Extra Gingival Pyogenic Granuloma: Unusual Location for the Usual Lesion

Arya S Nalin¹, Suja George², Renju M Kunjumon¹, P Rajesh Raj¹, Giju Baby George³

¹Post-graduate Student, Department of Oral Medicine and Radiology, Mar Baselios Dental College, Kothamangalam, Kerala, India, ²Post-graduate Student, Department of Oral and Maxillofacial Pathology, Mar Baselios Dental College, Kothamangalam, Kerala, India, ³Professor, Department of Oral Medicine and Radiology, Mar Baselios Dental College, Kothamangalam, Kerala, India

Pyogenic granuloma (PG) is a benign non-neoplastic mucocutaneous lesion formed in reaction to mild irritation or hormonal changes. Although this fairly common lesion has a striking predilection for the gingiva, it can also be found extra gingivally. The clinical diagnosis of such an uncommon extra gingival PG can be quite challenging as the lesions appear as smooth or lobulated red nodules with easy bleeding, occasionally ulcerated mimicking malignancies. The purpose of this article is to report an unusual case of extra gingival PG occurring on the upper lip. The diagnosis of oral lesions is complex due to distinct appearance of the same lesion and leads the clinician to consider lesions with different diagnostic methods.

Keywords: Extra gingival, Granuloma pyogenicum, Pregnancy tumor, Pyogenic granuloma, Tumor

INTRODUCTION

Pyogenic granuloma (PG) is one of the common benign tumor-like proliferations affecting the oral cavity with the term “pyogenic” being used erroneously as this condition neither produce purulent secretion nor this condition is related to infection. This lesion is also known as pregnancy granuloma or pregnancy tumor as it occurs in pregnant women. Other synonyms of this lesion includes vascular epulis, benign vascular tumor, and hemangiomatous granuloma.

Several authors consider PG as an inflammatory hyperplasia that ulcerates due to trauma during mastication. Traumatic events will make the lesion contaminated with oral flora and liquids which in turn produce an acute inflammatory response. Clinically, the lesion showed necrotic white material resembling pus, thus impelled clinicians to refer to these lesions as the PG. Based on histological appearance some authors preferred to use the term lobular capillary hemangioma instead of PG.

PGs are particularly seen in the anterior segment of the gingiva where they were presumably caused by calculus or foreign body within the gingival crevice. This lesion has no age predilection and tends to occur more common in females than in males. The female sex predominance can be due to the hormonal changes during puberty and pregnancy, which can modify the reparative gingival response to injury, producing so-called “pregnancy tumor.” These types of gingival lesions most common occur in the second and third trimesters of pregnancy, and will usually resolve soon after delivery. PG like lesions are mostly accompanied by multiple gingival lesions or generalized gingival hyperplasia.

It is uncommon to find extra gingival PG, but it can appear elsewhere in the mouth, i.e. in areas of frequent trauma, such as the alveolar mucosa, buccal mucosa, tongue, upper and lower lip, and in edentulous regions. This type of lesion occurring on the skin may occur at any age commonly involving the hands, forearms, and face, and are thought to be caused by minor trauma. Clinically, this lesion begins as small, red papules that rapidly increase in size ranging from a few millimeters to several centimeters not more than 4 cm in diameter. These lesions can also appear as asymptomatic, pedunculated, raspberry like nodules, which may become ulcerated due to secondary trauma. The lesions may be initially covered by yellow, fibrous membrane or by the epithelium of variable thickness making these lesions so delicate which bleeds on minor trauma. These lesions may have an initial period of rapid growth, followed by stabilization and regression. Very rarely PG causes displacement of teeth resulting

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Corresponding Author:
Dr. Arya S Nalin, Department of Oral Medicine and Radiology, Mar Baselios Dental College, Kothamangalam, Kerala, India.
E-mail: aryaaneesho027@gmail.com
in malocclusion. As features, but can aid in ruling out any other lesions clinically mimicking PG. According to literature, only very few cases of PG have been reported to cause bone loss, but there was no resorption of the root of the teeth in the affected region.

In the histologic section, PGs appears as exophytic masses covered by fibro purulent membrane or by an atrophic to proliferating keratinized epithelium. These sections usually show distinct lobular arrangement of connective tissue with central larger vessels and peripheral aggregates of well-formed capillaries. In some areas of the granulation tissue, especially areas adjacent to the necrotic or ulcerated surface clusters of polymorphonuclear leukocytes are present. Neutrophils may be seen in the superficial zone of ulcerated PGs. Necrosis may be seen in association with surface ulceration. The stroma of younger lesions is edematous with active fibroblasts, but advanced lesions undergo considerable fibrosis with few and mature fibroblasts. Immunohistochemistry shows that PGs express typical endothelial markers such as CD31.

