CASE REPORT

A Diagnostic Dilemma: Pyogenic Granuloma or Capillary Hemangioma –A Rare Case Report

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Abstract

Oral hemangiomas and pyogenic granulomas are well-known as benign soft tissue lesions.[1] Pyogenic granuloma occurs most commonly in females on the gingiva and capillary hemangioma on lips, cheek, gingiva, tongue and buccal mucosa. It makes clinical diagnosis quite challenging because they mimic more severe lesions such as malignancies.[2] The purpose of this article is to report a case of soft tissue exophytic mass present on the palate and buccal mucosa which was clinically diagnosed as pregnancy tumour and histopathologically as capillary hemangioma.

Keywords: **capillary hemangioma, pyogenic granuloma, pregnancy tumor**.

Introduction

Pyogenic granuloma (PG) is a localized granulation tissue of the oral cavity or skin that is considered to be non-neoplastic in nature. Pyogenic granuloma occurring during the pregnancy is called as pregnancy tumor. There are two kinds of PG histologically, lobular capillary hemangioma (LCH type), and non-LCH type.[3]

"Hemangioma" is a term that encompasses vascular lesions that have similar histological features. Although it is considered one of the common soft tissue tumours of the head and neck, it is relatively rare in oral cavity.Oral hemangiomas (OHs) are benign tumors that develop due to endothelial cell proliferation and occur in and around the oral cavity. While 60 to 70 percent of hemangiomas occur in thehead and neck region, Oral Hemangiomas are relatively rare and most frequently involve the lips, tongue, buccal mucosa, and palate. Oral Hemangiomas have also been noted in the mandible and maxilla (central hemangiomas) and within the masseter and other muscles of mastication (intramuscular hemangiomas). Hemangiomas are characterized by the proliferation of blood vessels.

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Microscopically,capillary hemangioma (CH) consists of numerous small capillaries lined by a single layer ofendothelial cells supported in the connective tissue stroma of varying density. Incidence of intraoral CHsvaries from 0.5 to 1.0% of all intraoral neoplasms. Avery few cases of intraoral CHs have been reportedin literature.

We report a rare case of Oral Capillary Hemangioma in the buccal and palatal gingival mucosa of a27-year-old female patient, clinically its pregnancy tumor. Patient was 8 months pregnant when she first reported to the department.

Case Report

A 27-year-old 8 months pregnant femalepatient reported to the department of oral and maxillofacial surgery with the chiefcomplaint of swelling in the upper right back teeth region since three months, which was present on buccal and palatal side of right maxillary alveolus measuring about 1 x 1 cm. The swelling had been gradually increasing in size and not associated with constitutional symptoms nor related to food. Then second examination was done after one month of delivery in which we foundcorrugated and ulcerated swelling of size 4 × 4 cm on buccal side and 6 x 8 cm on palatal side.The swelling was tender and sessile. Tooth mobility was also present with respect to 15.No other swellings were palpable in the neck.

Radiological Examination revealed an ill-defined irregular expansile lytic lesion along the right upper premolar tooth with erosion of the underlying alveolar rigde, displacement of the root of the teeth with mild soft tissue swelling in the right molar region.

The oropharyngeal cavity was normal. General examination was normal. No systemic diseases were detected. The provisional diagnosis was Pregnancy Tumour with respect to 14, 15 and 16. Routine blood tests were within thenormal limits and fine needle aspiration cytology (FNAC) of the swelling was inconclusive. Wide surgical excision was done and biopsy was taken and sent to our department of Oral and MaxillofacialPathology, Microbiology and Forensic Odontology for further diagnosis.

On grossing, the specimen was creamy white in colour, firm to leathery in consistency and was measuring about 35 mm x 28mm x 20 mm in length, breadth and height respectively. Whole tissue was taken for processing.

Fig 1: At 8 months of Pregnancy

Fig 2: After one month of Delivery

Fig 3: CBCT images

Fig 5: Gross Specimen

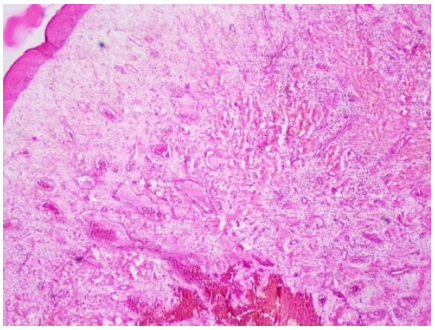

Fig 6: Low power histopathological view

HISTOPATHOLOGIC FEATURES:

The Haematoxylin & Eosin-stained soft tissue sections showPara keratinised stratified squamous surface epithelium overlying a fibro cellular connective tissue stroma.The epithelium-connective tissue junction was intact. The connective tissue stroma shows numerous proliferations of endothelial lined blood vessels with perivascular cuffing and plump endothelial cells. The stag horn pattern is also seen along with the lymphatic vessels in the connective tissue. The connective tissue also consists of collagen fibres in association with fibroblasts with chronic inflammatory cells infiltrate predominantly consisting of lymphocytes.

