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Management Large Lobular Hemangioma of Upper Lip in Pregnancy Providing a Clinical Insight for Patient Care: A Case Report and Literature Review

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Abstract: ***The term Pyogenic granuloma is described as a tumor-like growth that sequel from an exaggerated response to minor trauma or ongoing irritation. The term "pyogenic granuloma" is mislabelled, as it is not associated with pus formation. It is more accurately referred to as Lobular Capillary Hemangioma. Lobular capillary hemangioma consists of inflamed fibrovascular tissue and is known by several names, including pregnancy epulis, giant cell granuloma, and papillary hyperplasia, with the most common being pyogenic granuloma. We report a rare case of capillary hemangioma presenting as a rapidly enlarging upper lip mass in a pregnant female. These vascular proliferations show increased incidence during pregnancy, attributed to elevated levels of estrogen and progesterone. Management strategies for capillary hemangiomas include surgical excision, laser ablation, sclerotherapy, and embolization. Surgical excision remains the gold standard, particularly for lesions causing functional impairment, cosmetic concerns, or recurrent bleeding and this approach offers the lowest recurrence rate and facilitates histopathological evaluation of the lesion. Although the risk of intraoperative hemorrhage remains a consideration, particularly in highly vascular lesions, meticulous surgical technique and preparedness with hemostatic measures (e.g., electrocautery, diathermy) can mitigate complications.***

Keywords: Capillary Hemangioma, Pregnancy, Surgical Excision, Progesterone

1.Introduction

The term Pyogenic granuloma is described as a tumour-like growth that sequel from an exaggerated response to minor trauma or ongoing irritation [1]. Lobular capillary hemangioma consists of inflamed fibrovascular tissue and is known by several names, including pregnancy epulis, giant cell granuloma, and papillary hyperplasia, with the most common being pyogenic granuloma [1]. Pyogenic granuloma is recognized as a non- neoplastic benign lesion most commonly present over gingiva, on the contrary capillary hemangioma has predilection for lips, cheek and tongue [2].

The term "pyogenic granuloma" is mislabelled, as it is not associated with pus formation. It is more accurately referred to as Lobular Capillary Hemangioma [1]. Hemangiomas are benign tumours composed of numerous blood vessels. They are classified into different types based on their histological features, including capillary, cavernous, and sclerosing varieties, the latter of which undergo fibrosis [3]. Hemangiomas are benign tumours commonly found in infancy, with 7% of them occurring in the soft tissues of the head and neck [4]. These tumours are often congenital and their occurrence on the gingiva is rare. They show a strong female predilection, typically appearing in the second and third decades of life [3]. Clinically, hemangiomas in the oral soft tissues present as painless, sessile or pedunculated masses, varying in size from a few millimetres to several centimetres [2]. These lesions are deep red or bluish-red in colour due to their high vascularity and consist of hyperplastic granulation tissue with abundant blood capillaries. Hemangiomas often originate from the interdental papilla and gradually increase in size, potentially involving adjacent teeth. In addition to the gingiva, they can also be found on the tongue, buccal mucosa, and lips [2].

We report a rare case of capillary hemangioma presenting as a rapidly enlarging upper lip mass in a pregnant female.

2.Case Report

A 25 year old female presented to the department of oral and maxillofacial surgery with a chief complaint of painful growth on upper lip which bleeds frequently since 4

months. The lesion was initially small in size and relatively asymptomatic when she noticed it, later the lesion increased in size to attend dimension of an orange.

According to the patient the lesion appeared insidiously during the first month of pregnancy following trauma to maxillary anterior tooth region that was described as minor trauma. Patient presented with an unremarkable medical and surgical history.
On extraoral examination, a well-defined, exophytic, lobulated swelling is noted involving the upper lip. The lesion appears to arise from the mucocutaneous junction of gingivo-labial sulcus and extends inferiorly onto the wet vermilion, displacing the upper lip and partially obstructing the oral fissure. The swelling measures approximately 5 cm × 4 cm and presents with a dark reddish-blue coloration, suggestive of a vascular origin. The surface is irregular and lobulated, with areas of ulceration and crusting, indicating recent or recurrent episodes of bleeding [Figure 1 and 2]. The lesion is soft in consistency, compressible, and pulsatile. There are no signs of secondary infection externally. The patient appears systemically stable but demonstrates difficulty in lip competence and articulation, potentially affecting oral function and aesthetics. There is no evidence of regional lymphadenopathy on palpation.

Intraoral examination revealed a palatally displaced maxillary central incisor, which correlates with the patient's reported history of trauma [Figure 3]. The patient demonstrated satisfactory oral hygiene, thereby ruling out pyogenic granuloma as a provisional diagnosis, as local irritative factors typically associated with its development were not evident.

Local ultrasonography of the lesion demonstrated a well-defined, round to oval, hyperechoic, multilobulated mass with prominent internal vascularity. No internal calcifications were observed. The overall ultrasound features were suggestive of a capillary hemangioma. Further radiographic investigations were deferred in consideration of the patient's pregnancy.

