6-23-2022

Microcystic lymphatic malformation presenting as firm, skin-colored papules of the lips

John R. Edminister

Allison Zarbo
Henry Ford Health, azarbo2@hfhs.org

Lauren Seale
Henry Ford Health, lseale2@hfhs.org

Ben J. Friedman
Henry Ford Health, bfriedm1@hfhs.org

Tor Shwayder
Henry Ford Health, tshwayd1@hfhs.org

Recommended Citation
Edminister JR, Zarbo A, Seale L, Friedman BJ, and Shwayder T. Microcystic lymphatic malformation presenting as firm, skin-colored papules of the lips. Pediatr Dermatol 2022.

Received: 12 November 2021 | Accepted: 17 May 2022

DOI: 10.1111/pde.15060

Pediatric Dermatology WILEY

BRIEF REPORT

Microcystic lymphatic malformation presenting as firm, skin-colored papules of the lips

John R. Edminister MD[1] | Allison Zarbo MD[2] | Lauren Seale MD[2] | Ben J. Friedman MD[2,3] | Tor Shwayder MD[2]

[1]College of Medicine and Life Sciences, University of Toledo, Toledo, Ohio, USA

[2]Department of Dermatology, Henry Ford Health System, Detroit, Michigan, USA

[3]Department of Pathology and Laboratory Medicine, Henry Ford Health System, Detroit, Michigan, USA

Correspondence
John R. Edminister, Department of Dermatology, Atrium Health Wake Forest Baptist, 1 Medical Center Boulevard, Winston-Salem, NC 27157, USA.
Email: jedminis@wakehealth.edu

Abstract

Microcystic lymphatic malformation (MiLM), also known as lymphangioma circumscriptum, is a superficial collection of lymphatic vessels measuring <1 cm in the largest diameter, often with a more extensive deeper malformation. It commonly presents as discrete or grouped plaques of clear or hemorrhagic vesicles classically described as "frogspawn"; however, here we describe a case of its unique presentation as firm papules on the lips of a healthy six-year-old child. These skin-colored papules in the absence of vesicles with lymphatic and/or hemorrhagic fluid may not be clinically indicative of MiLM. This case represents a diagnostic challenge due to the unique morphology of pink, fleshy papules as opposed to the clear or hemorrhagic vesicles typically observed in MiLM.

KEYWORDS
laser, vascular malformation

1 | CASE REPORT

A healthy 6-year-old white female with an unremarkable birth and developmental history presented with a crop of asymptomatic, skin-colored papules on the lower vermillion lip and a small, solitary skin-colored papule on the upper vermilion lip (Figure 1). These were present since birth and would intermittently enlarge and regress without resolution. There were no abnormalities of the labial mucosa or floor of the mouth.

A punch biopsy of a lower lip papule demonstrated increased thin-walled, ectatic endothelial spaces within the dermis (Figure 2A,B). Immunohistochemistry staining with CD31 and podoplanin (Figure 2C) confirmed the lymphatic origin of this lesion. The patient underwent MRI with and without contrast which demonstrated subtle T2 hyperintensity with mild enhancement in the midline and left side of both the upper and lower lips. A diagnosis of microcystic lymphatic malformation was made and the patient was treated with carbon dioxide laser (150 mJ, 1.5 W, 2 passes) and intralesional bleomycin in one visit. She returned 6 months later and was found to have significant improvement in the upper lip and

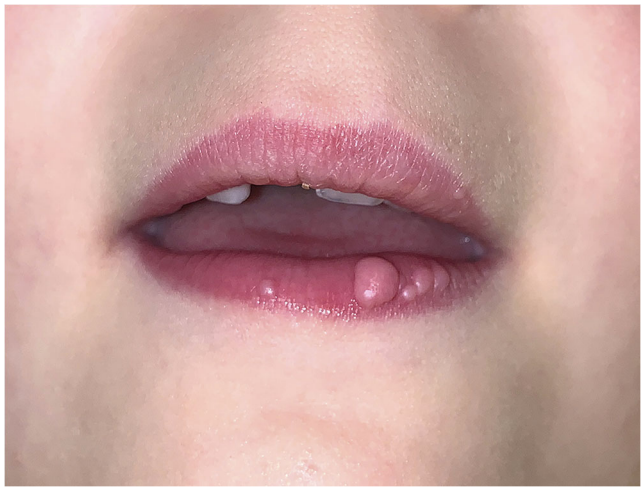

FIGURE 1 Physical examination revealed a crop of six pink, skin-colored papules at the lower vermillion lip and a small, solitary papule at the upper vermilion lip

