from the head such as in the thigh. It is primarily an oral disease which appears as an overgrowth of tissue due to irritation, physical trauma or hormonal factors. It was first reported in the English literature by Hullihen in 1844 [3]. The term pyogenicum was introduced by Hartzell in 1904 [4].The name is misnomer because it is not a true granuloma. In actuality, it is a capillary hemangioma of the lobular subtype, which is the reason they are often quite prone to bleeding. It is also not truly "pyogenic," as the origin is mostly traumatic and not infectious. It arises in response to various stimuli such as chronic low-grade irritation, traumatic injury and hormonal factors. Poor oral hygiene may be a precipitating factor in many of these patients. Some factors such as inducible nitric oxide synthase, vascular endothelial factor, fibroblast growth factor, or connective tissue growth factor are known to be involved in angiogenesis and rapid growth of pyogenic granuloma.

It predominantly occurs in young females in the second decade of life, possibly because of a vascular effect



due to hormonal changes. It occurs in 1% of pregnant women. The appearance of lesion is usually a color ranging from red/pink to purple, and can be smooth or lobulated. Younger lesions are more likely to be red because of the high number of blood vessels. Older lesions begin to change into a pink color. Lesion can be a pedunculated or sessile mass with a broad base. Its size ranges from a few millimeters to centimeters. It can be painful, especially if located in an area of the body where it is constantly disturbed. It can grow rapidly and will often bleed profusely with little or no trauma. The most frequent intraoral site is the gingiva (approximately 75%). It can also occur on the lips, tongue, buccal mucosa, palate and floor of the mouth. The diagnosis can be confirmed by preparing histological sections of the biopsy specimens [5].

Case Report

A 13 year old girl was referred from Gajara Raja Medical College reported to outpatient department of Oral Medicine, Diagnosis & Radiology, and Institute of Dental Education & Advance Studies in Gwalior with chief complaint of a painless and gradual swelling in her right upper back jaw region. Patient was asymptomatic 2 months back. Then she noticed swelling in the right upper jaw region which gradually progressed to the present extent. Patient was afebrile during the progress of swelling. Patient gave no history of impingement of any sharp object or trauma inside the mouth & also has no difficulty in deglutition. Patient gave history of occasionally having throbbing and radiating pain in the head. Patient never had feeling of numbness while progress of the lesion. Extra oral examination reveals no facial asymmetry (**Fig1**). Intra-oral examination revealed solitary, dome shaped, pinkish purple unilateral expansive swelling present on the dorsum of the hard palate extending from 16 to 17 up to the junction of hard and soft palate of size roughly 4.5 X 5 cm

extending 1 cm away from the midline of the hard palate with broad surface (**Fig 2**). The overlying mucosa was normal. On palpation swelling was soft to firm, non tender, sessile, compressible & lobular on palpation. No discharge was present. There was also expansion of the palate. There was absence of bruits, thrills, and pulse pressure. Diascopy test was found negative. The lesion started bleeding as small fragment of tissue was traumatized while performing diascopy test (**Fig 3**).

Panoramic radiograph & Paranasal sinus view was taken. A panoramic radiograph showed ill defined radiopaque shadow in right maxillary posterior region over apices of roots 16 17. There is no discontinuity in lining of maxillary sinus (**Fig 4**). The radiograph showed no displacement of tooth. None of the tooth had resorption of roots. PNS view revealed obliteration of right maxillary sinus without any disruption in lining of the floor of right maxillary sinus (**Fig 5**).

The lesion was provisionally diagnosed as pyogenic granuloma with differential diagnosis kept as giant cell granuloma. Patient was sent for laboratory investigations & Computed tomography scans. Laboratory tests including calcium, alkaline phosphatase, phosphate, parathyroid hormone and urine analysis were normal. Patient was found negative for human immunodeficiency virus.

The lesion was sent for histopathological examination. Histological examination of the specimen showed angiomatous tissue infiltrated and surrounded by polymorphs, few lymphocytes & eosinophils, foci of necrosis & hemorrhage are also seen (**Fig 6**).

Findings were suggestive of pyogenic granuloma. Considering the size and extent of the lesion, it was decided to do surgical excision. The patient was recalled after a week and the excised area was evaluated for healing. Healing was satisfactory.

