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Reconstruction of the lower lip using bilateral commissurotomy and advancement of skin, muscle, and mucosal flaps

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Abstract

Reconstruction of a composite defect of the lower lip after oncological resection is challenging, and it is essential to consider both functional and aesthetic components when repairing lips. We report a technique that can be used to repair anything ranging from 30% to the whole of the lower lip with a bilateral commissurotomy and advancement of skin, muscle, and mucosal flaps. This technique helps to achieve good oral function, excellent lip function, and a pleasant aesthetic appearance. It also prevents microstomia and allows patients to maintain normal sensory innervation.

Keywords: Lower lip; microstomia; reconstruction

Introduction

Lips are affected by malignancy mainly in elderly people, [1,2] and operation provides a satisfactory outcome. [3] Unfortunately composite excision and reconstruction usually results in microstomia and oral incompetence.

The recognised flaps used in lower lip reconstruction are the Karapandzic,[4,5] the Gilles fan, the Abbe,[6] the Bernard-von Burrow cheek flap,[7] and the free flap,[8] and they all have their own benefits and drawbacks. Microstomia irrespective of the flap and loss of sensation is a notable disadvantage.

We report a modified bilateral commissurotomy and bilateral advancement of skin, muscle, and mucosal flaps that produce good aesthetic and functional outcomes.

Anatomy

The muscles that comprise the circumoral group are subdivided into the orbicularis oris and the muscles that radiate around it. The radiating muscles along the lower half of the group include the depressor angularis oris and the depressor labii inferioris. These two originate from the mandible, travel upwards to the corner of the mouth, and interdigitate with the orbicularis oris. Buccal and marginal mandibular branches of the facial nerve innervate both muscles.

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The third important group of muscles is the risorius, which is poorly developed. It originates from the connective tissue overlying the parotid gland, and runs horizontally to insert into skin at the corner of the mouth.

Case reports

We present two patients, the first of whom was a 70- year old man with a moderately-differentiated squamous cell carcinoma of the lower lip. Composite resection resulted in 90% of the lip defect (Fig. 1). The second was a 78-year-old man who presented with a biopsy–confirmed squamous cell carcinoma of the lower lip. Composite excision resulted in 70% of a midline lower lip defect (Fig. 2).

The reconstruction for both patients was carried out with our new, three-layered, advancement flap.

Surgical technique

Once the composite lower lip has been excised, we do a bilateral commissurectomy (Fig. 2b). The horizontal skin incision is extended bilaterally to equal distances ofrom the defect. Mucosal incisions are made in a broad base to the buccal sulci and extend opposite the second premolar/first molar areas bilaterally. The mucosa is dissected bluntly just into the buccal sulcus, and extending just below the attached gingivae.

Skin flaps are raised and the dissection along the middle reaches the border of the chin. The orbicularis oris is partially incised bilaterally. Blunt dissection is continued to the risorius interdigitation to enable mobilisation of the depressor angularis oris and the depressor labii inferioris. The mobilised muscle group is sutured in the midline with round-bodied sutures to form the new musculature of the lower lip. The superior part of the orbicularis oris is sutured further to maintain the exact dimension of the oral commissure.

The newly-created lower lip musculature now needs skin and mucosal cover, so the skin flaps are advanced and sutured in the midline (Fig. 2c). The dimension of the oral commissure is maintained by suturing the skin flaps laterally to the buccal mucosa in the planned position. The midline mucosa is advanced and repaired to create the new vermilion border.

The patients had well-healed surgical sites with satisfactory function and appearance at rest (Fig. 2d). The sensation of the surrounding tissue was intact, and motor innervation to muscles was not compromised. In addition, full oral competence and function of the lip was maintained. This procedure prevented the development of microstomia that could have

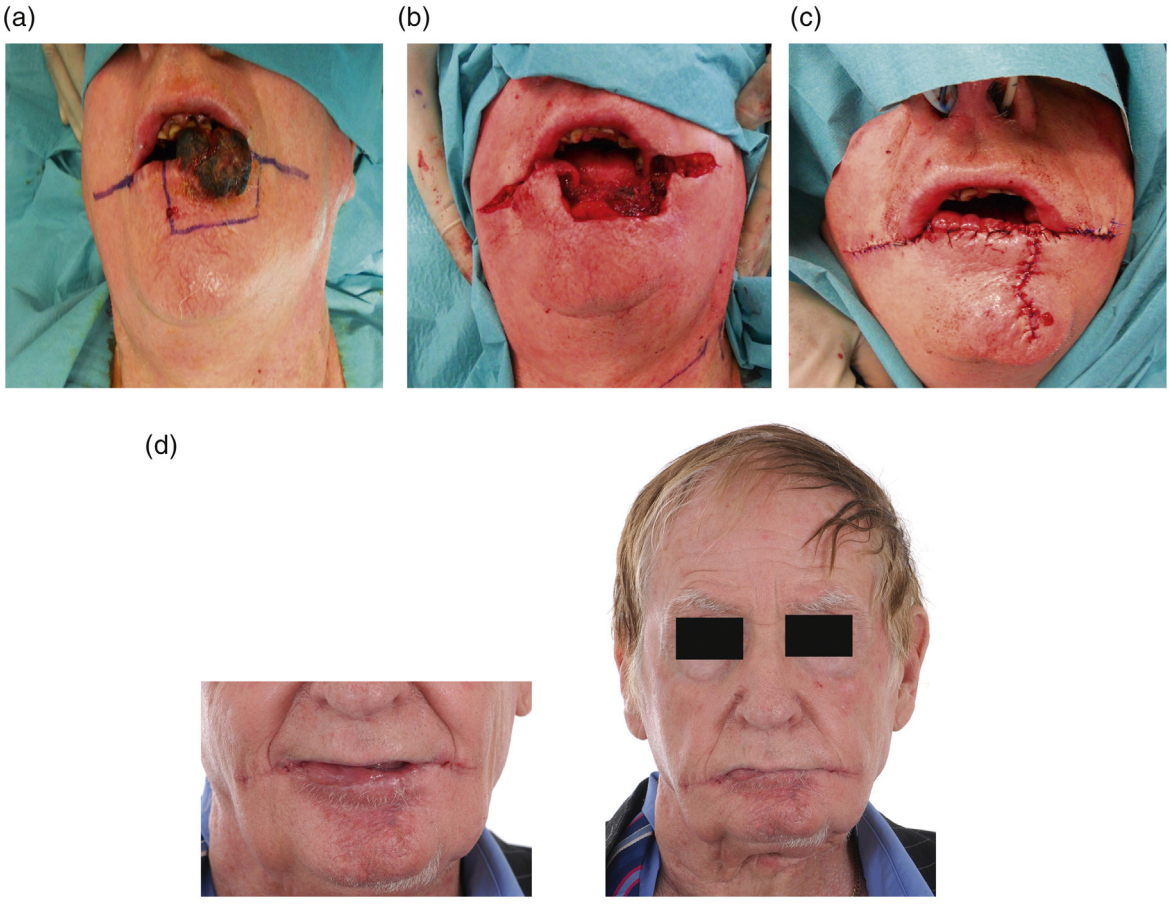

Fig. 1. **(a)** A 70-year-old man with a squamous cell carcinoma of the lower lip. **(b)** The defect after resection. **(c)** Postoperatively after bilateral commissurotomy. **(d)** Three weeks' postoperatively.

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