Journal of Indian Dental Association Madras (JIDAM), 2026; Volume No: 13 , Issue No: 1

Case Report **| ISSN (O): 2582-0559**

DOI: 10.37841/jidam.2026.v13.i1.004

Arteriovenous Malformation Of Lower Lip In A Child- A Case Report

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(Received 07th Jan 2026; Accepted 16th Feb 2026; Published 30th March 2026)

Abstract

Arteriovenous malformation (AVM) occurs due to developing aberration in the vascular system or lymphoproliferation. It could be congenital or present at birth. This condition is due to a high-flow, tangled network of capillaries which serves as a nidus for feeding arteries that are connected to venous drainage without causing any interposition to the capillary bed. This report presents a four years old female child with Arteriovenous malformation in the lower lip diagnosed using color doppler ultrasonography (USG).

Key Words: AV malformation, case report, lower lip

Introduction

Vascular malformations are a diffuse group of vascular aberrations which are frequently referred to as "iceberg lesions" due to their clinical visibility only at the tip of the underlying defect. Glowacki and Mulliken in 1982 classified vascular anomalies into haemangiomas and vascular malformations which was by the International Society for the Study of Vascular Anomalies (ISSVA). [1]

Vascular malformation is present from birth without any regression and aggravates in response to any infection, trauma, intervention or hormonal changes. This asymptomatic lesion might be noticed earlier during childhood based on its size and location. [2]

AV abnormalities are more often seen in head and neck regions wherein the frequent involvement is lips. It is important in both functional and esthetic aspects by aiding in holding food while eating, for appropriate articulation and improving the overall appearance of the face. Hence, vascular abnormalities involving lips could lead to anatomic distortions based on the degree of severity. [3]

Clinically, AV malformation of the lip presents as a compressible, soft and non-pulsatile mass with bluish discoloration which typically expands on clenching and rarely while initiating the Valsalva manoeuvre.[2] Radiographically, it is diagnosed through conventional radiographs, magnetic resonance imaging(MRI), angiography or computerized tomography(CT) scans. [4]

Case Presentation

A preschooler reported to the Department of Pediatric Dentistry with a chief complaint of gradually enlarging swelling in the lower lip region due to self-inflicted trauma for the past 3 months. The history given by mother revealed, initially the child developed a small papule in her lower lip following trauma that was not treated. Family history revealed non-consanguineous marriage with no similar lesion observed in any other close family members.

Earlier she was diagnosed with hemangioma and prescribed to have propranolol and Inderal. Patient did not continue medication due to its associated side effects such as oral ulcers and difficulty in having food.

On general examination, the child was active, afebrile with appropriate weight and height while reporting at present. On clinical examination, extraorally a localized small swelling was observed in mediolateral aspect of right side lower lip [Figure 1]. Intraorally a single, oval swelling of size approximately 3x2x1 cm is evident over the lower labial mucosa, has mucosal translucency extending anteroposteriorly from the corner of the right

lower lip to 2 cm apart and superoinferiorly from the vermillion border of lower lip till the lower labial vestibule. It was bluish in color with well-defined margins [Figure 2]. On palpation, the swelling was non-tender, soft, compressible and non-pulsating.

