

Case Report Reconstructive Surgery

Refining the indications for scapula tip in mandibular reconstruction

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M. W. Ho, J. S. Brown, R. J. Shaw: Refining the indications for scapula tip in mandibular reconstruction. *Int. J. Oral Maxillofac. Surg.* 2017; 46: 712–715. Crown Copyright © 2017 Published by Elsevier Ltd on behalf of International Association of Oral and Maxillofacial Surgeons. All rights reserved.

Abstract. Mandibular reconstruction in osteoradionecrosis or salvage surgery can often be complicated by the lack of suitable recipient vessels in the ipsilateral neck and the associated requirement for significant extraoral skin reconstruction. The scapula tip with its long vascular pedicle and option of a chimeric soft tissue component offers a versatile reconstructive solution in such cases. This article reports four consecutive cases of mandibular reconstruction with poor ipsilateral vascular options and additional soft tissue requirements in which the scapula tip was justified and preferred. The blood supply to the lateral scapula through the circumflex scapular system is well established in the literature and this would be the preferred reconstruction in class I mandibular defects associated with a significant soft tissue requirement. The scapula tip would suit cases where the ipsilateral recipient vessels are compromised, and so justify the potential for mandibular reconstruction with inferior bone stock.

Key words: mandible reconstruction; vessel depleted neck; scapula free flap; scapula angle; scapula tip.

Accepted for publication 24 February 2017
Available online 11 March 2017

The angular branch of the thoracodorsal artery that supplies the scapula tip was first described by Deraemaeker et al.¹. Coleman and Sultan subsequently described harvest of the scapula tip with the latissimus dorsi muscle as a single free flap². The advantages of the scapula tip are a long vascular pedicle and a flexible soft tissue paddle ideal for extensive soft tissue loss, as well as oral reconstruction from the same pedicle. Drawbacks include the relatively limited bone stock; by maximum length and by unsuitability for implants. The reconstructive advantages overall have been summarized by Chepeha et al. as avoiding

the need for two flaps or interpositional vein grafts³.

The scapula tip has been described in the reconstruction of short posterior mandible defects, including those of the angle, using ipsilateral neck vessels (class I defects according to Brown et al.^{4,5,6}). In most of these cases, the authors' practice would be to use the standard circumflex scapular option, or other donor sites, as pedicle length is not such an important factor. Although the use of, and indications for, the scapula flap in head and neck reconstruction has been described previously by this research group⁷, only the

use of the lateral border of the scapula based on the circumflex scapular artery is described in this series of cases involving the mandible.

The purpose of this report is to describe four cases in which the scapula tip was the most appropriate donor site option, not only compared to the circumflex scapular option but also fibula, radial, and iliac crest.

Patients and methods

All patients who had segmental mandibular defects reconstructed with a scapula tip

Table 1. Characteristics of four consecutive patients reconstructed with a scapula tip flap (2014–2016).^a

Patient	Age (sex)	Diagnosis	Previous treatment	Defect (size)	Side of harvest	Reconstruction	Recipient vessels
1	72 (M)	Osteoradionecrosis of the mandible (Notani grade 3)	Prior OPSCC surgery, ALT + PORT	Class I, right mandible, with 4 × 6 cm overlying cutaneous defect	Ipsilateral	Scapula tip and musculocutaneous LD	Contralateral facial artery and IJV
2	51 (M)	Recurrent adenocarcinoma of the face overlying the right angle/body of the mandible	Third recurrence over 5 years; prior ipsilateral neck surgery ×2, and adjuvant radiotherapy	Class I, right mandible, with overlying 6 × 8 cm cutaneous defect	Ipsilateral	Scapula tip and musculocutaneous LD	Contralateral facial artery and common facial vein
3	59 (M)	Osteoradionecrosis of the mandible (Notani grade 3)	Referred from another centre; alloplastic bridging reconstruction plate – prior OSCC surgery, with failed fibula flap, POCRT without reconstruction; contralateral fibula with compromised peroneal vessels	Class I, left mandible, with 10 × 6 cm cutaneous defect	Ipsilateral	Scapula tip and musculocutaneous LD	Contralateral facial artery and common facial vein
4	55 (M)	Ipsilateral regional recurrence of left T2N2bM0 OPSCC (mandibular involvement)	Primary chemoradiotherapy	Class I, left mandible, with 8 × 10 cm cutaneous defect	Ipsilateral	Scapula tip and musculocutaneous LD	Contralateral external carotid artery and common facial vein

ALT, anterolateral thigh free flap; IJV, internal jugular vein; LD, latissimus dorsi; M, male; OPSCC, oropharyngeal squamous cell carcinoma; OSCC, oral squamous cell carcinoma; POCRT, postoperative chemoradiotherapy; PORT, postoperative radiotherapy.

^aThese patients had undergone previous treatment for OPSCC/OSCC with recurrence or late treatment-related toxicity.

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