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CASE REPORT

Lobular Capillary Hemangioma

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ABSTRACT

Context: Pyogenic granuloma is the most common gingival tumor accounting for 75% of all cases reported. Lobular capillary hemangioma (LCH) is a histological variant of pyogenic granuloma, where there is an organized lobulated form of arrangement of proliferating aggregate of blood vessels.

Case presentation: A 26-year-old woman in her 3rd trimester of pregnancy came to the dental outpatient department with a chief complaint of bleeding gums for the past few days. History revealed that the lesion recurred after excision.

Management and prognosis: Surgical excision of the lesion was done, but there was uncontrolled bleeding necessitating the placement of bone wax and infusion of whole blood in order to achieve local hemostasis. The patient was followed up for a period of 1 year. Healing was uneventful without any recurrence of the lesion.

Clinical implications: Dentist must be aware of LCH since incorrect diagnosis or simple excision can lead to life-threatening complications to the patient. It also warrants special care for pregnant women as profuse bleeding may lead to serious clinical complication, like inducing labor at very early gestation.

Keywords: Hemangioma, Lobular capillary hemangioma, Pyogenic granuloma.

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INTRODUCTION

In the oral cavity, there are diverse groups of pathological lesions that cause soft-tissue enlargement.[1] Pyogenic granuloma is one of the commonest lesions seen both in skin and oral cavity. It is a reactive hyperplasia that emerges in response to irritation, trauma, or hormonal imbalance, but the terminology does not express its clinical and histopathological features.[2] Generally, pyogenic granuloma is seen as soft painless swelling and is deep red to reddish-purple in color.[3]

The lesion presents as a solitary nodule, sessile, or pedunculated with a smooth or lobulated surface. It may measure few millimeters to several centimeters, frequently affecting gingiva. The overlying mucosa may or may not be ulcerated.[4] It has a female predilection approximately affecting up to 5% of pregnant women.[5] There are two types of pyogenic granuloma based on its histological features namely lobular capillary hemangioma (LCH) and nonlobular capillary hemangioma (NLCH).[6] Lobular capillary hemangioma of the oral cavity is a relatively rare histological variant and there are not many details available regarding its incidence in Indian population.[7]

CASE REPORT

A 26-year-old woman in her 3rd trimester of pregnancy came to the dental outpatient department with a chief complaint of bleeding gums for the past few days. History of the presented illness revealed that when the patient was in the 2nd trimester of pregnancy, she noticed a swelling on the gums in her lower left back region, which was often bleeding. She reportedly had it excised without complications at a nearby dental clinic. But the lesion recurred 7 months later presenting as a similar growth, in the same area and was small in size initially, but gradually increased in size to attain the present dimensions.

Intraoral examination revealed that 37 was missing and 36 was mobile. A sessile growth reddish purple in color was seen over the 37 region and it extended mesially over buccal and lingual surfaces of the gingiva in relation to 36 and showed a few indistinct hemorrhagic spots on its surface. On palpation, the lesion was soft in consistency, nonfluctuant, and nontender. The size of the lesion was ascertained to be 2 × 1.8 cm. Past dental history revealed that 37 was reportedly extracted during childhood due to caries. There were no other notable lesions or spots noticed during general physical examination. A provisional diagnosis of pyogenic granuloma was made and the patient was given appointment for biopsy, pending routine blood examination, and consultation with the gynecologist.

