

Vascular Anomalies of the Lip Challenge the Reconstructive Rule of Thirds

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INTRODUCTION: Vascular malformations of the lip often require reconstructive surgery for both aesthetic and functional purposes. The lip reconstructive rule of thirds suggests that lower lip defects involving 1/3-2/3 total lip width require closure with lip switch or local advancement flap techniques.¹⁻³ We sought to characterize the lip reconstructive rule of thirds in a patient cohort whose lip defects resulted from surgical excision of vascular anomalies.

METHODS: Retrospective review of patients requiring reconstructive surgery for vascular anomalies of the lip between 2005-2015.

RESULTS: 65 patients with vascular anomalies of the lip were identified for a total of 67 lesions. Female-to-male ratio was 1.7:1. Clinical diagnoses included hemangiomas (66%), venous malformations (14%), capillary malformations (5%), lymphatic malformations (5%) and unspecified types of vascular malformations (11%). Median age at surgery was 5.5 years (range, 1.2-86). None of the patients required flap closure. The lower lip was most frequently involved (63%, 42/67). Lower lip lesions were more likely to cause labial dysfunction ($p<0.001$), involve the vermillion border ($p<0.001$) and require full thickness excision ($p<0.001$) than upper lip lesions. Postoperatively, 17% (11/65) of patients experienced minor issues with wound healing or infection. Median follow-up time was 5.5 months (range, 0 days-11.5 years).

CONCLUSION: In this patient cohort, lower lip vascular malformations, compared to upper lip lesions, were more common and significantly more likely to result in labial dysfunction, involve the vermillion border and require full thickness excision. None of the patients who underwent surgical excision of vascular lesions resulting in defects 1/3-2/3 total lip width required lip switch or local advancement flap-mediated reconstruction. Therefore, these data challenge the lip reconstructive rule of thirds in the setting of vascular anomalies. We posit that vascular malformations expand normal lip tissue enabling reconstruction by primary closure.

REFERENCES:

1. Anvar, B. A., Evans, B. C., Evans, G. R. Lip reconstruction. *Plast Reconstr Surg* 120: 57e-64e, 2007.
2. Nichols, M. Lip Reconstruction. Grand Rounds Presentation. Galveston: University of Texas Medical Branch, 1989.
3. Persing, J. A., Evans, G. R. *Soft-Tissue Surgery of the Craniofacial Region*: CRC Press, 2007.