Case Report

Pyogenic Granuloma in a Lactating Mother: An Unusual Case Presentation

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ABSTRACT:

Pyogenic granuloma is a non-neoplastic soft tissue overgrowth of skin or mucous membrane usually related to inflammatory etiology. It has various etiologic factors; upregulation of female steroid hormones is one of them. Here, we are reporting a case of pyogenic granuloma present on the left lateral border of the tongue in a lactating mother. Unlike the most pregnancy associated pyogenic granulomas, it did not undergo regression post parturition. The possible role of the hormones in the formation of pyogenic granuloma is also discussed here.

KEYWORDS: Pyogenic granuloma, pregnancy tumour, lobulated capillary hemangioma.

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INTRODUCTION:

Pyogenic granuloma or pregnancy tumour is a non-neoplastic soft tissue overgrowth of skin or mucous membrane generally arising as a result of inflammatory reaction.[1,2] Hullihen in 1844 was the first one to describe Pyogenic Granuloma in English literature[3], but the introduction of the term "pyogenic granuloma" or "granuloma pyogenicum" was given by Hartzell in 1904.[4] According to many authors, the term 'pyogenic granuloma' is a misnomer, as there is no granulomatous reaction or no pus formation seen.[5] However, the term is still in use. Pyogenic Granuloma (PG) is usually found on the cutaneous or mucosal surfaces. Among the latter, it most commonly affects the oral cavity,[6]generally affecting the keratinized tissue.[7] It is predominantly seen on the gingiva and most often the gingiva of maxillary anterior region is affected.[8,9]It can affect other oral sites such as lip, tongue, and buccal mucosa. Here, we present a rather unusual case of PG of the tongue in a lactating mother.

CASE REPORT:

A 25-year-old lactating mother to a 14 months old infant was referred to the OPD with a swelling on left lateral border of the tongue. Patient first noticed a small growth on left lateral border of the tongue in the 2nd trimester of her pregnancy about 6 months back, which gradually increased to the present size. No history of associated pain and any other associated symptoms were present, except for a slight discomfort reported by the patient while eating food. Patient did not recollect any history of allergy to any medications. On inspection, a pedunculated growth of quadrangular shape with pinkish white colour and with an approximate size of 3x2x2 cm was present on left lateral border of the tongue extending up to the dorsum of the tongue. The surface of the lesion was rough on palpation and was firm in consistency with irregular borders. The growth was non tender, non-fluctuant and non- compressible. No discharge was present. Temperature over the lesion was normal. The

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inspectory findings of size and shape were confirmed with palpation and a provisional diagnosis of pyogenic granuloma was given (Figure 1).

Figure 1: Pinkish white pedunculated growth measuring 3x2x2 cm present on left lateral border of tongue.

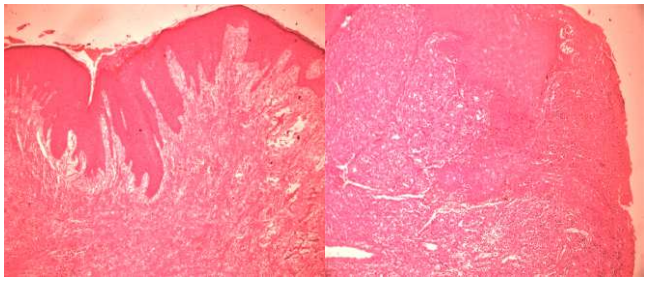

Figure 2: H & E stained section showing proliferated parakeratinized stratified squamous epithelium with underlying vascular connective tissue composed of inflammatory cell infiltrate.

Patient was advised to undergo excision of the lesion and was referred to the department of Oral Surgery for further treatment. After routine blood investigations in the department of Oral Pathology, an excisional biopsy of the lesion was performed under local anesthesia with due consent of the patient in the department of Oral Surgery. The tissue was sent for histopathological examination in the department of Oral Pathology.

A single bit of soft tissue specimen quadrangular in shape measuring 3x2x2 cm in size having irregular surface and firm consistency with reddish brown colour was received. Microscopic examination showed proliferated parakeratinized stratified squamous epithelium of varying thickness with an area of surface ulceration. Underlying connective tissue was composed of moderate chronic inflammatory cell infiltration and rich vascularity with endothelial cell proliferation confirming the diagnosis of pyogenic granuloma (Figure 2).

Excisional biopsy of the lesion was carried out and oral prophylaxis was done. Patient has not reported any recurrence for last six months after excision.

