

LOBULAR CAPILLARY HEMANGIOMA OF ORAL CAVITY: A CASE REPORT

**Dr. Gokul Venkateshwar¹, Dr. Riya², Dr. Shivani Sharma³, Dr. Tejas Raut⁴
Dr. Vamshika Padavala⁵, Dr. Vaishnavi Kshirsagar⁶**

¹Professor, Department of Oral and Maxillofacial Surgery, Dr. D. Y. Patil University School Of Dentistry, Navi Mumbai, India, 400706

²Third year resident, Department of Oral and Maxillofacial Surgery, Dr. D. Y. Patil University School Of Dentistry, Navi Mumbai, India, 400706

³Second year Resident, Department of Oral and Maxillofacial Surgery, Dr. D.Y. Patil University School Of Dentistry, Navi Mumbai, India, 400706

⁴Second year Resident, Department of Oral and Maxillofacial Surgery, Dr. D. Y. Patil University School Of Dentistry, Navi Mumbai, India 400706

⁵First year Resident, Department of Oral and Maxillofacial Surgery, Dr. D. Y. Patil University School Of Dentistry, Navi Mumbai, India 400706

⁶First year Resident, Department of Oral and Maxillofacial Surgery, Dr. D.Y. Patil University School Of Dentistry, Navi Mumbai, India, 400706

Corresponding Author details:

Dr. Riya - T h i r d Year Resident, Department of Oral and Maxillofacial Surgery, Dr. D. Y. Patil University School Of Dentistry, Navi Mumbai, India, 400706.

KEYWORDS

Lobular capillary hemangioma;
Benign tumor;
Pyogenic granuloma

ABSTRACT

The case report highlights an intraoral presentation of a lobular capillary hemangioma. The extensive growth of the tumor, causing significant complications such as sudden excessive bleeding, underscores the often insidious nature of LCHs. The patient underwent surgical excision of the tumor. Histopathology confirmed lobular capillary hemangioma. The one-month follow-up demonstrated complete resolution of symptoms and uneventful healing, reaffirming the efficacy of the chosen treatment approach. Comprehensive evaluation and a multidisciplinary approach were crucial for successful management, emphasizing the need for awareness of this entity among oral and maxillofacial surgeons.

Introduction:

Vascular lesions are categorized as either vascular malformations or hemangiomas, and have been referred to by a variety of names. The word "hemangioma" refers to a diverse collection of clinically benign vascular tumors with comparable histologic characteristics [1]. A benign lesion of growing mass of blood vessels that does not undergo malignant transformation. Compared to men, females experience a higher incidence. This lesion (PG/LCH) has the potential to grow quickly to its full size. Its genesis is currently unknown. The lesion is believed to be caused by local variables such as calculus, repetitive trauma, and hormonal changes during pregnancy. People in the reproductive age range may be more susceptible to this lesion. This lesion is distinct in that it can bleed during surgery and return frequently even after total excision. Lobular capillary hemangioma is a distinct entity from Pyogenic Granuloma (PG), and is likely to return if not appropriately treated on the initial visit [2].

A reactive benign mucosal lesion is called a PG. Since there isn't any visible pus in the lesion, the label "PG" is misleading. Hartzell described the lesion in 1904 that with a number of risk factors, including trauma and local irritation, this is the most prevalent growth in the oral cavity [3]. Angelopoulos introduced the term "hemangiomaticus granuloma" to describe the same condition, accurately describing the histopathologic appearance (inflammatory component and hemangioma together). Because of many blood vessels, Ver Berne et al. proposed the term "granuloma telangiectacticum" as a substitute for PG [4]. The two types of the lesion—lobular

capillary hemangioma (LCH), also known as epulis gravidarum and the non LCH—were reported by Toida et al. in 2003 [5]. The International Society for the Study of Vascular Anomalies (ISSVA) recognized both entities as benign tumors in 2018, despite the WHO's 2017 classification of head and neck tumors classifying them as synonyms and hemangiomas [6]. The clinical, pathological, and histological distinctions between PG and LCH were documented by Ver Berne et al., despite the fact that both LCH and non-LCH are regarded as PG subtypes. They state that PG results from hormonal changes brought on by pregnancy or puberty, while LCH is known to develop spontaneously as a result of vascular malformation and is of the non-LCH variety.

