

Diagnosis and Management of a Pediatric Lower Lip Hemangioma: A Case Report

Andries Pascawinata^{1,2*}, Wulan, Anggestia¹, Yodi Satyadin Ichsan¹

1. Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Baiturrahmah University, Padang, Indonesia.

2. Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Andalas University, Padang, Indonesia.

Abstract

Hemangioma is one of the most common tumors in children. Hemangiomas can occur in any organ or tissue of the body, but are more common on the skin or subcutaneous tissue and mucous membranes of the oral cavity and lips.

To report the diagnosis and management of a case of hemangioma of the pediatric lower lip.

A 9-year-old child came with his mother to the hospital with a chief complaint of painless swelling of the reddish-colored mucosa of the right lip. The patient complained of impaired eating, speaking and aesthetic function. The patient was diagnosed with hemangioma of the lower lip, after which full excision was performed. The definitive diagnosis was obtained from histopathologic examination.

The patient's hemangioma of the lower lip was successfully treated with surgical excision procedure and no post-operative recurrence was found.

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Introduction

A hemangioma is a benign tumor that develops from blood vessels and is often seen in the first 18 months of a pediatric life. Hemangiomas are characterized by rapid growth and invasiveness into the surrounding tissue where endothelial cell proliferation occurs and involution follows.¹ Hemangiomas can change color, consistency and shape of the tissue during growth and cause different abnormalities and functional impairment of the limbs. Hemangiomas are more commonly found in the head and neck region. The incidence of hemangioma in 1-year-old children reaches 10-15% and generally disappears naturally the age of 9 years. 60% hemangiomas occur in the head and neck area, and are more common in females, premature infants, twins and fair-skinned.^{2,3} Hemangiomas that occur around the oral cavity along with complications such as ulceration, bleeding, infection, eating disorders

and changes in the contour of the lips.^{4,5} In the oral cavity, hemangiomas are most commonly found on the lips, tongue and buccal mucosa. The lesion can also appear on the mucosa of the cheeks or on the palate. In addition, the site of hemangioma can also expand.^{6,7} Hemangiomas are classified into capillary, cavernous and mixed hemangiomas. Capillary hemangioma consists of juvenile hemangioma, senile hemangioma, nevus flammeus, and pyogenic granuloma. Capillary hemangioma is the most common vascular tumor. It is also called strawberry hemangioma based on its color. Juvenile hemangioma is more commonly found in the parotid region. Cavernous hemangioma is generally larger in diameter and involve deeper structures while Arteriovenous hemangioma is a condition that causes abnormal arteries and veins. Overall, hemangiomas will regress or experience involution with age. In some cases, however, the regression process does not occur completely.⁸

The etiology of hemangioma remains unclear, but there are signs of residual deviation from the formation of vascular tissue elements. In general, hemangioma is a malformation of vascular development during the development of vascular tissue. A number of literature state that hemangioma is not a true tumor (hamartoma), but it is congenital, and a malformation of

*Corresponding author:

Andries Pascawinata
Department oral and maxillofacial surgery,
Faculty of Dentistry- Baiturrahmah University
Padang - Indonesia
E-mail: andriespascawinata@fkg.unbrah.ac.id

vascular formation due to trauma, or developmental anomalies.⁹ Some lesions show signs of tumors, but this likely occurs due to trauma during the formation or development of blood vessels. Treatment options for hemangiomas include surgical excision, administration of medications such as corticosteroids, cryo-therapy, laser embolization, and injection of sclerotic material or a combination of these treatments.^{10,11}

Case Report

A 9-year-old boy came to the hospital with a complaint of a large lump on the right lower lip. The lump began to enlarge one year ago, which was initially only a red spot at birth. However, the patient did not feel pain in the lump. The patient felt impaired in eating, speaking and appearance. History of systemic and hereditary diseases was denied. The examination revealed a purplish-red, painless, palpably tender lump about 1.5 cm in diameter on the right lower lip (Figure 1). The lump was clinically diagnosed as hemangioma of the lip.



Figure 1. Clinical features of the lesion.

The case was managed with a full excision followed by biopsy for histopathologic examination. The surgery was performed under general anesthesia. The area around the lesion was injected with pehacaine and then a V-shaped excision was performed on the lower lip by leaving a distance of 1 mm from the edge of healthy tissue to reduce the possibility of recurrence. The treatment was followed by dissection of the lip mucosa and muscle around the incision edge to facilitate the suturing procedure (Figure 2).



Figure 2. V-shaped incision.



Figure 3. Suturing with interrupted suture technique.

