

# **A new method: perforator-based tissue expansion for a preexpanded free cutaneous perforator flap**

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摘要

## **Abstract**

Recent advances in concepts of preexpanded free flaps have made it possible to replace larger postburn contracture area. Free anterolateral thigh (ALT) cutaneous perforator flaps are popular due to constant, reliable anatomy and various clinical applications in our department. Combination of preexpansion, perforator-based prefabrication of tissue expansion and a free anterolateral thigh flap is first introduced and developed to resurface the large territory of postburn cervical contracture in a 33-year-old female patient with second to third degree flame burn with a 45% total body surface area (TBSA) involvement. The limited lateral flexion and rotation was noted despite aggressive rehabilitation for 6 months. The 650cm<sup>3</sup> kidney-shaped tissue expander was inserted around the myocutaneous perforator under the fascia via the midlateral thigh incision in first stage. Two months later right lateral neck scar (size=25cm × 13cm) was excised after serial clinic saline injection. The preexpanded free flap (size=29cm × 15cm) combined with z plasty and capsulectomy was harvested and covered in the contracture defect. A flap totally survived. One-staged resurfacing was achieved with immediate postoperative improvement. The hospital stay was 6 days. The donor site was closed primarily. After 6 months follow-up, the functional improvement was assessed as follows: an increase in rotation of 14° (preoperative 74° to postoperative 88°); and an increase in lateral flexion of 10° (preoperative 30° to postoperative 40°). The prefabrication of the free cutaneous perforator flap by perforator-based tissue expansion above the muscle has several advantages: (1) it provides accurate and safe expansion without damage of any perforator compared with the blunt dissection; (2) larger territory of free flaps can be used for burn reconstruction; (3) donor site is primarily closed with low tension; (4) it is not a random expanded flap due to direct expansion of specific skin territory

around the perforator. The disadvantages are two-staged procedures, complications of tissue expansion (e.g. infection, extrusion), the possibility of compression of pedicles.