LCH has consistently structured ordered capillary lobules, whereas PG has densely packed capillaries grouped in a chaotic manner. According to Mahajan et al., this lesion has a higher propensity toward females and is more common in young adults and teenagers. [7]

Case Report:

A 46-year-old female reported to the outpatient department with a chief complaint of recurrent swelling in her gums in the lower right back teeth region for the past three months. The swelling was insidious in onset and gradually increased to the present size with no pain or pus discharge or any current bleeding points. The patient had reported mild swelling three months ago after she underwent extraction of her right lower 2nd molar teeth under local anaesthesia by a private practitioner. The patient experienced bleeding and pain in the swelling following extraction for which she was given medications. The swelling reportedly increased in size and she again visited the local practitioner within a month when CECT neck with oral cavity was done.

CECT neck with oral cavity findings as shown in Figure 2 revealed a well-defined lobulated ulceroproliferative mildly enhancing soft tissue density mass lesion arising from the retromolar region of right inferior alveolar arch involving and extending into the retromolar trigone. The lesion was seen along the gingival surface of the arch protruding into the vestibule with no involvement of inferior gingivobuccal sulcus. There was associated underlying erosion involving the alveolar margin of right hemi mandible with non-visualization of 2nd premolar and molar teeth. Medially the lesion was abutting the right lateral margin of tongue and right mylohyoid. Prominent reactive bilateral level Ib, II, III nodes seen, largest measuring 10 mm x 9 mm. The report concluded well defined lobulated ulceroproliferative mildly enhancing soft tissue density mass lesion arising from the retromolar region of right inferior alveolar arch involving and extending into the retromolar trigone as described, suggesting neoplastic etiology. Histopath correlation was advised for which an incisional biopsy was taken which revealed the presence of a connective tissue mass. It showed severe amounts of chronic inflammation, predominantly lymphocytes and plasma cells. Numerous blood capillaries and budding endothelial cells amidst a highly cellular stroma was noted. A repeat biopsy was suggested on the representative area for a definitive diagnosis. Based on the clinical appearance of the lesion a provisional diagnosis of pyogenic granuloma was made. The differential diagnosis included peripheral ossifying fibroma, peripheral giant cell granuloma, haemangioma and fibroma.

The size of swelling kept increasing within a span of two months. No other previous documents were provided by the patient. The patient opted for excision of the swelling under general anaesthesia. On inspection, there was a single, ovoid, proliferative and exophytic growth in the mandibular right posterior region (46 to 48 teeth region) with the same color (reddish-pink) as adjacent mucosa, approximately 4.2 cm x 2.1 cm x 0.6 cm in size, with well-defined margins and well defined border, with no active pus discharge. On palpation, the swelling was soft in consistency, non-tender, non-fluctuant and had no fixity to underlying tissues. There was mild bleeding, no pus discharge, and fluid discharge on palpation. The swelling was 4.2 cm x 2.1

cm x 0.6 cm in size on palpation.

Preoperative photographs are presented in Figure 1 and Figure 3 depicts a panoramic radiograph that revealed no local radiolucency and was unremarkable. The swelling was excised in-toto, from both the buccal and lingual sides through an intra-oral approach under general anesthesia, and peripheral ostectomy was done with respect to 46 to 48 region at the same time to remove any involved peripheral bony margins and to smoothen out the underlying bone. Bleeding was anticipated during the surgery, but the lesion was excised in-toto uneventfully as shown in Figure 4, complete hemostasis was achieved and suturing was done with 3-0 Vicryl.

Post-surgery, the patient was prescribed antibiotics (Augmentin 625 mg, every 12 hours, 5 days) and (Metronidazole 400mg, every 8 hours, 3 days) as well as analgesics (Enzoflam, every 8 hours, 5 days) for infection and pain management. Patient was also instructed to maintain oral hygiene (brushing twice daily with a soft toothbrush and toothpaste and chlorhexidine rinses two times per day for two weeks).