Figure 1. Extra oral examination reveals no facial asymmetry



Figure 2. Intraoral examination reveals dome shaped reddish pink swelling on right half of dorsum of hard palate



Figure 3. Profuse bleeding from soft tissue swelling on applying pressure with slide while performing diascopy test



Figure 5. Panoramic radiograph revealing no disruption in lining of right maxillary antum

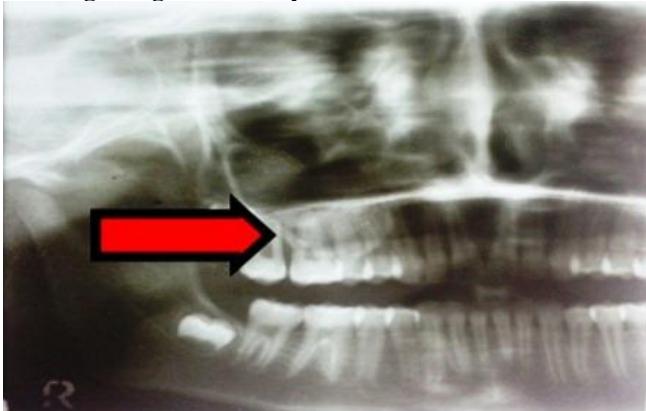


Figure 4. Paranasal sinus view reveals obliteration of right maxillary sinus

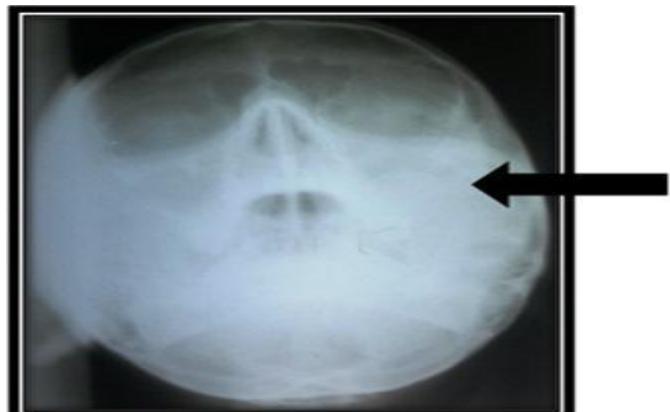
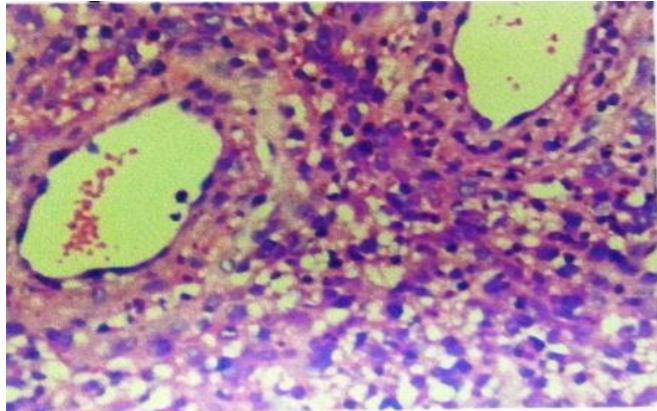


Figure 6. Histopathological slide of the lesion



DISCUSSION

Pyogenic granuloma was first described in 1897 by two French surgeons, Poncet and Dor, who named this lesion botryomycosis hominis. Size ranges from a few millimeters to centimeters. This is not to say that the pyogenic granuloma cannot be bigger but it is more common to see one within these measurements. Pyogenic granuloma, also called as granuloma pyogenicum is a reactive inflammatory hyperplasia which appears as exuberant proliferation in response to various stimuli such as low grade local irritation and traumatic injury. In majority of cases, minor trauma or irritation are cited in the etiopathogenesis of pyogenic granuloma. Infection may play a role with suggestions of agents such as streptococci and staphylococci. Recently angiopoietin and ephrin B2 agents in other vascular tumors such as *Bartonella henselae* B. Quintana and human herpes virus 8 have been postulated to play a part in recurrent form. Viral oncogenes, hormonal influences, microscopic arteriovenous malformation along with inclusion bodies and gene depression in fibroblast have all been implicated. [6]. Clinically these lesions usually present as single nodule

or sessile papule with smooth or lobulated surface and may be seen in any size from a few millimeters to several centimeters. As lesion matures, the vascularity decreases and the clinical appearance are more collagenous and pink. The peak prevalence is in teenagers and young adults with a female predilection. It preferentially affects the gingiva, but may also occur on the lips, tongue, oral mucosa and palate. It can be painful, especially if located in an area of the body where it is constantly disturbed. Pyogenic granulomas can grow rapidly and will often bleed profusely with little or no trauma. Some cases may also include the granuloma leaking oil like substance causing the surface to be damp [7].

