Case Report

Academia Journal of Medicine
Year 2026, Volume-9, Issue- 1 (January- June)

Case Report on Capillary Hemangioma of the Maxillofacial Region

Mimansha Patel[1], Arijit Bedi[2], H. L Gupta[3], Sumit Bhatt[4], Gunmeek Kaur[5], Amit[6]

[1]Prof & HOD, Department of Oral Pathology& Microbiology, Triveni Institute of Dental Sciences, Hospital and Research Centre Bodri, Bilaspur, Chhattisgarh-495220
[2]MDS Oral Pathology and Microbiology, Practitioner, Barddhaman, West Bengal.
[3]OD & Professor, Principal, Department of Periodontology and Oral Implantology, Rajasthan Dental College and, Hospital, Nirwan University, Jaipur, Rajasthan.
[4]PhD Scholar, Assistant Professor, Department of Oral and Maxillofacial Surgery, Rajasthan Dental College & Hospital, Nirwan University, Jaipur, Rajasthan.
[5]Assistant Professor, Department of Oral and Maxillofacial Surgery, Luxmi Bai Dental College and Hospital, Patiala, Punjab
[6]Professor & Head, Department of Oral and Maxillofacial Surgery, Rajasthan Dental College and Hospital, Nirwan University, Jaipur, Rajasthan-302042.

ARTICLE INFO

Keywords: Capillary Hemangioma, Vascular Tumor, Maxillofacial Swelling, ISSVA classification, Surgical Excision, Immunohistochemistry, MRI, Psychosocial Impact

doi:10.48165/ajm.2026.9.01.15

ABSTRACT

Capillary hemangiomas are benign vascular proliferations that commonly present in childhood but can persist or appear in adulthood. This case report discusses a rare presentation of an extensive capillary hemangioma involving the maxillofacial region. The patient presented with progressive swelling over three months, with significant facial asymmetry. Diagnosis was confirmed through clinical, radiological, and histopathological examination. The lesion was surgically excised, with post-operative recovery documented. This case highlights the clinical presentation, diagnostic approach, and surgical management of capillary hemangiomas in the maxillofacial region. A comprehensive discussion is included to explore the histopathological features, pathogenesis, differential diagnoses, psychosocial considerations, and therapeutic approaches including current advancements and consensus guidelines.

Introduction

Capillary hemangiomas are benign vascular tumors characterized by abnormal proliferation of endothelial cells and are most commonly observed in infancy and early childhood[1]. Although early-life onset is typical, several studies have reported their persistence beyond childhood or initial appearance in adulthood, expanding their recognized clinical spectrum[1]. According to the International Society for the Study of Vascular Anomalies (ISSVA), capillary hemangiomas are classified under benign vascular tumors within the broader category of vascular anomalies[2].

Histopathologically, capillary hemangiomas exhibit a well-defined lobular arrangement of capillary-sized vessels lined by plump endothelial cells, features essential for distinguishing them from other vascular proliferations[3]. Therapeutic understanding has evolved substantially over the years. Earlier, systemic agents such as corticosteroids were used; however, the introduction of propranolol transformed the management of infantile hemangiomas by demonstrating rapid and effective lesion regression[4]. Despite these advancements, adult-onset hemangiomas or lesions that fail to involute often show limited responsiveness to medical therapy and may require surgical excision for definitive management[5].

The ISSVA classification further emphasizes the biological diversity of vascular tumors and malformations, reinforcing the need for accurate clinicopathologic assessment[6]. Congenital hemangiomas, unlike infantile hemangiomas, are fully formed at birth and may undergo accelerated or partial involution, as described by Boon et al.[7]. Immunohistochemical advancements have also improved

Corresponding author: Mimansha Patel
Email id: mimanshapatel_24@yahoo.com

diagnostic accuracy; notably, GLUT1 is recognized as a sensitive marker for infantile hemangiomas during their proliferative phase[8].

Adult presentations, though less common, are clinically significant. Jacob et al., in a large adult series, reported that symptomatic hemangiomas and vascular malformations in adults frequently require procedural or surgical intervention due to persistent growth, discomfort, or esthetic concerns[9]. The underlying pathogenesis is believed to be multifactorial, involving dysregulation of angiogenic pathways mediated by Vascular Endothelial Growth Factor (VEGF), Basic Fibroblast Growth Factor (bFGF), local hypoxia, and endothelial proliferation[10].

Given the anatomical complexity and esthetic sensitivity of the maxillofacial region, capillary hemangiomas in this area present unique diagnostic and therapeutic challenges. The present case report describes an uncommon adult-onset maxillofacial capillary hemangioma and highlights its clinical presentation, radiologic characteristics, histopathologic features, and surgical management.