The histopathological examination revealed Lobular Capillary Hemangioma. H&E stained soft tissue section shows three bits of lesional lined by stratified squamous parakeratinized epithelium and overlying connective tissue stroma. Connective tissue stroma is inflamed with presence of numerous proliferating blood vessels, chronic inflammatory cell infiltrate interlacing collagen fibers.

Few bony trabeculae are seen in deeper connective tissue stroma. The patient was followed up for 1 month, and no signs of recurrence were evident. Postoperative radiograph and pictures are shown in Figure 6 and 7 respectively.

Discussion:

Hemangiomas are a common type of soft tissue tumour that frequently arise in new-borns or are congenital and grow quickly. They typically affect a sizable area, might be elevated or macular, and normally go away gradually in childhood [7]. The oral and maxillofacial region may experience them encompassing the salivary glands, lips, jawbone, gingiva, and palatal mucosa [8]. In addition to the mouth, reports of capillary hemangiomas developing in the cheek, eyelid, and cauda equina have been seen [8]. The patient in this case report was diagnosed with lobular capillary hemangioma of right mandible.

Hemangioma, which mostly affects gingival tissues, appears to be a very uncommon condition. Capillary hemangioma has a variety of clinical characteristics, including facial asymmetry, bleeding on its own, discomfort, tooth movability, blanching of tissue, pulsation, bone expansion, paresthesia, early primary tooth exfoliation, delayed eruption, root resorption, and missing teeth [9]. The patient in this case has a pedunculated mass with spontaneous bleeding, discomfort, tissue blanching, and lost teeth.

Histopathologically, radiographically, and clinically, hemangiomas can resemble other lesions. In the differential diagnosis of hemangiomas, pyogenic granuloma, varicocell, talengectasia, epulis granulomatosa, fibroma and chronic inflammatory gingival hyperplasia (epulis) are all included, even squamous cell carcinoma.

Pertaining to oral cavity, pyogenic granulomas are the most prevalent type of vascular growth of the oral mucosa. It is a reactive lesion that bleeds readily, grows quickly, and is typically accompanied by ulceration and inflammation. In terms of clinical appearance, it is frequently pedunculated, lobulated, reddish-purple, and may be hormone-sensitive [10]. Pyogenic granulomas of the oral cavity are classified as either non-LCH or LCH depending on their histological nature.

The hallmark of LCH is the proliferation of blood vessels arranged in lobular aggregates, while the second type of lesion is characterized by highly vascular growth that resembles granulation tissue, the lesion often does not undergo any specific alteration, such as edema, capillary

dilation, or inflammatory granulation tissue reaction [11]. From a histopathological perspective, the capillary hemangioma progresses from an early phase of densely proliferating endothelial cells to a mature phase of lobular mass of well-formed capillaries, which frequently resembles the pyogenic granuloma but lacks the inflammatory characteristics [12]. The current example has pyogenic granuloma-like clinical characteristics, but lacks the microscopic characteristics of a pyogenic granuloma. As a result, biopsy of tissue samples is frequently required for a conclusive hemangioma diagnosis. In the instance discussed here, histopathological assessment was conducted prior to and following surgery, and the results showed a correlation but not microscopic ones. As a result, biopsy of tissue samples is frequently required for a conclusive hemangioma diagnosis.

More recently, it has been shown that CT and MRI of these lesions can be used to successfully diagnose hemangiomas, as for further soft tissue lesions [2, 11]. In the instance at hand, surgical excision was used to treat the capillary hemangioma. Depending on the clinical characteristics and anatomical factors, there are significant differences in the therapy of capillary hemangiomas. The preferred course of treatment for capillary hemangiomas is typically surgical excision [3, 4]. Other forms of therapy, such as intralesional injection of fibrosing agents, radiation, electrocoagulation, cryosurgery, laser therapy, embolism, and radiation, may be employed for lesions that are not amenable to surgery [5, 9].

Conclusion:

Surgical excision attempts to remove hemangiomas may result in major health issues including severe bleeding. Postoperative recurrence is another possibility [6, 12].