DISCUSSION:

PG is a tumour-like lesion, the pathogenesis of which is still unclear. It was initially considered to be a botryomycosis infection. Hence, the term 'pyogenic' was used. However, many authors believe that the etiology of PG is inflammatory in origin. Hence, PG is considered to be a kind of inflammatory hyperplasia. It is thought to arise as the reaction of tissues to minor injury or chronic irritation[10].These may include chronic irritation from dental calculus or retained teeth roots and trauma[12]. About one-third cases are associated with a history of traumatic injury, especially the extragingival PG[1,15]. Poor oral hygiene is a precipitating factor in many of the patients[1,15]. Certain drugs like cyclosporin have also been associated with the formation of PG[10]. The lesion in the present case started in the second trimester of pregnancy and continued to increase in size. An increased incidence of PG in pregnant women suggests a role of hormonal factors in the etiopathogenesis of this lesion. Hence, terms “pregnancy tumor,” “pregnancy epulis” and “granuloma gravidarum” are often used[7]. There is a striking predilection for gingiva in majority of pregnancy induced pyogenic granulomas (about 75% cases)[11,16]. The occurrence of the present case on the left lateral border of the tongue in a pregnant woman creates a rather unusual clinical presentation.

The lesion grossly appears as a solitary, red, pedunculated papule that is very friable. Less commonly, it may be a sessile plaque like lesion. It generally shows a rapid exophytic growth, with an ulcerated surface.[6]Sometimes, it shows a slow growth and takes weeks to months to reach optimal size[12]. It can occur in any age group; however, incidence is more common in females in second decade of life. Male-to-female ratio is 1:1.5[17].The colour of the lesion ranges from pink to red to purple depending upon the age of the lesion. Young PGs are red due to rich vascularity with prominent capillaries. As the lesion becomes old, it develops pink colour due to collagenization[1]. Present case showed a slower growth rate and a pinkish white colour rather than usual reddish pink colour, which suggests an old lesion.

In pregnancy, female steroid hormones may have a dual role on the pathogenesis of pyogenic granuloma. Due to the effect of the female steroid hormones- Estrogen and Progesterone, the concentration of angiogenic factors is increased and apoptosis of granuloma cells is reduced resulting in an enhanced angiogenic effect[18]. Increased levels of Estrogen hormone in pregnancy are responsible for increased production of vascular endothelial growth factor (VEGF) in the macrophages, an effect that is

antagonized by androgens may be related to the development of pregnancy tumour[19]. Progesterone functions as an immunosuppressant. It prevents an acute inflammatory reaction, but results in increased chronic tissue reaction, resulting clinically in an exaggerated appearance of inflammation. Usually, there is a regression of pregnancy tumour after parturition. The levels of VEGF are high in the granulomas in pregnancy and almost undetectable after parturition. This may be due to Angiopoietin-2 (Ang-2) causing blood vessels to regress in the absence of VEGF[7]. However, in this case, lesion continued to grow even after patient's delivery. It can be due to increased levels of hormone Prolactin which is responsible for persistent inflammation and is proangiogenic via the release of pro-angiogenic factors by leukocytes and epithelial cells[21]. This along with the irritation from the adjacent teeth could be the reason of non-regression and continued expansion of the lesion.

Histologically, two different types of pyogenic granulomas are found. One type shows presence of proliferating capillaries in a lobular arrangement. These lobules are surrounded by collagen fibres. This type is called as lobular capillary hemangioma (LCH) type PG[2]. The second type consists of highly vascular proliferation resembling a granulation tissue. This is called as non-LCH type of PG. The histopathologic examination in the present case was suggestive of non-LCH type of PG.

Excisional biopsy along with the removal of the irritant should be carried out to treat pyogenic granuloma. Recently, use of Nd:Y lasers has been proposed.

CONCLUSION:

Various etiologic factors such as trauma, chronic irritation, drugs, hormones etc have been implicated in the pathogenesis of PG. The female steroid hormones- Estrogen and Progesterone have a possible role in the formation of pyogenic granuloma and hormone Prolactin may be associated with continued expansion of the lesion post parturition in the present case. Hence, though PG is a non-neoplastic lesion, proper diagnosis, prevention and treatment should be instituted. Regular follow-ups should be carried out periodically to rule out recurrences and possible etiologies.

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Conflicts of interest
There are no conflicts of interest.

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