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 destructions suggestive of malignancy or to identify a foreign body. Differential diagnosis includes peripheral giant cell granuloma, peripheral ossifying fibroma, peripheral odontogenic fibroma, hyperplastic gingival inflammation, Kaposi's sarcoma, angiosarcoma

& hemangioma [8]. Two lesions, peripheral ossifying fibroma and peripheral giant cell granuloma, are clinically identical to the pyogenic granuloma when they occur on the gingiva. If 100 biopsies of pyogenic granuloma–appearing lesions of the gingiva are submitted for histologic examination, approximately 85% will be pyogenic granulomas, 10% will be peripheral ossifying fibromas and 5% will be peripheral giant cell granulomas [9]. The pyogenic granuloma can occur anywhere in the oral cavity, whereas the peripheral ossifying fibroma and peripheral giant cell granuloma only occur on the gingiva or alveolar mucosa. The clinical appearance, treatment and prognosis are the same for all three entities. The pyogenic granuloma most frequently develops on the buccal gingiva in interproximal tissue between teeth. A history of trauma is common in extra gingival sites, whereas most lesions of the gingiva are a response to irritation. Individuals with poor oral hygiene and chronic oral irritants such as overhanging restorations & calculus most frequently are affected. No racial predilection is reported. Females are far more susceptible than males because of the hormonal changes that occur in women during puberty, pregnancy, and menopause [10].

The pyogenic granuloma has been called a "pregnancy tumor" and does occur in 5% of pregnant women. Hence terms like pregnancy tumor and granuloma gravidarum are commonly used. The increased incidence of these lesions during pregnancy may be related to the increasing levels of estrogen and progesterone. Mastication on the lesion can cause bleeding and pain and can require surgical intervention before parturition in lesions associated with pregnancy. When possible, wait until after delivery to remove the lesion in pregnant women because of a greater tendency for recurrence during pregnancy. Some pyogenic granulomas regress after childbirth without surgical intervention. Pyogenic granulomas occur at any age, but they most frequently affect young adults. It is a reactive inflammatory process filled with proliferating vascular channels, immature fibroblastic connective tissue, and scattered inflammatory cells. The surface usually is ulcerated and the lesion exhibits a lobular architecture [11]. Early lesions bleed easily due to extreme vascularity. Pyogenic granulomas can have a rapid growth pattern that can cause alarm. If left alone, a number of pyogenic granulomas undergo fibrous maturation and resemble and/or become fibromas. The typical lesion involves the interproximal gingiva and increases in size to cover a portion of the adjacent teeth. The maxillary gingiva especially anterior region is involved more frequently than the mandibular gingiva; the facial gingiva is involved more than the lingual gingiva. A number of lesions affect both the facial and lingual gingivae. The treatment of choice is conservative surgical excision for gingival lesions as well

as extraoral gingival sites. Other treatment protocols have also been suggested.

Lasers such as Nd: YAG and CO₂ Laser can also be used for surgical excision with minimal bleeding. Ishida and Ramos-e-Silva [12] believed that cryosurgery is a very useful technique for the management of this lesion. Moon et al. [13] reported that sodium tetradeeyl sulfate sclerotherapy successfully cleared the lesions in most patients without major complications.