Suturing was performed on the muscle and then the mucosa using the simple interrupted suture with black silk thread (Figure 3). During the procedure, bleeding was controlled using electrocautery and no excessive bleeding occurred. The excised tissue was soaked in 10% formalin solution and sent to the anatomic pathology department for histopathologic examination. The patient was then instructed for 1 week post-operative control for suture opening.

The patient was instructed to return 1 month later for observation and no sign of recurrence was found. The results of the histopathological examination exhibited that the tissue was covered with flat layered epithelium. There were rather large cavities in the dermis, lined with endothelial cells, and the lumen contained erythrocyte mass.

Discussion

Hemangiomas are the most common benign (non-cancerous) vascular tumors in children.^{8,11} Hemangiomas and vascular malformations are two different groups of vascular lesions, which are often confused with each other. Vascular lesions are classified based on anatomical, structural and biological features. The classification was made by Mulliken and Glowacki in 1982 based on anomalies in vascular cell kinetics. This classification divides vascular lesions into hemangiomas and vascular malformations. The International Society for the Study of Vascular Anomalies (ISSVA), in 1996 approved the classification into lesions with a proliferative component called 'vascular tumors' versus the relatively static 'vascular malformations' through research by Mulliken and Glowacki. Later Wassef et. al updated the official ISSVA classification of vascular anomalies in 2015. It stated that the general biological classification scheme was retained and vascular tumors have been expanded to benign, locally aggressive or borderline and malignant.³ The difference between hemangiomas and vascular malformations can be seen in the table below (Table 1).¹²

Hemangioma	Vascular malformation
Appears several weeks after birth, rarely found at birth	Found at birth
More common in females	Found in both male and female infants
Exhibits a 3-phase growth pattern: rapid progression phase, quiescent phase and regression phase	Increases in size as the patient grows
Characterized by endothelial cell changes and proliferation	Does not reduce spontaneously
Divided into 3 types: superficial, deep and mixed	A structural anomaly of the blood vessels
	No endothelial proliferation
	Divided into 4 malformations: capillary, venous, arterial, lymphatic

Table 1. The difference between hemangiomas and vascular malformations.

In general, hemangiomas are classified into.¹²

1. Superficial (Capillary Hemangioma): It consists of small capillaries lined by a single layer of endothelial cells
2. Deep (Cavernous Hemangioma): It is formed by large, thin-walled blood vessels or sinusoids lined by epithelial cells
3. Mixed or Compound (Capillary cavernous hemangioma).

Some cases of hemangioma are congenital, and some hemangiomas are not visible at birth but they develop during the first month of life. The most common locations for hemangiomas are the head and neck region. In the oral cavity, the highest incidence occurs in the buccal mucosa (45.2%), followed by the tongue (35.5%), lips (9.7%), gingiva (6.5%), and palate (3.2%).¹⁰ Based on clinical and histopathological point of view, hemangiomas look like lesions such as granulomatous epulis, pyogenic granuloma, chronic gingival inflammatory hyperplasia (epulis), squamous cell carcinoma, and peripheral giant cell granuloma to be used as a differential diagnosis.¹⁰

In this case, a 9-year-old boy had a hemangioma of the lower lip leading to disruption of speech, mastication and aesthetic functions. The diagnosis of hemangioma in this patient was obtained clinically as a preliminary diagnosis because all clinical symptoms could be clearly seen. Therefore, no supporting diagnostic examination was performed. Histopathologic examination remains the most accurate and satisfactory way of diagnosis as a definitive diagnosis to distinguish other similar lesions.¹³ In some cases, the initial diagnosis can be assisted by supporting examinations such as Magnetic Resonance Imaging (MRI), Ultrasound (USG), and Doppler angiography.¹

The American Academy and Pediatric Dentistry advised that the management of pediatric oral tumors must consider anatomical and physiological differences in children and adults. Oral tumors in children usually grow faster and their development is less predictable. The physiological factors in children will be more beneficial in healing after surgical removal of tumors, therefore, the healing in children occurs faster than in adults.²

Hemangiomas sometimes do not require treatment as they may shrink spontaneously. However, approximately 10%-20% of hemangiomas require treatment depending on factors such as patient age, clinical features, and anatomical considerations. The most common treatment option for hemangiomas is surgical excision of the lesion with or without vessel ligation and embolization. Other options include laser, corticosteroid injection, embolization, cryosurgery, radiotherapy and cyclophosphamide.¹⁴ A treatment method that

seems satisfactory for one case of hemangioma may not be suitable for the other. The based method should be based on the age and gender of the patient, tumor localization, blood flow rate, and phase of the lesion.¹⁰ Some cases of small-sized hemangiomas have shown excellent success using laser and cryotherapy. When surgery is contraindicated, the use of sclerosing agent injection in the lesion, propranolol medication, corticosteroids, electrocauterization, cryotherapy, radiation therapy may be an option.^{1,8,14} The use of a combination of several methods at once may also be a treatment option.¹⁵

In this case, a full excision was performed considering the age, shape of the lesion and functional impairment caused by the hemangioma. Furthermore, the excised tissue was also biopsied and histopathologically examined to obtain a definitive diagnosis. The post-operative observation for one month showed no recurrence.

