



ELSEVIER



CASE REPORT

## Wing flap reconstruction for large defects of the lower lip

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### KEYWORDS

Mental nerve;  
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**Summary** Full-thickness lower lip defects most often occur due to tumour resection or injury. Because the lower lip is important for both eating and speaking, reconstruction of the region must restore the structure and function of the tissue. Here, we describe a new procedure to reconstruct the lower lip, using a ‘wing flap’: a mental V–Y rotational advancement flap that contains the mental nerve. This flap can preserve the sensory innervation of the lower lip, and it allows effective reconstruction of the muscle sling. We have employed this method twice and have obtained good aesthetic and functional outcomes. No special technique is required to reconstruct the lip using this flap, and it yields a satisfactory outcome. Thus, we recommend it as an effective method for reconstruction in wide lower lip defects. © 2012 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

The lower lip is a common site for malignant tumours, and surgical excision is a common treatment for such malignancies. The lip is one of the most important tissues involved in eating and speaking functions; therefore, effective reconstruction of the lower lip must not only restore the shape but also preserve the function of the lip.

Here, we describe a new technique for the reconstruction of the lower lip – the ‘wing flap’ procedure. We also present two cases in which successful outcomes were obtained with this technique.

### Anatomy of the lower lip

The lower lip is controlled by a complex of muscle slings, including orbicularis oris, depressor anguli oris, depressor labii inferioris and mentalis muscles, and these muscles are innervated by the facial nerve. The modiolus is also an

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essential structure: it is involved in decussations between the orbicularis oris muscles and labial tractors terminating in the modiolus, and, as the terminal end of cheek muscles, it is also essential for smiling. The mental nerve controls the sensations of the lower lip, which are adequate for assessing the temperature and hardness of foods.

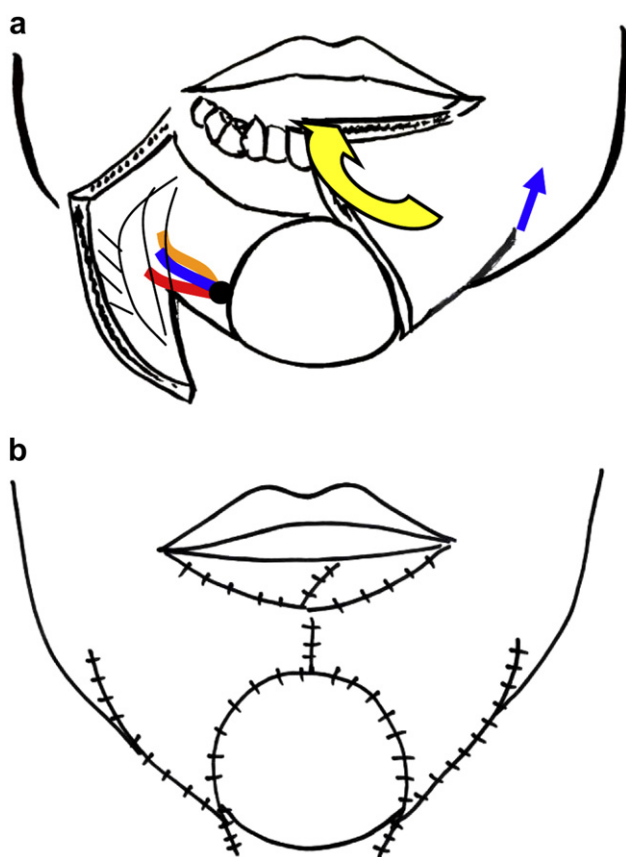
To rebuild the sophisticated muscular component and to preserve the function of the mental nerve were the key aims of our lower lip reconstruction method.

## Surgical technique

Our technique involves designing a wing flap, which contains mental neurovascular bundles and a part of the depressor anguli oris and depressor labii inferioris. In brief, while maintaining the modiolus, the flap is rotated and advanced towards the defect. Original sensory innervation by the mental nerve is maintained, and oral sphincter is rebuilt by new muscle sling.

The details of the surgical method are described below.

Prior to surgery, the points of the mental neurovascular bundles are detected and marked with a Doppler device. After resection of the tumour, bilateral mental V–Y rotational flaps (wing flaps) are designed, which contain the mental neurovascular bundles. The medial edges of the flaps are designed to overlap the mental crease. The lateral edge overlaps the contour of the face line and its length is temporary at this stage of design (Figure 1a).



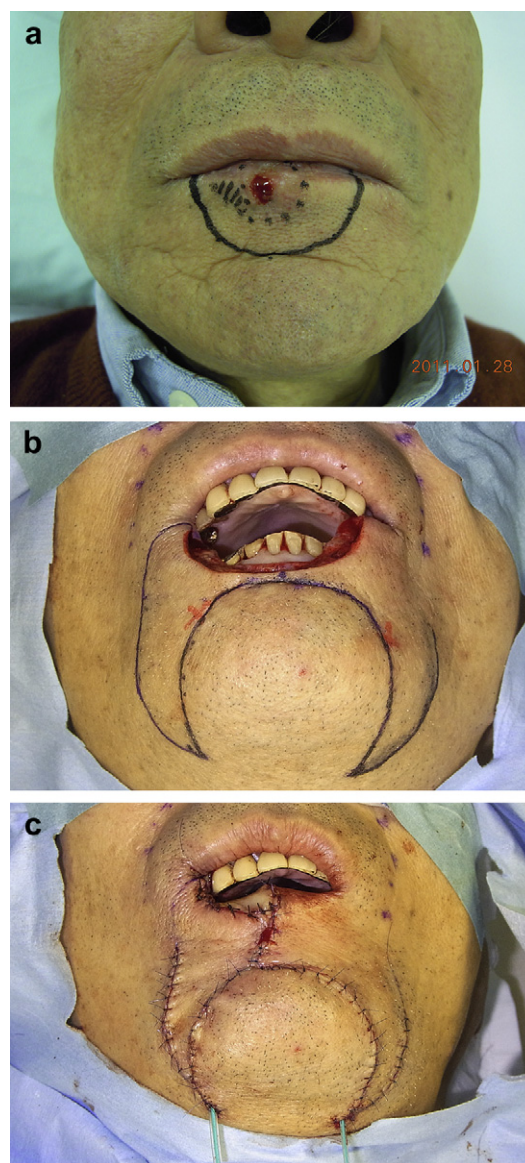
**Figure 1** (a) Design and elevation of the wing flap. (b) Postoperative view.

The flap is then raised from the medial edge containing the muscles (depressor anguli oris and depressor labii inferioris), preserving the mental neurovascular bundle. At the lateral edges, the length of incision is increased such that the flap is advanced to the defects. After advancing the flap, the muscle component of each flap is bound to rebuild the new muscle sling. The red lip is then reconstructed using the buccal mucosal flap (Figure 1b).

## Case reports

### Case 1

A 78-year-old man presented with a  $1.5 \times 2.0\text{-cm}^2$  well-differentiated morpheaform basal cell carcinoma on the lower lip (Figure 2a). Under general anaesthesia, wide excision of the tumour was performed with a normal tissue margin of 1 cm (Figure 2b). The white lip defect was



**Figure 2** Case 1 (a) Preoperative view. (b) Design of the flap. (c) After inset of the flap.

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