To ascertain the clinical behavior of the tumor and any potential dentoalveolar consequences, early diagnosis and biopsy are required despite being an uncommon benign tumor of the mouth. Because of its associated gingival vascular features, increased plaque and microorganism accumulation, increased susceptibility to oral infections, and other consequences that can negatively impact the affected person's systemic health, capillary hemangioma is significant to oral and maxillofacial surgeons. In addition, because the tissues may bleed heavily both during and after surgery, vigilance should be exercised while managing hemangiomas. This emphasizes the importance of comprehensive diagnostic evaluation and tailored surgical intervention in managing such presentations of lobular capillary hemangiomas.

Sources of Funding: Nil

Conflict of Interest: The authors have no conflict of interest to disclose

AI Declaration: The authors declare that they have not utilized any AI-based programs for the content of the manuscript. The authors are completely responsible for all the content present within the manuscript.

References:

1. Kumari VR, Vallabhan CG, Geetha S, Nair MS, Jacob TV. Atypical presentation of capillary hemangioma in oral cavity-A case report. *Journal of Clinical and Diagnostic Research: JCDR*. 2015 Oct;9(10):ZD26. doi:10.7860/JCDR/2015/14276.6691
2. Srinivedha CV, Simre S, Basnet A, Pandey S, Chug A. Lobular Capillary Hemangioma Masquerading as Pyogenic Granuloma of Anterior Mandible: A. doi: 10.7759/cureus.42157
3. Dilsiz, A., Aydin, T. & Gursan, N. Capillary hemangioma as a rare benign tumor of the oral cavity: a case report. *Cases Journal* 2, 8622 (2009). <https://doi.org/10.4076/1757-1626-2-8622>
4. Chan C, Iv M, Fischbein N, Dahmouh H. Lobular capillary hemangioma of the mandible: a case report. *Clinical Imaging*. 2018 Jul 1; 50:246-9.

<https://doi.org/10.1016/j.clinimag.2018.04.012>

5. Toida M, Hasegawa T, Watanabe F, Kato K, Makita H, Fujitsuka H, Kato Y, Miyamoto K, Shibata T, Shimokawa K. Lobular capillary hemangioma of the oral mucosa: clinicopathological study of 43 cases with a special reference to immunohistochemical characterization of the vascular elements. *Pathology international*. 2003 Jan;53(1):1-7. <https://doi.org/10.1046/j.1440-1827.2003.01434.x>
6. Mills SE, Cooper PH, Fechner RE. Lobular capillary hemangioma: the underlying lesion of pyogenic granuloma. A study of 73 cases from the oral and nasal mucous membranes. *Am J Surg Pathol*. 1980 Oct;4(5):470-9. PMID: 7435775. doi: <https://journals.lww.com/ajsp/toc/1980/10000>
7. Wei-Yung Y, Guang-Sheng MA, Merrill RG, Sperry DW. Central hemangioma of the jaws. *Journal of oral and maxillofacial surgery*. 1989 Nov 1;47(11):1154-60. [https://doi.org/10.1016/0278-2391\(89\)90005-0](https://doi.org/10.1016/0278-2391(89)90005-0)
8. Mills, Stacey E. M.D.; Cooper, Philip H. M.D.; Fechner, Robert E. M.D.. Lobular capillary hemangioma: The underlying lesion of pyogenic granuloma. *The American Journal of Surgical Pathology* 4(5):p 471-480, October 1980. doi: <https://journals.lww.com/ajsp/toc/1980/10000>
9. Kamal R, Dahiya P, Puri A: Oral pyogenic granuloma: various concepts of etiopathogenesis . *J Oral Maxillofac Pathol*. 2012, 16:79-82. doi:10.4103/0973-029X.92978
10. Ver Berne J, Raubenheimer EJ, Jacobs R, Politis C: Clinical and pathological differences between the PG and lobular capillary hemangioma in the oral cavity: a scoping review. *J Stomatol*. 2020, 73:206-16. doi:10.5114/jos.2020.98315
11. Thompson LD: Lobular capillary hemangioma (pyogenic granuloma) of the oral cavity. *Ear Nose Throat J*. 2017, 96:240. doi:10.1177/014556131709600716
12. Bamgbose BO, Kaura MA, Atanda AT, Ajayi OF: Lobular capillary hemangioma of the gingiva: clinical management and a review of the literature. *Niger J Basic Clin Sci*. 2016, 1:107-13. doi:10.4103/0331-8540.181031