Comparative Review of Literature: Several published reports have described capillary hemangiomas affecting the head and neck region, highlighting important differences in patient demographics, biological behavior, diagnostic approaches, and therapeutic responses. Early studies, such as those by Enjolras et al., emphasized the predominance of these lesions in infancy and childhood, often presenting with rapid proliferation and occasionally alarming clinical features requiring immediate intervention[2]. Histopathologic analyses by Blei and Walter further reinforced the characteristic lobular vascular architecture of these tumors, aiding in their distinction from other vascular anomalies[3].

Advancements in medical therapy, particularly the introduction of propranolol, significantly changed the management of problematic infantile hemangiomas, with Léauté-Labrèze et al. demonstrating its superior therapeutic response compared to earlier systemic agents[4]. However, Greene et al. observed that involuting hemangiomas—especially in the head and neck region—may still require surgical intervention, particularly when residual fibrofatty tissue or persistent masses impair function or esthetics[5].

The relevance of standardized diagnostic classification became clearer with the formalization of the ISSVA system, which separated vascular tumors from malformations based on biological behavior[6]. Boon et al. further refined this understanding by distinguishing congenital hemangiomas, which are fully formed at birth and follow unique involution patterns distinct from infantile hemangiomas[7]. The introduction of GLUT1 as a reliable immunohistochemical marker, as reported by North et al., also represented a major diagnostic advance for confirming infantile hemangiomas[8].

Adult presentations, though relatively uncommon, have been documented in larger series such as the 15-year review by Jacob et al., which highlighted that symptomatic hemangiomas in adults often behave differently from pediatric lesions and frequently require interventional or surgical management due to persistent enlargement, discomfort, or cosmetic deformity[9]. These findings align closely with the characteristics observed in the present case.

To contextualize the current case, a comparative summary of previously reported cases is presented in Table 1. This comparison demonstrates variability across age groups, anatomical locations, diagnostic modalities, and treatment approaches, underscoring the importance of individualized clinical assessment. While pediatric lesions often exhibit spontaneous involution or respond well to pharmacologic therapy, adult-onset or persistent lesions—such as the one described in this report—tend to require surgical excision for definitive management.

Table 1. Comparative Analysis of Reported Cases of Capillary Hemangioma in the Literature

Study	Patient Demographics	Location	Diagnostic Modality	Treatment	Outcome
Enjolras et al. (1990)[2]	Infants (n=25)	Facial	Clinical + Angiography	Corticosteroids	Regression in 80%
Greene et al. (2004)[5]	Pediatric	Parotid region	MRI + Biopsy	Surgery	Good cosmetic result
North et al. (2000)[8]	Infant	Cheek	IHC for GLUT1	Observation	Natural regression
Jacob et al. (1998)[9]	Adult (n=133)	Head & neck	CT + Biopsy	Sclerotherapy/ Surgery	10% recurrence rate
Present case	22-year-old male	Right maxillofacial	MRI + HPE	Surgery	No recurrence after 1 month

Case Report

Patient History: A 22-year-old male reported to the outpatient department with the chief complaint of progressive swelling on the right side of his cheek for the past three months. The swelling was insidious in onset, gradually increasing in size. The patient described the swelling as painless and denied any history of trauma or infection in the region. He reported mild discomfort while chewing and a sensation of tightness in the cheek. There was no history of bleeding, ulceration, or fever. His past medical history was unremarkable, and there was no familial history of similar lesions.

Clinical Examination

General and Extraoral Findings: The patient was well-built, afebrile, and vital signs were within normal limits. On extraoral examination, there was noticeable facial asymmetry due to a 4×5 cm swelling on the right midface. The overlying skin appeared stretched and slightly erythematous. The lesion had ill-defined margins, was soft in consistency, compressible, and non-pulsatile. There was no thrill or bruit on auscultation. The swelling involved the buccal and labial regions, extending from the infraorbital margin to the upper lip, but sparing the nasal alae and eyelids. Cervical lymph nodes were non-palpable. (Fig 1)

Intraoral Examination: Intraorally, the buccal mucosa on the right side was raised, with a reddish-bluish hue. There was no ulceration or bleeding. On palpation, the mucosa was non-tender, soft, and non-fluctuant. The gingival margin was inflamed due to poor oral hygiene, with noticeable calculus and mild gingival recession. Teeth 14 to 16 showed Grade I mobility. (Fig 1)

Functional Assessment: Mouth opening was found to be slightly restricted, with an interincisal distance of approximately 28 mm compared to the normal adult range of 35–45 mm. This reduction in mandibular opening was attributed to the mass effect of the lesion. Temporomandibular joint movements were synchronous and symmetrical on both sides, without clicking, deviation, or tenderness. The patient did not report any paresthesia, numbness, or pain in the affected region. Masticatory and speech functions remained unaffected.