**CASE REPORT**

A 20-year-old patient reported to the Department with the chief complaint of a growth on his upper lip (Figure 1). The patient initially noticed the swelling 2 weeks back that was initially small in size which gradually increased to the present size. The patient was asymptomatic expect for his concern for his compromised aesthetics due to the lesion. Patient’s history reveals he had a history of similar swelling in the same area about a year back which had been excised due to bleeding from the area. The patient’s personal history shows that he has the habit of habitual lip biting since 5-6 years. Patients medical dental and family history were non-contributory.

On extraoral examination, upper lip 1 cm above the vermillion border showed a solitary sessile pink swelling roughly ovoid in shape measuring about 1 cm × 0.5 cm in dimension with a smooth surface (Figure 2). On palpation, the lesion was soft to firm in consistency and was tender, non-productive, and non-fixed to underlying tissue. Based on clinical examination, we gave a provisional diagnosis of PG and the differential diagnosis of viral warts.

We did an excisional biopsy of the lesion, and the specimen was sent for histopathologic examination. The specimen on microscopic examination showed atrophic stratified squamous epithelium in association with fibrovascular connective tissue. Subepithelial connective tissue showed areas of endothelial proliferation which seems to get organized as capillary spaces. The lobules of endothelial cells were separated by connective tissue septa with deeper sections showing extravasated red blood cells (Figure 3). With these histopathologic findings, we confirmed the diagnosis of PG. The patient made a revisit to us after 3 months and as of now patient is doing well.
DISCUSSION

Poncet and Dor in 1897, first described PG of the oral cavity as “human botryomycosis” and the term “PG” was the first coined by Hartzell in 1904.

PGs have increased predilection to occur in the keratinized mucosa, often in the gingiva of the anterior segment of the maxillary jaw. It can occur in other sites of head and neck in areas of trauma including the buccal mucosa, the alveolar mucosa of edentulous ridge, the palate, and the lower lip. Lesions that occur due to traumatic injuries like, PGs rarely occurs in the floor of mouths the tongue provides protection to this area and also due to lack of sufficient connective tissue in the mucosa of this region. In the present case, the consistent trauma inflicted by habitual biting on the upper lip could have been the etiology behind the development of this lesion. Constant trauma along with poor oral hygiene and other hormonal factors can induce connective proliferations resulting in this type of lesions. A proper clinical history coupled with thorough clinical examination can aid in the diagnosis of these lesions.

The clinical appearance of this lesion depends on two factors, i.e., duration and vascularity of the lesion. PGs usually appear as red to purple nodular growth. The surface of the lesion can show areas of erythema or ulcerations due to impingement of the adjacent teeth during functions such as mastication or speech. Although PG can be diagnosed clinically, atypical presentations can lead to diagnostic dilemmas. The histopathology of extra gingival PG is similar to that occurring in the gingiva, showing proliferating vascular core in connective tissue stroma with the presence of acute or chronic inflammatory infiltrates depending on the etiology and duration and of the lesion.

Clinically, the differential diagnosis includes peripheral giant cell granuloma, peripheral odontogenic or ossifying fibroma, and vascular lesions such as hemangioma and rarely metastatic carcinomas. Due to its high cellularity and frequent mitotic activity, PG may rarely suggest the possibility of angiosarcoma. However, as PGs are circumscribed and display a lobular growth pattern, we can easily rule out angiosarcoma. Other possible differential diagnostic conditions including Kaposi sarcoma can be ruled out as deeper zones show formation of slitlike vascular spaces lined with hyperchromatic spindled cells exhibiting varying degrees of infiltration. Neoplasms can show similar vascular proliferations, and so it is imperative to do biopsy in doubtful areas to rule out any other tumors.

PG is usually treated conservatively by surgical excision and followed with oral prophylaxis for lesions occurring on the gingiva. If lesions are seen on the gingiva, then lesions should be excised down to the level of underlying periosteum. Other forms of treatment such as flash-lamp pulsed dye laser, neodymium-doped: Yttrium aluminium garnet laser, cryosurgery, intralesional injection of ethanol or corticosteroid, and sodium tetradecyl sulfate sclerotherapy. Recurrence of this type of lesion is frequent which might be due to incomplete excision, failure to remove predisposing factors or re-injury of the region. All these predisposing factors should be eliminated to prevent recurrence.

CONCLUSION

Considering the unusual frequency of PG on the lip, this case emphasizes the importance for the diagnosticians to be aware of unusual occurrence of these lesions, in order to provide the patient with an accurate diagnosis and appropriate treatment. We would also like to invite attention to the fact that surgical excision is the safest method for diagnosis and treatment of PG of the lip.

REFERENCES