However, the patient had returned to the dental office before the appointment date due to excessive bleeding from the lesion due to trauma from mastication. Although her earlier hematological reports showed

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Fig. 1: Surgical gross specimen

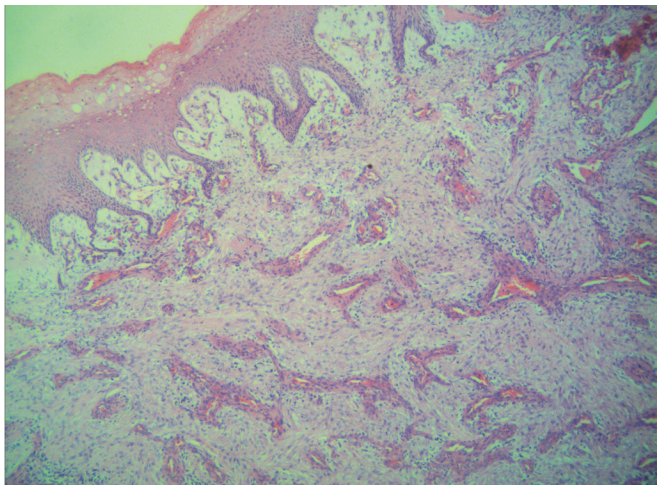

Fig. 2: Photomicrograph showing lobulated aggregate of blood vessels in connective tissue stroma (H&E, 4×)

suboptimal hemoglobin level of 10 gm/dL values, at the time of second visit, the hemoglobin level had dropped to 8 gm/dL. Hence an emergency surgical excision of the lesion was done, but uncontrolled bleeding necessitated the placement of bone wax after all other local bleeding control methods failed to provide adequate hemostasis. Finally, the patient was stabilized with infusion of 1 unit (450 mL) free blood and local hemostasis was achieved.

The excised lesion was sent for histopathological examination. Macroscopic feature of the gross specimen revealed one bit of soft-tissue specimen which was whitish in color with underlying black areas. It was firm in consistency, measuring 18 × 10 × 11 mm, oval in shape with a smooth to irregular surface (Fig. 1).

Microscopic examination of the hematoxylin and eosin (H&E) stained sections revealed parakeratinized stratified squamous epithelium with underlying connective tissue stroma which was moderately collagenous with plump fibroblasts. Majority of the areas showed lobulated angiomatous tissue, which were composed of solid endothelial proliferation and capillary-sized blood vessels (Figs 2 and 3). Vascularity was very high with large vascular channels in irregular shapes and engorged red blood cells. Diffuse dense chronic inflammatory cell infiltrate was also seen predominantly consisting of lymphocytes, plasma cells, and macrophages. Correlating with the clinical and histopathological examination, the excised lesion was diagnosed as "lobular capillary hemangioma."

The patient was followed up for a period of 1 year. Healing was uneventful without any recurrence of the lesion.

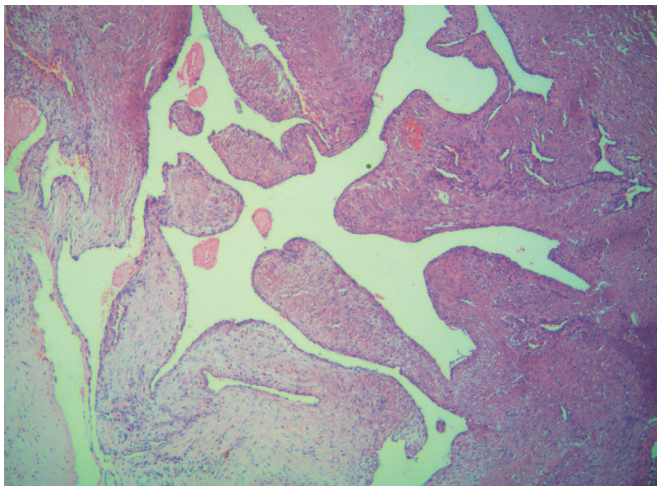

Fig. 3: Photomicrograph showing capillary-sized blood vessels in the central area (H&E, 4×)

DISCUSSION

The most common gingival tumor accounting to 75% of all cases is pyogenic granuloma.[8] Shamim et al have analyzed 244 cases of nonneoplastic gingival lesions in South Indian population where pyogenic granuloma is most frequent of 75.5%, accounting for 52.71% cases. According to Vilmann et al, majority of the lesions were found on the marginal gingiva where 15% are on the alveolar part.[1] It approximately affects up to 5% of pregnant women. And unfortunately rates of recurrence vary up to 16%.[5,9]