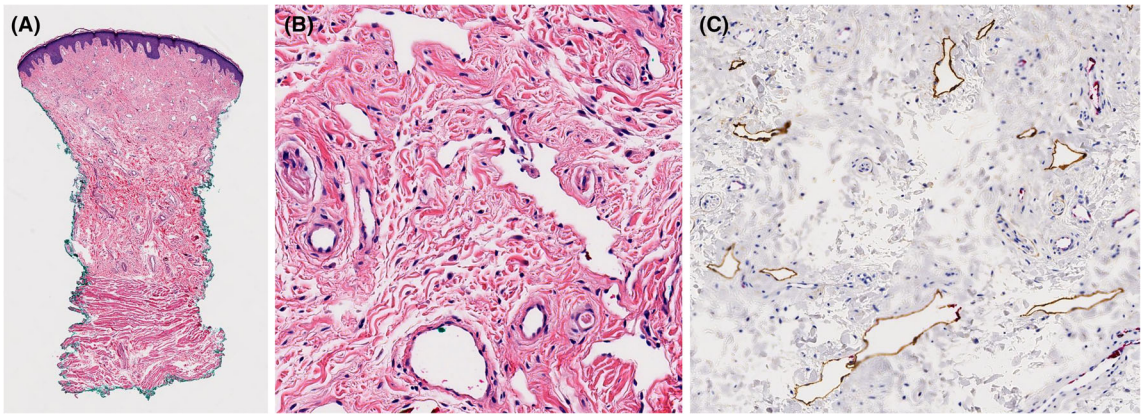

FIGURE 2 (A) Hematoxylin and eosin, magnification 40×. Punch biopsy of lower lip demonstrating a marked increase in thin-walled, ectatic endothelial-lined spaces in the dermis. (B) Hematoxylin and eosin, magnification 200×. Punch biopsy of the lower lip demonstrating a marked increase in thin-walled, ectatic endothelial-lined spaces in the dermis. (C) D2-40 immunohistochemistry, magnification 200×. Punch biopsy of lower lip with D2-40 positivity in the majority of vascular spaces

moderate improvement in the lower lip. She was subsequently lost to follow-up.

2 | DISCUSSION

Microcystic lymphatic malformation (MiLM), also known as lymphangioma circumscriptum, is a superficial collection of lymphatic vessels measuring <1 centimeter in largest diameter. Clinically, the entity may appear localized, but there is often a more extensive deeper malformation. MiLM may present either congenitally, within the first 2 years of life, or secondary to alterations in the lymphatic system.[1] The affected lymphatic endothelial cells may have somatic activating mutations in the PIK3CA gene. This mutation is also seen in a group of heterogenous overgrowth syndromes classified as the PIK3CA-related overgrowth spectrum (PROS),[2] which includes entities such as Klippel-Trenaunay syndrome and CLOVES syndrome.

MiLM commonly presents as grouped plaques of clear or hemorrhagic vesicles classically described as "frogspawn" of the cervicofacial region, proximal limbs, trunk, axillae, or genitals.[1] A verrucous appearance in the genital area may lead to misdiagnosis as condyloma accuminata.[1] As in our case, skin-colored papules in the absence of vesicles with lymphatic and/or hemorrhagic lymphatic fluid may not be clinically indicative of MiLM.

Histopathologic diagnosis of a lymphatic malformation is suggested by the presence of immunohistochemical markers present on lymphatic endothelial cells but absent on other vascular endothelia (e.g., podoplanin). Ultrasound may demonstrate anechoic chambers without flow; however, the use of MRI with contrast allows for better evaluation of flow characteristics and differentiation between a venous and lymphatic malformation, as the accumulation of gadolinium contrast is only observed in venous malformations.[3]

Treatment of MiLM is often multi-disciplinary. Surgical excision may be employed as a primary treatment or alongside other non-surgical modalities such as radiofrequency ablation, laser, bleomycin sclerotherapy,[4] and the use of oral or topical sirolimus, which targets the mTOR/phosphoinositide-3-kinase (PI3K) pathway.[5]

3 | CONCLUSION

We report this case presenting with skin-colored papules in the absence of vesicles, as this presentation is not clinically indicative of MiLM. In cases like this, biopsy and imaging are valuable for further clarification of the type and extent of vascular malformation.

CONFLICT OF INTEREST

The authors have no conflicts of interest to disclose.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

ORCID

John R. Edminister https://orcid.org/0000-0001-8949-1851
Allison Zarbo https://orcid.org/0000-0002-2256-7492
Ben J. Friedman https://orcid.org/0000-0002-2266-8197
Tor Shwayder https://orcid.org/0000-0001-9531-0164

REFERENCES

1. Wang S, Krulig E, Hernandez C. Acquired microcystic lymphatic malformation of the distal upper extremity mimicking verrucae vulgaris. *Pediatr Dermatol*. 2013;30(5):e78-e82.
2. Keppler-Noreuil KM, Rios JJ, Parker VE, et al. PIK3CA-related overgrowth spectrum (PROS): diagnostic and testing eligibility criteria, differential diagnosis, and evaluation. *Am J Med Genet A*. 2015;167a(2):287-295.

3. Samadi K, Salazar GM. Role of imaging in the diagnosis of vascular malformations vascular malformations. *Cardiovasc Diagn Ther*. 2019;9-(suppl 1):S143-S151.
4. Chaudry G, Guevara CJ, Rialon KL, et al. Safety and efficacy of bleomycin sclerotherapy for microcystic lymphatic malformation. *Cardiovasc Intervent Radiol*. 2014;37(6):1476-1481.
5. Lee DF, Hung MC. All roads lead to mTOR: integrating inflammation and tumor angiogenesis. *Cell Cycle*. 2007;6(24):3011-3014.

How to cite this article: Edminister JR, Zarbo A, Seale L, Friedman BJ, Shwayder T. Microcystic lymphatic malformation presenting as firm, skin-colored papules of the lips. *Pediatr Dermatol*. 2022;1-3. doi:10.1111/pde.15060