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A Comprehensive Study of Lobular Capillary Haemangioma in the Palate: Insights from a Single Case Report

Abstract:

Background: Lobular capillary hemangioma (LCH), commonly known as pyogenic granuloma, is a benign vascular lesion that rarely occurs on the palate. Its atypical presentation can complicate diagnosis and treatment.

Aims: This case report aims to highlight the clinical presentation, diagnostic challenges, and multidisciplinary management of a rare palatal LCH.

Materials and Methods: A 19-year-old female presented with a reddish, lobulated lesion on the left hard palate and gingiva, associated with bleeding and tooth mobility. Clinical examination, diascopy, CT imaging, and histopathology confirmed the diagnosis. Surgical excision with extraction of involved teeth and use of diathermy was performed, followed by secondary healing.

Results: Histopathological analysis confirmed LCH. Postoperative healing was uneventful, with no recurrence at one- and three-month follow-ups.

Discussion: Early diagnosis and tailored surgical intervention are critical in managing oral vascular lesions to prevent complications.

Conclusion: Comprehensive evaluation and individualized treatment ensure favorable outcomes in rare cases of palatal LCH.

Ke-ywords: Oral Vascular Tumor, Lobular Capillary Hemangioma, Palatal Lesion, Case Report

Introduction:

Lobular capillary haemangioma (LCH), previously referred to as pyogenic granuloma[1], is a common benign vascular lesion characterized histologically by lobular aggregates of capillary-sized vessels set within a fibromyxoid stroma. This condition arises due to exuberant vascular proliferation, typically in response to stimuli such as local irritation, trauma, hormonal changes, or certain medications (Jafarzadeh et al., 2006; Neville et al., 2016)[2,3]. While the gingiva is the most frequent site of occurrence in the oral cavity, other locations such as the lips, tongue, and buccal mucosa are occasionally involved (Regezi et al., 2016)[4]. However, its manifestation on the hard palate remains exceedingly rare and can present significant diagnostic challenges, often mimicking other vascular or reactive lesions such as conventional haemangiomas, peripheral giant cell granulomas, or traumatic fibromas (Smitha et al., 2012; Kamal et al., 2015)[5,6].LCH shows a higher predilection for females, particularly in the second and third decades of life, which has been attributed to hormonal influences such as estrogen and progesterone modulation of angiogenic factors like vascular endothelial growth factor (VEGF) (Bhaskar & Jacoway, 1966; Mills et al., 2012)[1,7]. Though well-documented in terms of its clinical features, recurrence potential, and management on common sites, there remains a paucity of literature addressing LCH cases arising specifically on the hard palate, despite its distinct anatomical and surgical considerations. Early recognition and accurate diagnosis are critical, as palatal LCH may be misidentified, potentially leading to inadequate or inappropriate treatment. This case report aims to contribute to

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the limited body of knowledge by presenting an uncommon case of LCH located on the hard palate in a 19-year-old female. The case highlights the clinical presentation, diagnostic process, surgical approach, and follow-up, underscoring the importance of considering LCH in the differential diagnosis of palatal lesions.

Case Presentation:

A 19-year-old female reported a growth on the left side of her hard palate (FIG 1) extending into the adjacent gingiva. The lesion began as a minor discoloration approximately 7–8 years ago and slowly progressed to a reddish ulceration. Over time, it involved the gingival surfaces of the maxillary teeth, leading to progressive tooth mobility. The lesion remained painless throughout its course. There was no relevant medical, dental, or family history. Intraoral examination revealed a lobulated, sessile, reddish-blue lesion approximately 4 × 3 cm in size on the left posterolateral hard palate, extending from the maxillary canine to the second molar region. On palpation, the lesion was firm and non-tender. Diascopy showed blanching, confirming its vascular nature. No signs of secondary infection or discharge were present. Computed tomography (CBCT) (FIG 2) revealed ill-defined heterogeneously bony lesion arising from left side of hard palate associated with mild mass effect on adjacent left lateral tongue and sino mucosal thickening in left maxillary sinus. No signs of aggressive invasion or malignancy were observed. A provisional diagnosis of a vascular lesion, most likely LCH, was made based on clinical and radiological findings. FNAC also confirmed the diagnosis.