Parisi et al. [14] used a series of intralesional corticosteroid injections particularly highly recurrent lesions. A preventive measure consists of adequate home care measures with regular dental check up and oral prophylaxis, especially during pregnancy. Lesions removed during pregnancy may have a higher recurrence rate. After excision, recurrence occurs in up to 16% of the lesions. Recurrence is believed to result from incomplete excision, failure to remove etiologic factors or re-injury of the area, making follow up necessary. Some recurrences manifest as multiple deep satellite nodules that surround the site of the original lesion. For gingival lesions, excising the lesion down to the periosteum and scaling adjacent teeth to remove any calculus and plaque that may be a source of continuing irritation is recommended. Pyogenic granuloma occasionally recurs and excision is necessary [15]. The only outpatient care is observation of the surgical healing 1 week after removal. Prevention consists of routine dental cleanings and home care. No complications are anticipated with removal of this lesion other than the chance of a cosmetic defect. The prognosis is excellent, and the lesion usually does not recur unless inadequately removed. Focus patient education on better oral hygiene, and consider recommending pulsating mechanical toothbrushes with timers. These toothbrushes encourage better hygiene. But before treating any case, the etiology must be clearly identified and eradicated. Before attempting surgical excision of the lesion, a thorough oral prophylaxis should be performed because local factors such as plaque and calculus are the most important etiologic factors for lesion. If the lesion is small, painless and free of bleeding, oral prophylaxis, removal of causative irritants (foreign materials, source of trauma) and follow-up are advised. Lesions of large size are treated by a thorough oral prophylaxis followed by surgical excision using gingivectomy or flapsurgery procedures [16].

CONCLUSION

Pyogenic granulomas are commonly encountered soft tissue enlargements. Careful diagnosis is essential to differentiate this lesion from vascular lesions. Meticulous oral hygiene should be instituted. Surgical excision of the growth, along with curettage should be done to prevent recurrences of this common lesion.

REFERENCES

1. Sills ES, Zegarelli DJ, Hoschander MM, Strider WE. (1996). Clinical diagnosis and management of hormonally responsive oral pregnancy tumor (pyogenic granuloma). *J Reprod Med*, 41, 467-70.



2. Vilmann A, Vilmann P, Vilmann H. (1986). Pyogenic granuloma: evaluation of oral conditions. *Br J Oral Maxillofac Surg*, 24, 376-82.
3. Hartzell MB. (1904). Granuloma pyogenicum. *J Cuttan Dis Syph*, 22, 520-5.
4. Hullihen SP. (1844). Case of aneurism by anastomosis of the superior maxillae. *Am J Dent Sci*, 4, 160-2.
5. Bhaskar SN, Jacoway JR. (1966). Pyogenic granuloma-- clinical features, incidence, histology, and result of treatment: report of 242 cases. *J Oral Surg*, 24, 391- 8.
6. Jafarzadeh H, Sanatkhan M, Mohtasham N. (2006). Oral pyogenic granuloma: A review. *J Oral Sci*, 48, 167-75.
7. Zain R, Khoo S, Yeo J. (1995). Oral pyogenic granuloma clinical analysis of 304 cases. *Singapore Dent J*, 20, 8-10.
8. Reet Kamal, Parveen Dahiya, Abhiney Puri. (2012). Oral pyogenic granuloma: various concepts of etiopathogenesis. *Journal of Oral and Maxillofacial Pathology*, 16(1), 79-82.
9. Ramirez K, Bruce G: carpenter. (2002). Wpyogenic granuloma: case report in a 9-year-old girl. *General Dentistry*, 50, 280-1.
10. Powell JL, Bailey CL, Coopland AT, Otis CN, Frank JL, Meyer I. (1994). Nd: YAG laser excision of a giant gingival pyogenic granuloma of pregnancy. *Lasers Surg Med*, 14, 178-83.
11. White JM, Chaudhry SI, Kuder JJ, Sekandari N, Schloelch ML, Silverman S. (1998). Nd: YAG and CO₂ laser therapy of oral mucosal lesions. *J Clin Laser Med Surg*, 16, 299-304.
12. Ishida CE, Ramos-e-Silva M. (1998). Cryosurgery in oral lesions. *Int J Dermatol*, 37, 283-5.
13. Moon SE, Hwang EJ, Cho KH. (2005). Treament of pyogenic granuloma by sodium tetradecyl sulfate sclerotherapy. *Arch Dermatol*, 141, 644-6.
14. Parisi E, Glick PH, Glick M. (2006). Recurrent intraoral pyogenic granuloma with satellitosis treated with corticosteroids. *Oral Dis*, 12, 70-2.
15. Jafarzadeh H, Sanatkhan N, Mohtasham N. (2006). Oral pyogenic granuloma: a review. *Journal of Oral Science*, 48, 167-175.
16. Chinnannavar N, Bellguppa P, Kodige CV, Sakri SB. (2013). Extragingival pyogenic granuloma: A rare case report. *Journal of the Scientific Society*, 40, 49-51.