The patient was taken under general anesthesia, and complete surgical excision of the lesion was performed in toto [Figure 4]. Hemostasis was achieved through electrocautery of bleeding points. The procedure was well tolerated, with no intraoperative or postoperative complications. The patient remains under regular follow-up, with no evidence of recurrence to date [Figure 5].

3.Discussion

Hullihen was the first to document a comparable presentation in 1844. The nomenclature 'granuloma pyogenicum', commonly referred to as 'pyogenic granuloma', was introduced by Hartzell in 1904 [5]. However, this term is considered a misnomer, as the lesion does not represent an infectious process nor a true neoplasm [4, 5, 6].

Capillary hemangioma is a benign vascular hamartoma characterized by endothelial proliferation and aberrant capillary formation. Although commonly observed in paediatric populations, it may also develop later in life, with a higher incidence in females (female-to-male ratio of approximately 3:1). While the etiology remains multifactorial, trauma is frequently implicated as a triggering factor, particularly in mucocutaneous presentations.

Clinically, capillary hemangiomas often mimic pyogenic granulomas, both presenting as lobulated, red to purplish, friable lesions that bleed easily upon manipulation. However, distinguishing between the two entities can be challenging, as they share similar gross morphology and growth patterns. Pyogenic granulomas, despite the nomenclature, are reactive vascular lesions-histologically classified under lobular capillary hemangiomas-but are distinguished by a pronounced inflammatory component and their association with local irritants or hormonal fluctuations, especially in pregnancy. Patients typically present with a painless, reddish-purple, lobulated or polypoid mass. Surface ulceration may lead to spontaneous or provoked bleeding [7]. The size of the lesion varies widely, ranging from a few millimetres to several centimetres. As the lesion matures, it often appears firmer with a pinkish-blue hue [8].

These vascular proliferations show increased incidence during pregnancy, attributed to elevated levels of estrogen and progesterone [9, 15]. The differential diagnosis for Lobular capillary hemangioma includes peripheral giant cell granuloma, granulation tissue, angiosarcoma, peripheral ossifying fibroma, and Kaposi sarcoma [7].

In our review of the literature, only three cases of superficial lip capillary hemangiomas were reported, with lesions occurring in early and late stages of pregnancy. These patients typically presented with trauma and bleeding being consistent findings. Similar to our case, no advanced radiographic imaging was employed; clinical assessment and histopathological confirmation remained the cornerstone of diagnosis. Microscopically, capillary hemangiomas exhibit unencapsulated, thin-walled capillaries arranged in lobular architecture with scant stroma, lacking the inflammatory infiltrates typical of pyogenic granuloma.

The relationship between hemangiomas and pregnancy has been well documented, with estrogen and progesterone thought to facilitate vascular proliferation. Reports of lingual and mucosal hemangiomas in pregnant patients underscore the hormonal influence in lesion development and progression [9].

Management strategies for capillary hemangiomas include surgical excision, laser ablation, sclerotherapy, and embolization. Surgical excision remains the gold standard, particularly for lesions causing functional impairment, cosmetic concerns, or recurrent bleeding and this approach offers the lowest recurrence rate and facilitates histopathological evaluation of the lesion, as was performed in our case [5, 6]. In all reviewed cases, including our own, complete surgical excision was successfully performed without postoperative

complications or recurrence during follow-up periods ranging from 6 to 18 months.

The present case, diagnosed as Lobular capillary hemangioma, represents a reactive vascular lesion frequently misidentified clinically as a hemangioma. Differentiating Lobular capillary hemangioma from infantile hemangioma can be challenging on histopathological grounds; however, Lobular capillary hemangioma demonstrates distinct immunohistochemical and ultrastructural features, being primarily perivascular in origin rather than endothelial [8]. Typically, Lobular capillary hemangioma manifests as a solitary growth, although multiple lesions-termed satellitosis-may emerge following trauma or incomplete excision. The appearance of these secondary nodules may complicate both diagnosis and therapeutic management [5].

Although the risk of intraoperative haemorrhage remains a consideration, particularly in highly vascular lesions, meticulous surgical technique and preparedness with haemostatic measures (e.g., electrocautery, diathermy) can mitigate complications. Histopathological evaluation following excision remains critical for definitive diagnosis and to guide further management.

4.Conclusion

Capillary Hemangioma of the lip is a rare clinical entity, especially in pregnant patients. Trauma and hormonal changes may serve as contributing factors. Clinical diagnosis must be supported by histopathology due to its close resemblance to pyogenic granuloma. Surgical excision offers excellent outcomes, minimizing recurrence and allowing for complete histological assessment.