Figure Legends:

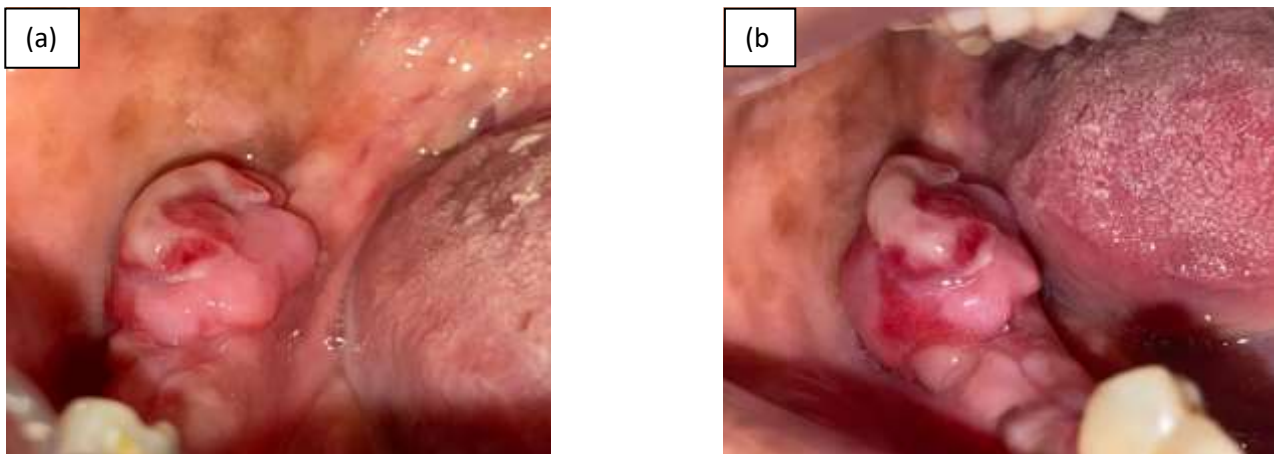


Figure 1: Preoperative picture of the patient (a) and (b) Swelling observed on the alveolus in respect to 46-48