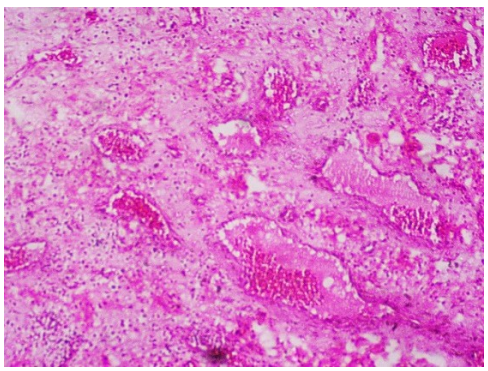

Fig 7: High Power histopathological view

In 1946 Ziskin and Ness compiled a clinical classification of pregnancy gingivitis as follows:

***Class I*:** Characterized by bleeding gingiva with more or less, no other manifestations.

***Class II*:** Characterized by changes in the interdental papilla-edema and swelling with subsequent blunting of interdental papilla.

***Class III*:**Characterized by involvement of the free gum margin, which takes on the color and general appearance of a raspberry.

***Class IV*:** Generalized hypertrophic gingivitis of pregnancy.

***Class V*:** The pregnancy tumor

Discussion

The pyogenic granuloma or granuloma pyogenicum which appears during pregnancy is called pregnancy tumour. PG of the gingiva develops in up to 5% of pregnancies, therefore the terms "pregnancy tumour" and "granuloma gravidarum" are used.

Pyogenic granuloma arises due to chronic irritation or low-grade infection, poor oral hygiene, overhanging restoration, and changes in hormonal level and due to some drugs.[3]Some investigators consider pyogenic granuloma as a "reactive" or "reparative" tumour process.

Regezi et al suggest that pyogenic granuloma represents an exuberant connective tissue proliferation to a known stimulus or injury-like calculus or foreign material within the gingival crevice.5 In the present case, the hormonal changes associated with pregnancy &also increased chronic tissue reaction, resulting clinically in an exaggerated appearance of inflammation.

Pregnancy is accompanied by remarkable endocrine alterations, both progesterone and estrogen are elevated due to continuous production of these hormones by the corpus luteum. These hormonal changes induce changes in vascular permeability, leading to gingival edema and an increased inflammatory response to bacterial plaque.

During pregnancy, 0.2 to 9.6% of pregnant women experience localized gingival enlargement consistent with pyogenic granuloma. Clinically pyogenic granuloma is generally seen as a smooth or lobulated exophytic lesion with a pedunculated or a sessile base (Kostantinides A 2003).4 It rarely reaches more than 2 cm in size; however, in this case the lesion had enlarged to an extent that it was interfering with occlusion (4 × 4 cm- buccal, 6 x 8 cm-palatal).

Jafarzadeh et al7 stated that pyogenic granuloma shows a striking predilection for the gingiva, with interdental papillae being the most common site in 70% of the cases and more common in the maxillary anterior region.

Thus, based on the above clinical classification of pregnancy gingivitis, the present case was classified as class V.

Sometimes Pyogenic granuloma may be misdiagnosed with other benign and malignant conditions because of its appearance and evolution of growth; that's why biopsy findings are important in establishing diagnosis.

Histologically, pyogenic granulomas are classified as the lobular capillary hemangioma type (LCH type) and the non-LCH type. The LCH type has proliferating blood vessels organized in lobular aggregates, no specific changes, such as edema, capillary dilation, or inflammatory granulation tissue reaction. The lobular area of the LCH type has a greater number of blood vessels with small luminal diameter than that in a non-LCH type of pyogenic granuloma. The non-LCH type consists of a vascular core resembling granulation tissue with foci of fibrous tissue. In the central area, a greater number of vessels with perivascular mesenchymal cells

Thus, based on the histopathological features of the present case, it can be considered as LCH type of pyogenic granuloma since it shows a close resemblance of the histological features like numerous proliferations of endothelial lined blood vessels with perivascular cuffing and plump endothelial cells. The stag horn pattern is also seen along with the lymphatic vessels in the connective tissue.

In the present case, even after parturition the enlargement showed no regression in size, so the lesion was surgically excised.

Conclusion

This case report presents a case of pregnancy tumor. This lesion mostly occurring on the gingiva in pregnancy. Histologically,lobulated capillary hemangiomas are commonly encountered soft-tissue enlargements. However, etiopathogenesis is still debatable. Careful diagnosis is essential to differentiate this lesion from vascular lesions. Meticulous oral hygiene should be instituted. Clinical correlation should be done for accurate diagnosis. Surgical excision of the growth, along with curettage should be done to prevent recurrences of this common lesion. Proper diagnosis and treatment of the lesion are very important. It arises in response to various

stimuli such as low grade local irritation, traumatic injury, sex hormones, and certain kinds of drugs, so surgical excision is the treatment of choice. During pregnancy, careful oral hygiene, removal of dental plaque and use of soft toothbrushes are very important to avoid occurrence of a pregnancy tumor.

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