Radiographic and Histopathological Examination: A panoramic radiograph (orthopantomogram; OPG) was obtained, which revealed no evidence of bony involvement or cortical perforation. Contrast-enhanced Magnetic Resonance Imaging (MRI; Siemens Magnetom Avanto 1.5 Tesla, Germany) of the face was performed to delineate the extent of the lesion. MRI is a non-invasive imaging modality that uses strong magnetic fields and radio waves to generate detailed images of soft tissues.

In this study, **T1-weighted images**—which highlight fat and provide excellent anatomical detail—showed an iso-intense lobulated soft-tissue mass within the subcutaneous plane of the right cheek. **T2-weighted images**, which are sensitive to water content and fluid signals, demonstrated a hyperintense appearance of the lesion, indicating its vascular nature. Intense post-contrast enhancement was noted following administration of gadolinium-based contrast medium, confirming high vascularity and delineating the lesion borders clearly. There was no evidence of intracranial extension, sinus involvement, or invasion into the underlying musculature.

An incisional biopsy was performed under local anesthesia. Histopathological examination revealed a lobular architecture comprising numerous small capillary-sized vessels lined with plump endothelial cells within a fibrous stroma. The vascular spaces were filled with erythrocytes. There was no evidence of atypia or malignancy. The histological diagnosis was consistent with capillary hemangioma[3]. (Fig 1)

Treatment and Outcome

Given the lesion's extensive size and its potential for functional and esthetic compromise to the patient, a Complete Surgical excision was planned and performed under General anesthesia in minor operation theatre in the presence of an Anaesthesiologist after conducting all relevant blood investigations needed. An informed written consent was taken from patent before conducting surgery. Under Standard aseptic conditions, surgical treatment was conducted. The lesion was approached through an intraoral incision, carefully dissected from surrounding tissues and the entire lesion was excised en bloc. Hemostasis was achieved using bipolar electrocautery to minimize intraoperative bleeding. Interrupted sutures were placed using 3-0 black silk (Ethicon® brand) with a simple interrupted suturing technique to ensure tension-free wound closure.

Postoperatively, the patient was prescribed Amoxicillin 500 mg thrice daily for five days and Ibuprofen 400 mg thrice daily for three days for analgesia and anti-inflammatory support. The patient was also advised to use 0.12% Chlorhexidine mouth rinse twice daily for seven days and to maintain meticulous oral hygiene with a soft-bristled toothbrush. Additionally, warm saline rinses were recommended three times daily to aid healing and reduce edema.

Sutures were removed on the seventh postoperative day, and the wound showed satisfactory epithelialization with no signs of infection, dehiscence, or bleeding. Healing was assessed based on the absence of erythema, edema, tenderness, and the presence of healthy granulation tissue at the surgical site. Follow-up evaluations were conducted at one week, one month, and three months post-surgery. At each follow-up, clinical assessment included inspection, palpation, and photographic documentation. No recurrence or secondary infection was observed during these visits. The patient demonstrated complete functional recovery, with significant improvement in mastication, mouth opening, and overall facial esthetics.

These findings indicated a successful surgical outcome with satisfactory wound healing and functional restoration, corroborating the effectiveness of complete excision for such maxillofacial vascular lesions.