Surgical Management:

Under local anaesthesia, a 1 cm margin surrounding the lesion was infiltrated with a solution of normal saline and adrenaline (1:100,000). After an 8-minute delay for vasoconstriction, an incision was made using electrosurgical diathermy in spray mode. The lesion was elevated with a periosteal elevator and separated from the underlying palatal bone toward the buccal aspect.

Due to the lesion's involvement of adjacent teeth (maxillary canine to second molar), all affected teeth were extracted (FIG 3,4). Bleeding was managed with electrocautery and application of bone wax to the extraction sockets. The alveolar ridge was then contoured for smoothness. Tranexamic acid (1000 mg IV) was administered and repeated twice intraoperatively to minimize bleeding. The surgical site was left to heal by secondary intention, and the patient was advised on strict oral hygiene. The excised lesion was sent for histopathological examination, which confirmed the diagnosis of lobular capillary haemangioma. Healing was uneventful, with complete epithelialization by one week. Follow-up (FIG 5) at one and three months showed no signs of recurrence.

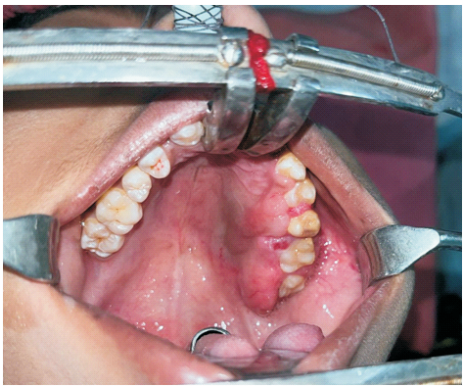

Fig. 1

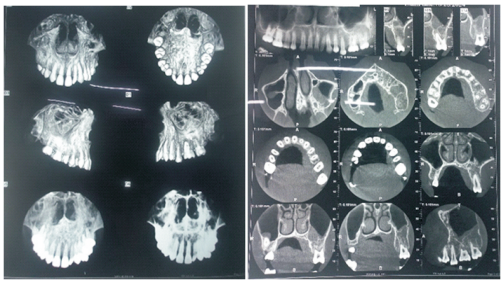

Fig. 2

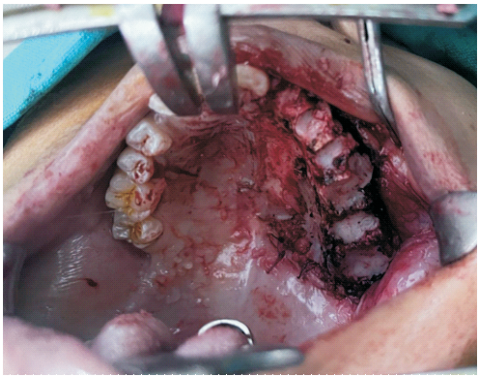

Fig. 3

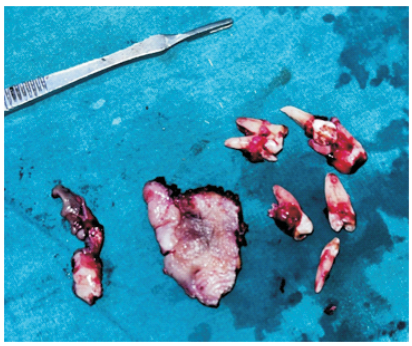

Fig. 4

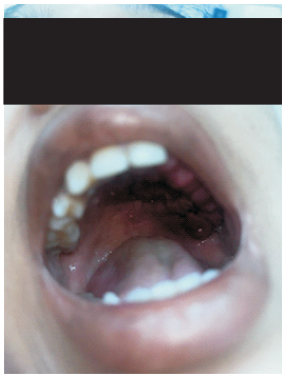

Fig. 5

Discussion:

Lobular capillary haemangioma (LCH), formerly termed pyogenic granuloma, is a benign vascular lesion that arises in response to local trauma, irritation, or hormonal influences (Jafarzadeh et al., 2006)[2]. While it commonly affects the gingiva, especially in females during the second and third decades of life, its occurrence on the hard palate is rare (Bhaskar & Jacoway, 1966; Neville et al., 2016)[1,3]. The present case, involving a 19-year-old female with a slow-growing palatal lesion, contributes to the limited documentation of this unusual anatomical presentation.

The pathogenesis of LCH is believed to involve angiogenic stimuli such as trauma, which may upregulate vascular endothelial growth factor (VEGF), leading to capillary proliferation (Kamal et al., 2015)[6]. In our case, the patient's lesion developed at a site of previous dental intervention, supporting trauma as a plausible initiating factor. Additionally, the lesion's occurrence in a young female corresponds with the recognized hormonal influence on LCH development, as estrogen and progesterone are known to modulate angiogenic responses (Kamal et al., 2015)[6].

Clinically, LCH presents as a red to reddish-blue, lobulated mass with a tendency to bleed easily, especially upon manipulation. Its clinical features may overlap with other soft tissue growths such as peripheral giant cell granuloma, traumatic fibroma, haemangioma, and papilloma (Regezi et al., 2016)[4]. Therefore, histopathological examination remains essential for definitive diagnosis. The hallmark histology of LCH includes lobular arrangements of capillary-sized vessels lined by plump endothelial cells, set in an edematous or fibromyxoid stroma with varying degrees of inflammatory infiltrate (Mills et al., 1980)[7]. Two histologic subtypes exist: the lobular capillary variant, which demonstrates a well-formed lobular vascular architecture, and the non-lobular variant, which shows diffuse vascular proliferation (Regezi et al., 2016)[4]. The International Society for the Study of Vascular Anomalies (ISSVA) classifies LCH as a benign vascular tumour, distinguishing it from vascular malformations, which are congenital and lack endothelial proliferation (ISSVA, 2018)[8]. This classification is significant for treatment decisions and prognostication. Imaging plays a supportive role in assessing the lesion's depth and involvement of adjacent structures. While Doppler ultrasonography and MRI are preferred for evaluating vascularity, CT imaging can be helpful in detecting bony involvement, particularly in palatal lesions (Epstein et al., 2002)[9]. In this case, CT revealed palatal bone erosion, aiding in the surgical approach and highlighting the lesion's potential for localized aggressiveness.The treatment of choice for oral LCH is complete surgical excision with removal of any local irritants to minimize recurrence (Jafarzadeh et al., 2006)[2]. Because of the lesion's vascularity, intraoperative bleeding control is critical. In this case, electrosurgery and bone wax were used effectively, along with systemic administration of tranexamic acid. Alternative modalities such as laser therapy and sclerotherapy may be considered for smaller or surgically inaccessible lesions (Epstein et al., 2002)[9]. However, these techniques require caution in the oral cavity due to potential complications, including necrosis and scarring.LCH has a good prognosis, but recurrence can occur in 5–16% of cases, especially when excision is incomplete or when etiologic factors persist (Smitha et al., 2012)[5]. Ensuring complete lesion removal, patient education, and eliminating local irritants are key strategies in preventing recurrence. In the present case, no signs of recurrence were observed at the three-month follow-up, reflecting successful management.

In conclusion, while LCH is a relatively common benign lesion in the oral cavity, its presentation on the hard palate is rare and may mimic other reactive or vascular entities. Accurate diagnosis through histopathology, appropriate imaging, and meticulous surgical management are essential. This case highlights the importance of considering LCH in the differential diagnosis of palatal masses, particularly in young female patients, and reinforces the role of trauma as a significant etiological factor.

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