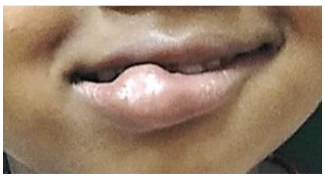

Figure 1- Extraoral image of lower lip

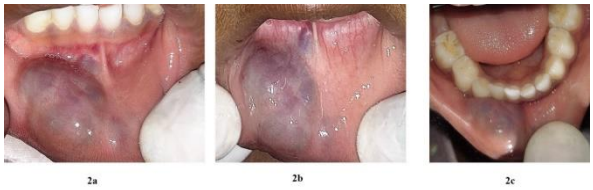

Figure 2 (a-c)- Intra-oral images of lower lip illustrating AV malformation

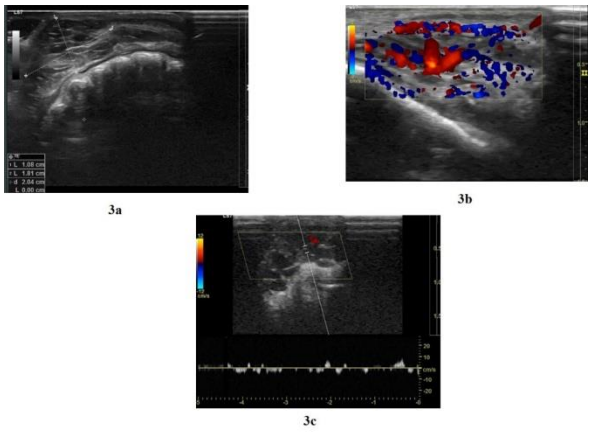

Figure 3 (a-c)- USG with color doppler

Investigations

The investigations which we followed were Diascopy and Ultrasonography (USG) with color doppler. Diascopy performed in the lower labial mucosa revealed no signs of blanching giving a negative test result. USG revealed a well-defined solid lesion of size approximately 1.5x1.1 cm with anechoic cystic spaces noted in the right lower lip showing both arterial and venous waveform in color doppler (Peak Systolic Velocity of 7.6 cms) suggestive of AV malformation of lower lip [Figure 3].

Differential Diagnosis

The differential diagnosis which we suspected could be mucocele of lower lip or hemangioma of lower lip.

Treatment

A Pediatrician and Oral and Maxillofacial surgeon were consulted regarding the condition and considering the age and weight of the child, she was advised to have Propranolol as per the following chart (Figure 4). Since the parents were not ready for any surgical intervention, medication was prescribed and were advised to report back after 2 weeks.

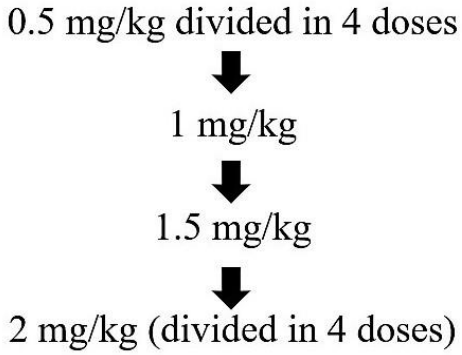

Figure 4- Flowchart depicting propranolol dosage (as given by Pediatrician)

Outcome And Follow-Up

The patient did not report back for follow-up hence post treatment details was not available

Discussion

Arteriovenous malformation (AVM) is one of the most serious vascular malformation which belongs to the category of high flow lesion where formation of bunch of arterial and venous channels occurs without any compact mass formation. [5] Centrally it consists of a nidus with abnormal shunts between arteries and venules leading to dilation in adjacent blood vessels.[6]

Vascular malformation can be classified into two types such as high flow type which includes Arteriovenous Malformation and low flow types which include Venous malformations (VM), Lymphatic malformations (LM) and Mixed malformations. [1]

The incidence of AVM is observed within the age groups of 3 months to 74 years without any sex predilection. In acquired conditions, the major cause is trauma as observed in the present case..[6] It usually presents as a firm, warm, painless, compressible, pulsatile and slow growing mass which is difficult for diagnosing, treating and curing. If invasive procedure is done without proper diagnosis it might lead to death of patient due to excessive hemorrhage. Hence, proper diagnosis using multiple imaging is of paramount importance to characterise the size, velocity of flow and its directions and contents of the lesion. [7]

The extensions of blood vessels are diagnosed specifically by application of ultrasound and color doppler ultrasound and in most cases no treatment is required when it is asymptomatic. Only in cases of any discomfort, bleeding, ulceration or cardiovascular problems associated with the involved lesions, medications are necessary. [3,8]

Multimodal treatment methods involve surgical excision of small, single and well localized lesions. In cases of non-localized and multiple lesions, embolization, sclerotherapy and medical therapy are considered. [3] The main goal of treatment should focus on abolition of nidus for venous outflow. [6]

In the current case, the patient was initially diagnosed as mucous retention cyst but on further radiographic examination it was confirmed as AV malformation. The child's medical history revealed no abnormality and the parents did not undergo consanguineous marriage. Hence, the management through surgical intervention and the esthetic problems posed to the child were informed to the parents. But they were not willing for surgical intervention considering the age of the child and associated scarring following surgery.

Conclusion

AVM could lead to significant morbidity and management solely depends on the patient's age and site and size of malformation. Due to the chances of causing hemodynamic changes such as distal ischemia, venous obstruction and cardiac failure, such cases must be diagnosed as early as possible and prompt treatment must be given.

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