Due to high incidence in pregnant women, pyogenic granuloma is also named as pregnancy tumor and granuloma gravidarum.[6] According to Yung, Richardson, and Krotochvil, hormonal imbalance along with stimuli is responsible for the lesion. Confirming the above statement, Hosseini et al stated that gingiva is enlarged during pregnancy and undergoes atrophy during menopause.[1] Gingiva can be considered as another target organ in pregnant women because estrogen and progesterone act directly on this tissue.[3,6]

Recent studies proved that these sex hormones stimulate nerve growth factor, granulocyte colony stimulating

factor, b-fibroblast growth factor, tumor growth factor-β1 for wound healing, where estrogen stimulate vascular endothelial growth factor (VEGF) and progesterone stimulate immunosuppressant activity in gingiva of pregnant women.[10,11] This results in the chronicity of the lesion by preventing acute inflammatory reaction.[12] Regression of pyogenic granuloma is also noted after parturition. It has been proposed that there is regression of blood vessels due to increase in apoptotic cells and absence of VEGF with angiopiotein-2.[13]

Pyogenic granuloma presents as a red erythematous single nodule or a sessile papule with smooth or lobulated surface with or without ulceration.[8] Depending on maturation of the lesion, color can vary from red to purple.[10] Generally, it is nontender and soft in consistency, but can also become firm while it matures. It also has the tendency to compress and bleed due to profound vascularity.[11] In a study by Epivatianos et al,[14] it was found that 86% of NLCH have etiological factors when compared to LCH and also 66% of sessile pyogenic granulomas are LCH type and 77% of pedunculated granulomas are NLCH type. The size of the lesion usually measures few millimeters to several centimeters, rarely exceeds 2.5 cm and most of them grow rapidly and reaches their full size within weeks or months.[5] Gingiva is the site where they commonly occur but they also can present in the lip, tongue, oral mucosa, and palate.[14]

Rarely significant bone loss is reported.[10] It has highest incidence in the 2nd and 5th decade of life with slight female predilection. Some reports state that males below 18 years of age are more often affected and that between 18 and 39 years of age, females are more commonly affected and that there is equal sex distribution in older patients.[1] The present case also showed similar features.

There are two histological variants of pyogenic granuloma based on lobular aggregate of blood vessels. They are LCH and NLCH, where LCH shows an organized lobulated form of proliferating aggregate of blood vessels and NLCH shows nonlobulated form of arrangement resembling granulation tissue of highly proliferating blood vessels.[1,6] The presence of fibromatous tissue is more in NLCH when compared to LCH according to the study by Epivatianos et al.[14] Hence they suggested that the pathway of evolution is different for both types of pyogenic granuloma, since NLCH have more possibility to undergo fibrous maturation. The central area of LCH contains smaller luminal diameters of blood vessels when compared to NLCH's central area.[10] According to Epivatianos et al central area vessels with perivascular mesenchymal cells are nonreactive for α smooth muscle actin, whereas muscle-specific actin expression is more in NLCH than compared with LCH.[14] The histopathological features in the present case coincided with that of LCH.

Peripheral giant cell granuloma, peripheral ossifying fibroma, metastatic cancer, hemangioma, capillary angiomatosis, angiosarcoma and non-Hodgkin's lymphoma are the essential differential diagnosis for pyogenic granuloma.[5] As mentioned earlier, hemangioma is considered as important since a small lesion is difficult to differentiate from pyogenic granuloma.[10] In our case also due to profuse bleeding, we considered a differential diagnosis of hemangioma. Using diascopy technique where applying pressure to see evacuation of the lesion and relating with the site and color of pyogenic granuloma, this can be differentiated from hemangioma.[15] Sometimes, serious lesions like angiosarcoma and hepatocellular carcinoma are also misdiagnosed as pyogenic granuloma.[6]