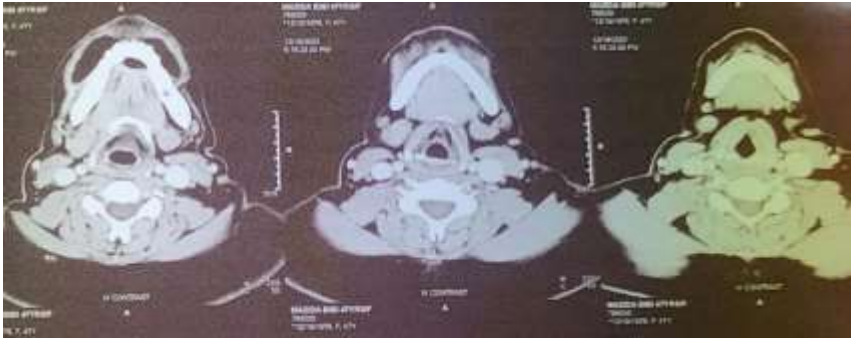


Figure 2: Pre-Operative CECT Neck with oral cavity



Figure 3: Pre-Operative OPG



Figure 4: Surgical excision of the lesion

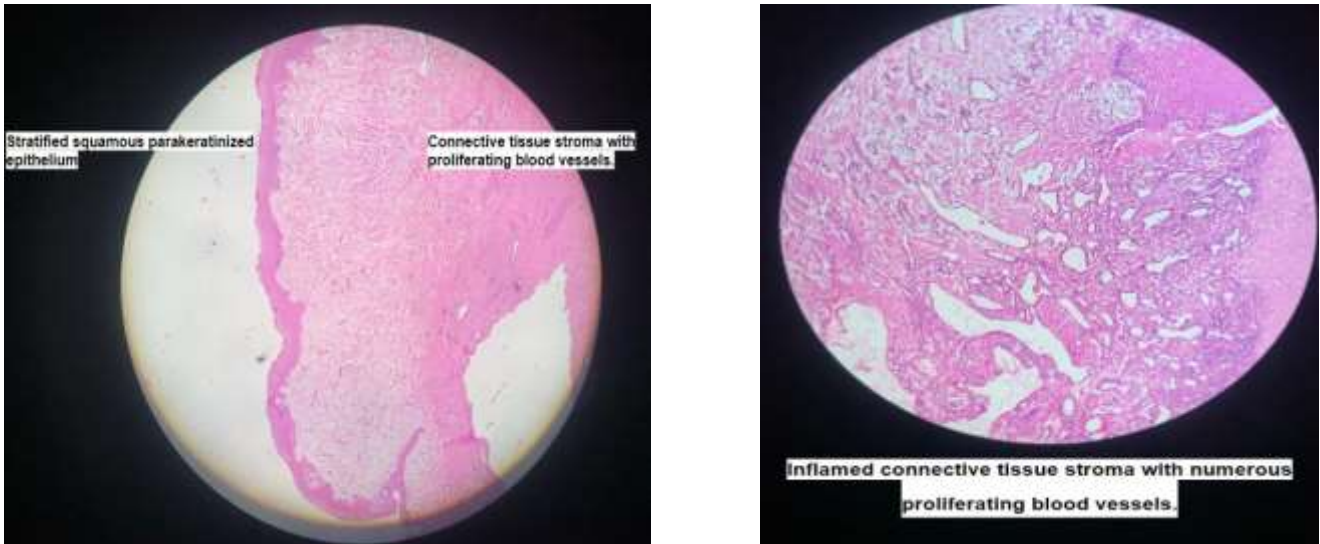


Figure 5: Histopathological specimen; inflamed connective tissue stroma with numerous proliferating blood vessels (x10 and x40 magnification, H-E staining)



Figure 6: Post-Operative OPG

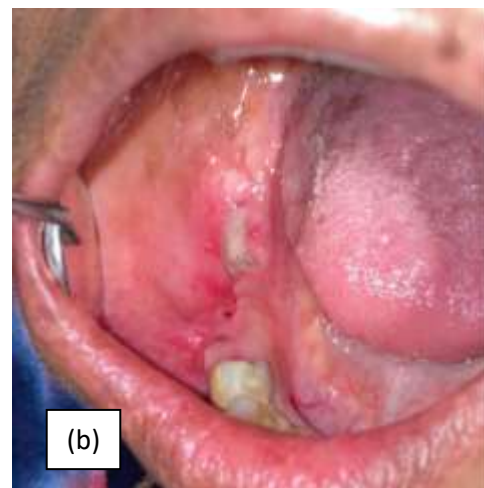
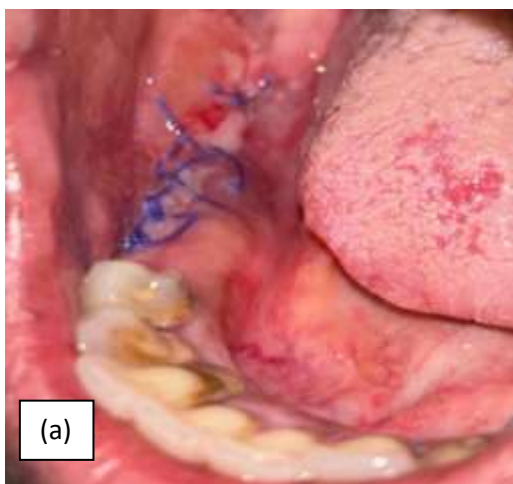


Figure 7: (a) Immediate post-operative and (b) 1 month postoperative clinical photographs