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Figures

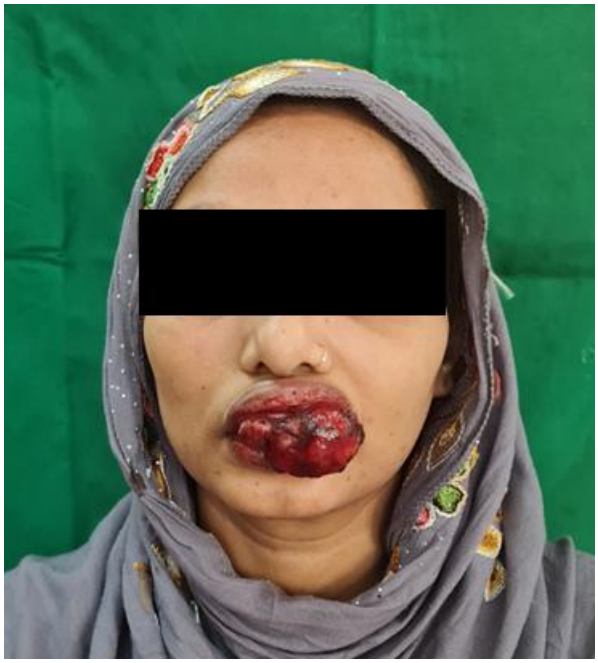

Figure 1: Extraoral presentation of lobular capillary Hemangioma.

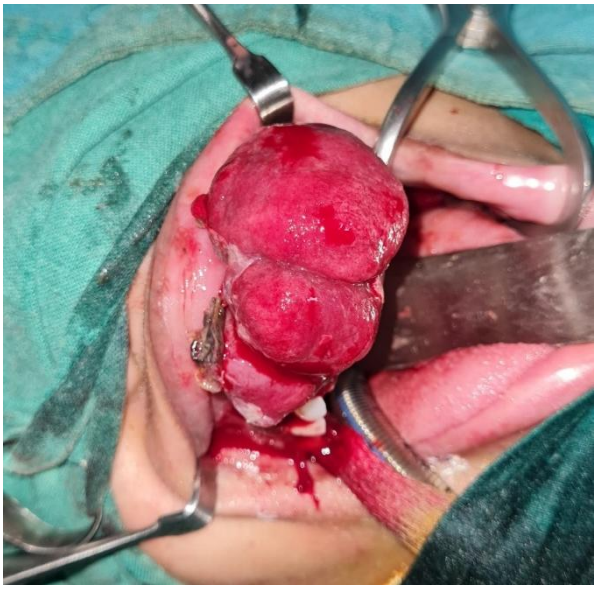

Figure 2: Extraoral presentation of lobular capillary Hemangioma.

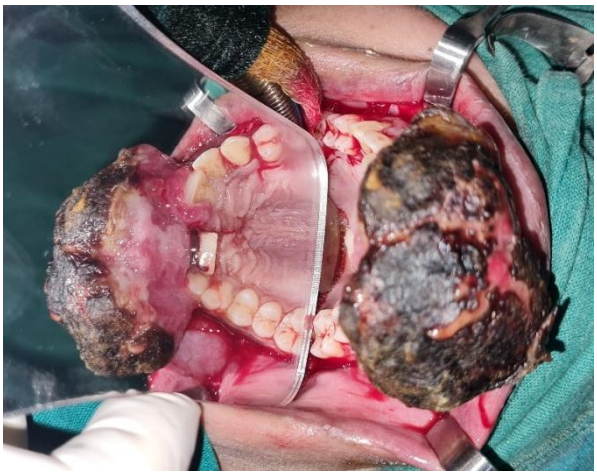

Figure 3: Intraoral presentation of the lobular mass

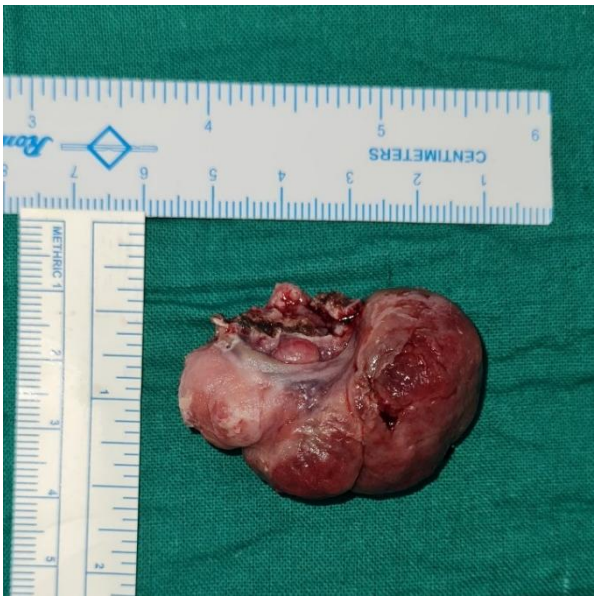

Figure 4: Surgical excised specimen

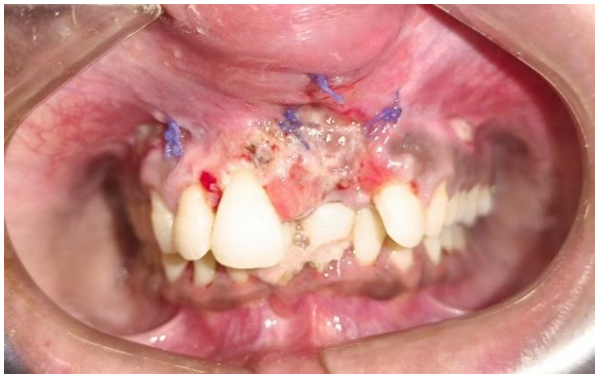

Figure 5: Post- operative follow –up