Correct diagnosis and proper treatment planning is mandatory in managing pyogenic granuloma.[11] In the present case of LCH, there was a need for emergency blood transfusion and bone wax due to uncontrollable bleeding. Complete surgical excision of the lesion with curettage of underlying tissue is the recommended treatment of choice. Known etiological factors like foreign bodies, calculus, and defective restoration should be eliminated.[1] For recurrent lesions, injection of absolute ethanol, sodium tetradecyl sulfate (sclerotherapy), and corticosteroids also have been tried with successful results.[5] It is very important to consider pregnant patients as special and treatment should be planned based on each individual's condition like in the present case.[10] There are reports of serious clinical complications like inducing labor at very early gestation due to profuse bleeding from pyogenic granuloma.[6]

CONCLUSION

Lobular capillary hemangioma is a relatively rare variant of pyogenic granuloma. Details of incidence in Indian population are limited. This report presents awareness for dentists since incorrect diagnosis or simple excision can lead to life-threatening complications to the patient. It is also recommended to give special care for pregnant women.

REFERENCES

1. Kamal R, Dahiya P, Puri A. Oral pyogenic granuloma: various concepts of etiopathogenesis. J Oral Maxillofac Pathol 2012 Jan;16(1):79-82.
2. Punde PA, Malik SA, Malik NA, Parkar M. Idiopathic huge pyogenic granuloma in young and old: an unusually large lesion in two cases. J Oral Maxillofac Pathol 2013 Sep;17(3): 463-466.
3. Bhaskar SN, Jacoway JR. Pyogenic granuloma – clinical features, incidence, histology, and result of treatment: report of 242 cases. J Oral Surg 1966 Sep;24(5):391-398.

4. Regezi, JA.; Sciubba, JJ.; Jordan Richors, CK. Oral pathology, clinical pathologic correlation. 4th ed. St. Louis: Sanders Company; 2003. p. 115-176.
5. Kurian B. Pyogenic granuloma – a case report and review. Int J Dent Sci Res 2014 Jan;2(3):66-68.
6. Armitage GC. Bi-directional relationship between pregnancy and periodontal disease. Periodontology 2000 2013 Feb;61(1):160-176.
7. Rachappa MM, Triveni MN. Capillary hemangioma or pyogenic granuloma: a diagnostic dilemma. Contemp Clin Dent 2010 Apr;1(2):119-122.
8. Reichert, PA.; Philipsen, HP. Color atlas of oral medicine pathology. Stuttgart: Theme; 2000. p. 163.
9. Saghafi S, Zare-Mahmoodabadi R, Danesh-Sani SA, Mahmoodi P, Esmaili M. Oral pyogenic granuloma: a retrospective analysis of 151 cases in an Iranian population. Int J Oral Maxillofac Pathol 2011 Jun 29;2(3):3-6.
10. Jafarzadeh H, Sanatkhani M, Mohtasham N. Oral pyogenic granuloma: a review. J Oral Sci 2006 Dec;48(4):167-175.
11. Verma PK, Srivastava R, Baranwal HC, Chaturvedi TP, Gautam A, Singh A. Pyogenic granuloma hyperplastic lesion of the gingiva: case reports. Open Dent J 2012;6: 153-156.
12. 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): 262-266.
13. Yuan K, Jin YT, Lin MT. The detection and comparison of angiogenesis-associated factors in pyogenic granuloma by immunohistochemistry. J Periodontol 2000 May;71(5): 701-709.
14. Epivatianos A, Antoniades D, Zaraboukas T, Zairi E, Poulopoulos A, Kiziridou A, Iordanidis S. Pyogenic granuloma of the oral cavity: comparative study of its clinicopathological and immunohistochemical features. Pathol Int 2005 Jul;55(7):391-397.
15. Greenberg, MS.; Glick, M. Burket's oral medicine: diagnosis and treatment. 10th ed. Hamilton: BC Decker; 2003. p. 141-142.