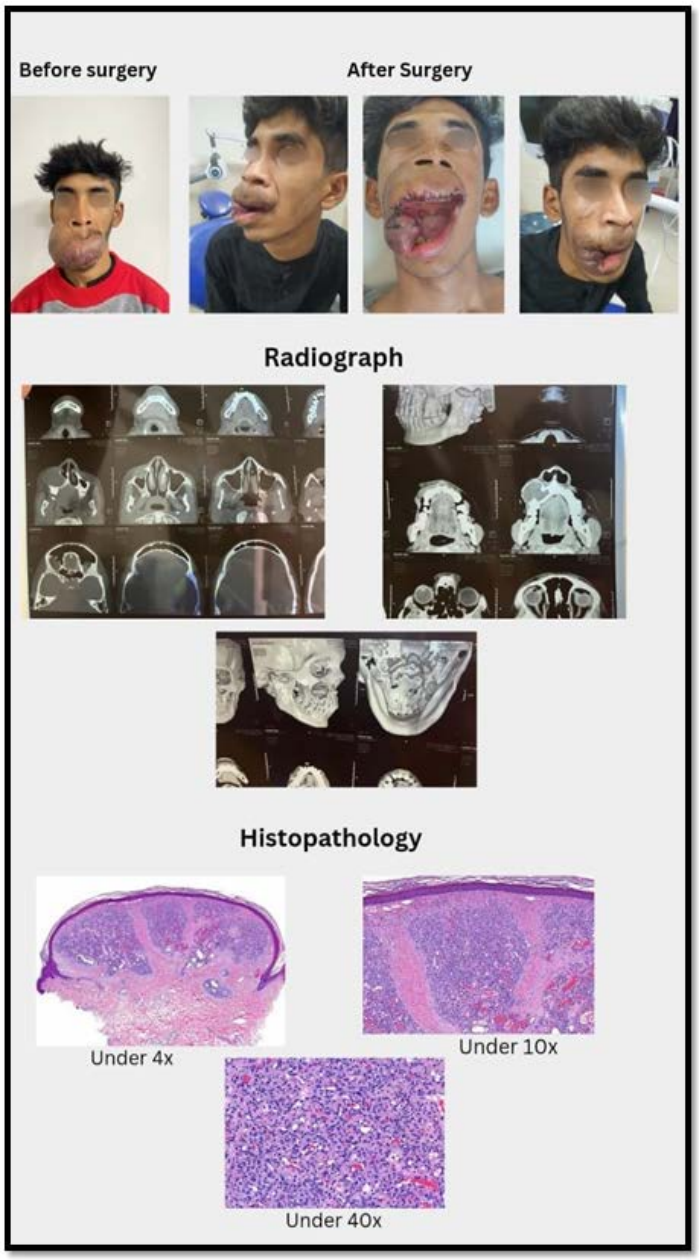

Fig 1: Pre- and post-operative clinical, radiographic, and histopathological evaluation of a maxillofacial lesion.

Discussion

Capillary hemangiomas are benign vascular tumors most frequently observed during childhood; however, their occurrence in adults, as seen in the present case, has been documented and represents an important clinical subset[15]. Their etiology is multifactorial, involving dysregulated angiogenesis mediated by Vascular Endothelial Growth Factor (VEGF), Basic Fibroblast Growth Factor (bFGF), local tissue hypoxia, and clonal endothelial proliferation[1]. These angiogenic triggers promote aberrant endothelial cell growth and capillary formation, accounting for the characteristic histologic architecture of these lesions.

Earlier literature by Enjolras et al. highlighted the rapid proliferative behavior of infantile hemangiomas and the need for timely evaluation, especially when lesions exhibit alarming features[2]. Histopathologically, Blei and Walter described the classic lobular arrangement of capillary-sized vessels lined by plump endothelial cells, a key diagnostic feature also confirmed in the present case[3].

Therapeutic advancements have significantly improved management outcomes. Propranolol, introduced by Léauté-Labrèze et al., revolutionized treatment for infantile hemangiomas by demonstrating rapid regression and excellent therapeutic response[4]. However, medical therapies are typically less effective in adult-onset lesions, which tend to persist and frequently require active intervention. Greene et al. emphasized that involuting hemangiomas, particularly in the head and neck region, may still necessitate surgical excision to address residual or symptomatic masses[5].

Immunohistochemical contributions have also strengthened diagnostic precision. North et al. identified GLUT1 as a sensitive marker for infantile hemangiomas, distinguishing them from other vascular tumors and malformations[8]. Although GLUT1 positivity is characteristic of infantile lesions, its diagnostic relevance underscores the importance of histopathology and immunohistochemistry in vascular anomaly classification.

Adult presentations are particularly notable. Jacob et al., in their large 15-year review, reported that symptomatic hemangiomas and vascular malformations in adults often present with persistent enlargement and functional impairment, necessitating procedural or surgical management[9]. These observations align with the clinical course of the present case, where the lesion did not demonstrate spontaneous regression and required surgical excision due to esthetic distortion and functional limitation.

The pathogenesis of hemangiomas is further supported by evolving concepts regarding the role of angiogenic signaling pathways and endothelial cell biology. Chen et al. described the involvement of VEGF, bFGF, and other molecular mediators in promoting endothelial proliferation and vascular remodeling[10]. Additionally, risk stratification models proposed by Baselga et al. emphasized the importance of lesion location, growth behavior, and potential complications in determining management strategies[11].

