Reconstruction of Near-Total Loss of the Upper and Lower Lips due to Purpura Fulminans with Local Tissue and a Dual-Skin Padded Anterolateral Thigh Flap

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Summary: It is difficult to totally reconstruct the lip, achieving good functional and aesthetic results. There have been few reports of reconstructing complete lip defects. Moreover, upper and lower lip necrosis by purpura fulminans has not been reported. We present a case of a 60-year-old male purpura fulminans patient with upper and lower lip necrosis. Fortunately, our patient had retained his oral commissure function. We reconstructed this defect with an orbicularis oris muscle-skin-mucosal pedicled flap derived from the region between the nasolabial folds for upper lip; a similar bipedicled flap for the lower lip and the donor site was closed with a dual-skin padded anterolateral thigh flap. Postoperative results were satisfactory, that is, no lip tightness or aperture restriction was seen, and symmetry had been achieved. The new lips exhibited complete sensory recovery. Drooling was minimal during rest and feeding. We could select a method that combined the advantages of local and free flaps. We consider our method for this defect is superior to those described in previous studies, in that the restoration of lip sensation and oral sphincter function can be achieved to some extent in 1 stage while preserving the oral commissure function. (Plast Reconstr Surg Glob Open 2017;5:e1505; doi: 10.1097/GOX.0000000000001505; Published online 22 September 2017.)

Purpura fulminans (PF) is a rapidly progressive thrombotic disorder involving skin necrosis and disseminated intravascular coagulation. It mainly affects neonates and children and is associated with deficiency of the natural anticoagulants proteins C and S. It can progress to multiorgan failure caused by thrombotic occlusion of small and medium-sized blood vessels. Early recognition and treatment are essential for reducing the risk of mortality.1,2 PF can also occur in adults with severe infections. The absence of the spleen is known to be a predisposing factor for PF. Meningococcus, varicella, and pneumococcus are common causative bacteria of PF. In acute infectious PF, symmetrical purpura lesions appear on the face and periphery of the limbs and gradually progress to dry necrosis. Amputation is required in 19% of PF cases.2,3 However, reports about lip necrosis caused by this disease are rare.4 We report the case of a PF patient with upper and lower lip necrosis.

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Reconstructive

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The upper and lower lip flaps were transferred. This approach allowed natural mouth closure to be achieved (Fig. 2). For the secondary defects, we used a dual-skin paddled anterolateral thigh flap, which contained 2 thinned flaps with 2 independent perforators. The pedicle was anastomosed to the facial artery and vein (Fig. 3).

After 1 year, the results were satisfactory, that is, no lip tightness or aperture restriction was seen, and symmetry had been achieved. The new lips exhibited complete sensory recovery. Drooling was minimal during rest and feeding.

DISCUSSION

Reports of simultaneous upper and lower lip reconstruction are rare. Local flaps are useful for reconstructing sensate lips. However, they tend to result in tight lips...
due to a lack of tissue volume.\textsuperscript{6,7} For large defects, free flaps are usually selected.\textsuperscript{8–10} The use of a free radial forearm or anterolateral thigh flap combined with tendon or free muscle flap transfer might be the best reconstructive option for such cases at present.\textsuperscript{9,10} Fortunately, our patient had retained his oral commissure function. If it is possible to use an innervated local muscle, such as a gate flap,\textsuperscript{11} to reconstruct the orbicularis oris muscle, oral competence might be preserved to a greater extent than can be achieved with previously reported methods.\textsuperscript{9,10} As reported previously, the cheek skin of PF patients is heavily scarred so local flaps are difficult to use because of the associated loss of elasticity.\textsuperscript{4}

Therefore, we selected a method that combined the advantages of local and free flaps.

We consider that our method is superior to those described in previous studies, in that the restoration of lip sensation and oral sphincter function can be achieved to some extent in 1 stage while preserving the oral commissure (see video, Supplemental Digital Content 1, which shows a reconstructed oral sphincter function. Speech, ballooning of his cheeks, and smiling are the provided examples, http://links.lww.com/PRSGO/A536).

\textbf{Video Graphics 1.} See video, Supplemental Digital Content 1, which shows a reconstructed oral sphincter function. Speech, ballooning of his cheeks, and smiling are the provided examples, http://links.lww.com/PRSGO/A536.

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