Conclusions

Hemangioma is a benign vascular tumor that is most common in children and adolescents. In this case, a full excision was performed on the patient's lower lip hemangioma, and the excised tissue was biopsied to determine the definitive diagnosis. No recurrence was found after 1 month of post-operative observation.

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Declaration of Interest

The authors report no conflict of interest.

References

1. Akbas M, Haylaz E, Karabiyik Z, Geduk G. Diagnosis and Treatment of Oral Capillary Hemangioma: A Case Report. *Van Sağlık Bilim Derg.* 2023;16(1):90-93. doi:10.52976/vansaglik.1158839
2. Peña AB, Borrás MAM, Cárdenas OB-, Guillén AP, Rangel AG. Management of the oral hemangiomas in infants and children: Scoping review. *Med Oral Patol Oral y Cir Bucal.* 2020;25(2):e252-e261. doi:10.4317/medoral.23329
3. Chauhan D, Hota SK, Kabra H, Giri R, Senapati U, Tudur HC. Compound haemangioma of lower lip: an interesting and rare case report. *Int J Contemp Pediatr.* 2021;8(7):1310. doi:10.18203/2349-3291.ijcp20212496
4. Cawthorn TR, Fraulin FOG, Harrop AR. Infantile Hemangiomas of the Lip: Complications and Need for Surgical Intervention. *Plast Reconstr Surg - Glob Open.* 2019;7(6):E2308. doi:10.1097/GOX.0000000000002308
5. Agrawal G, Singh R, Nair R. Supraglottic device for circumventing bag-mask ventilation in giant lip hemangioma. *Indian J Case Reports.* 2022;8(11):344-346. doi:10.32677/ijcr.v8i11.3622
6. Gao W, Jin Y, Lin X. Nasolabial Flap Based on the Upper Lateral Lip Subunit for Large Involution Infantile Hemangiomas of the Upper Lip. *Ann Plast Surg.* 2020;84(5):545-549. doi:10.1097/SAP.0000000000002030
7. Karimov MA. Comparative Effectiveness Of Treatment Of Oral Hemangiomas With Ir-Lasers. *Eurasian Sci.* 2023;20:5-11.
8. Krowchuk DP. Manejo Y Tto Del Hemangioma Infantil. *Clin Pract Guidel Guid Clin Render Pediatr Care.* 2019;143(1):1-28.
9. Hasan S, Khan A, Banerjee A, Ramalingam K. Infantile Hemangioma of the Upper Lip: Report of a Rare Case With a Brief Review of Literature. *Cureus.* 2023;1(7):1-9. doi:10.7759/cureus.42556
10. Mankhair S, Jadhav JA, Chakole V, Singam A, Verma N. Anesthetic and Airway Management in a Case of Surgical Excision of Recurrent Buccal Hemangioma. *Cureus.* 2023;15(6):4-11. doi:10.7759/cureus.39951
11. Pohane B, Dhanksar P, Pathade A, Waghmare SM, Gomase K. A Case report on 6-yr old female child patient with a known case of Lower Lip Hemangioma. *Int J Early Child Spec Educ.* 2022;14(4):2202-2205. doi:10.35841/aacdo-6.1.103
12. Hima HS, Johnny J, Khan neena M, Anto I. Hemangioma of Lower Lip - A Case Report. *Budapest Int Res Exact Sci J.* 2020;2(4):410-417. doi:10.33258/birex.v2i4.1254
13. Kumari VRV, Mohan SC, LNU SG. Management of Capillary Hemangioma In The Oral Cavity of A Pregnant Patient: A Rare Case Report. *J Sci Dent.* 2016;6(2):40-45. doi:10.5005/jsd-6-2-40
14. Dachlan I, Wahdini SI, Putri IL, Seswandhana MR, Wicaksana A, Fauzi AR. Integrated propranolol, methylprednisolone, and surgery in managing a rare case of infantile hemangioma with concurrent cleft lip and palate. *Ann Med Surg.* 2020;56(June):91-94. doi:10.1016/j.amsu.2020.06.015
15. Ling J, Yang K, Huo R, Zhang D. A Retrospective Study of Lip Hemangiomas: Curative Effect of Oral Propranolol Combined with Topical Sclerotherapy. *Biomed Res Int.* 2022;2022:1-8. doi:10.1155/2022/6010458