Therapeutic modalities have expanded beyond surgery and systemic agents. Amaral et al. discussed current and emerging topical and systemic treatments for infantile hemangiomas, indicating a broader therapeutic landscape that may evolve further with improved molecular understanding[12]. Mazereeuw-Hautier et al. highlighted the challenges associated with managing difficult hemangiomas, particularly those in anatomically sensitive regions such as the face and neck[13].

Emerging insights into genetic and molecular mechanisms have also contributed to improved understanding. Casanova

et al. described the genetic basis of vascular anomalies and its implications for future targeted therapies[14]. The demographic variability of hemangiomas was further elaborated by Chiller et al., who identified differences across race, ethnicity, and sex, contributing to a more nuanced understanding of lesion behavior[15].

In the present case, the lesion exhibited classical radiologic and histopathologic features consistent with a capillary hemangioma. The surgical excision performed resulted in excellent esthetic and functional outcomes, with no recurrence during follow-up. This reinforces that although many hemangiomas in children involute spontaneously, adult-onset variants generally require individualized management, often favoring surgical removal.

Conclusion

Capillary hemangiomas of the maxillofacial region, though benign, may demand extensive evaluation and intervention due to esthetic and functional impairment. Comprehensive assessment through clinical, radiologic, and histologic methods is essential. Treatment should be tailored to lesion characteristics and patient needs, with surgery playing a key role in selected cases. Multidisciplinary care and long-term follow-up are vital for optimal results.

References

Mulliken JB, Glowacki J. Hemangiomas and vascular malformations in infants and children: a classification based on endothelial characteristics. *Plast Reconstr Surg*. 1982;69(3):412–22. doi:10.1097/00006534-198203000-00002.

Enjolras O, Riche MC, Merland JJ, Escande JP. Management of alarming hemangiomas in infancy: a review of 25 cases. *Pediatrics*. 1990;85(4):491–8. doi:10.1542/peds.85.4.491.

Blei F, Walter JW. Histopathologic and clinical features of vascular anomalies. *Otolaryngol Clin North Am*. 2002;35(6):1187–1201.

Léauté-Labrèze C, Dumas de la Roque E, Hubiche T, Boralevi F, Thambo JB, Taïeb A. Propranolol for severe hemangiomas of infancy. *N Engl J Med*. 2008;358(24):2649–51. doi:10.1056/NEJMc0708819.

Greene AK, Rogers GF, Mulliken JB. Involuting hemangioma: implications for surgical intervention. *Plast Reconstr Surg*. 2004;113(7):1945–52.

International Society for the Study of Vascular Anomalies (ISSVA). ISSVA Classification for Vascular Anomalies. 2020. Available from: https://www.issva.org/classification.

Boon LM, Enjolras O, Mulliken JB. Congenital hemangioma: evidence of accelerated involution. *J Pediatr*. 1996;128(3):329–35.

North PE, Waner M, James CA, Mizeracki A, Frieden IJ, Mihm MC Jr. GLUT1: a newly discovered immunohistochemical marker for juvenile hemangiomas. *Hum Pathol*. 2000;31(1):11–22.

Jacob AG, Driscoll DJ, Shaughnessy WJ, Stanson AW, Clay RP, Gloviczki P. Symptomatic hemangiomas and vascular malformations in the adult: a 15-year experience with 133 patients. *Mayo Clin Proc*. 1998;73(6):590–5.

Chen TS, Eichenfield LF, Friedlander SF. Infantile hemangiomas: an update on pathogenesis and therapy. *Pediatrics*. 2013;131(1):99–108.

Baselga E, Roe E, Coulie J, et al. Risk stratification of infantile hemangiomas. *J Am Acad Dermatol*. 2016;74(3):593–605.

Amaral J, Taddio A, Bauman M. Topical and systemic treatments for infantile hemangiomas: current and future perspectives. *Pediatr Drugs*. 2017;19(2):125–35.

Mazereeuw-Hautier J, Syed S, Harper J. Management of difficult hemangiomas. *Clin Dermatol*. 2005;23(6):596–608.

Casanova D, Boon LM, Vikkula M. Vascular anomalies: from genetics toward models for therapeutic trials. *Cold Spring Harb Perspect Med*. 2020;10(11):a036210. doi:10.1101/cshperspect.a036210.

Chiller KG, Passaro D, Frieden IJ. Hemangiomas of infancy: clinical characteristics, morphologic subtypes, and their relationship to race, ethnicity, and sex. *Arch Dermatol*. 2002;138(12):1567–76.