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Review

Versatility of buccinator flaps for the treatment of palatal defects: a series of cases

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Abstract

The buccinator flap is currently one of the best techniques for the reconstruction of defects in the oral cavity and other sites. Reconstruction of the palate is a major challenge because of the functional consequences of the excision of lesions in this area. The main goal is to maintain separation between the mouth and the nose. We have done a cross-sectional retrospective descriptive study of a series of cases reconstruction of palatal defects with buccinator flap at the University Hospital Miguel Servet in Zaragoza during a six-year period and compared our results, morbidity, and mortality with those of published series. The main complication was partial loss of the flap. We have analysed the reasons for this and report the steps needed to avoid it.

Keywords: Buccinator flap; Palate reconstruction; Reconstruction of oral cavity

Introduction

Myomucosal buccinator flaps are widely used in reconstructions of the oral cavity, oropharynx, nasal septum, and conjunctiva, and generally give good results.[1,2] There are other techniques used for the reconstruction of these defects using microvascular free flaps (including radial, anterolateral, and thigh flaps), but these operations are long and complicated, and are not advisable in some patients because of the magnitude and size of the defect.[3] Free grafts (such as supraclavicular skin, thigh, and skin) can also be used, but have the disadvantage of differing in texture and colour from the oral mucosa and can cause morbidity at the donor site. Other types of reconstruction include locoregional pedicled flaps (including nasolabial, temporal, submental, and pectoral), which have many more aesthetic and functional drawbacks than intraoral pedicled flaps such as the buccinator.[3]

The buccinator flap was first described in 1975 by Kaplan, and was based only on mucosa for the reconstruction of cleft palate. In 1989 Bozola set its anatomical base by adding muscle to the flap. It is further limited by the pterygomandibular raphe, and was previously inserted into the orbicularis muscle. It is laterally in contact with the mandibular body, masseter, medial pterygoid, buccal fat pad, and oropharyngeal fascia, and medially covered by mucosa and submucosa. Variables for anatomical dissection are: the oral commissure, the parotid duct and the pterygomandibular raphe, with a standard measure of 2.5 cm in adults to allow direct closure of the donor site.[4] Even a flap as large as 7 x 5 cm may be raised.[2] It has the advantage of being composed of mucosa, submucosa, and muscle, making it a great asset as it can be used as a mucosal or submucosal flap, providing submucosa, or muscle, or both (Figs. 1 and 2).

The facial, buccal, and posterior alveolar arteries provide most of the blood supply to the muscle. There are different

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Fig. 1. Posterior buccinator flap.

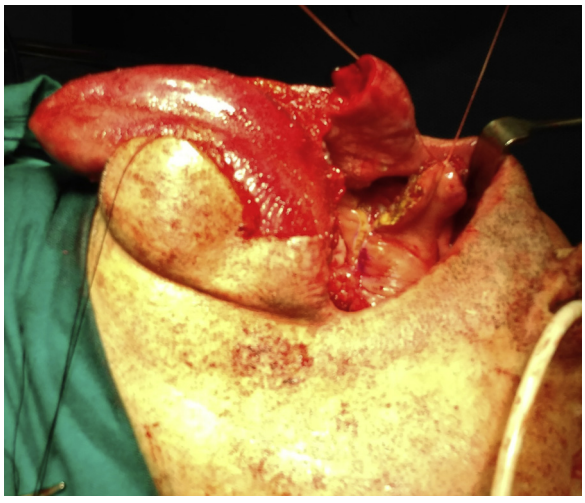

Fig. 2. Dissection of posterior buccinator flap.

types of flaps depending on their vascularisation: posteriorly-based (Bozola) flap, superiorly and anteroinferiorly-based (FAMM) flaps, and island (Zhao's) flap. The type of flap used depends on the patient and the area to be rebuilt. The posteriorly-based flap is based on the buccal artery (Fig. 1); the superiorly- based flap, with reverse vascularisation of the facial artery and the island flap, depending on the facial artery, has played an important part in the reconstruction of palatal defects for years.

The purpose of this study was to review our experience in the reconstruction of palatal and maxillary defects at the University Hospital Miguel Servet, and consider the vital and functional consequences that resection of lesions in this area involve, such as rhinolalia and orosinus communication.

Patients and methods

We made a cross-sectional observational retrospective study of 27 patients treated with buccinator flaps for the reconstruction of palatal defects between February 2006 and September 2015 at the University Hospital Miguel Servet in Zaragoza. The diagnoses were squamous cell carcinoma (n = 12), mucoepidermoid carcinoma (n = 1), mucinous adenocarcinoma (n = 1), pleomorphic adenoma (n = 4), ameloblastoma (n = 1), fibromatosis (n = 1), leukoplakia (n = 1), palatal fistula (n = 5), and one child had palatal agenesis (Table 1).

Twenty flaps were posteriorly-based (Bozola flap), four of which were bilateral, and seven were superiorly-based (FAMM flap with reverse flow). The mean age was 57 95% SD:(49 to 65), and the median 62. There were10 women and 17 men.

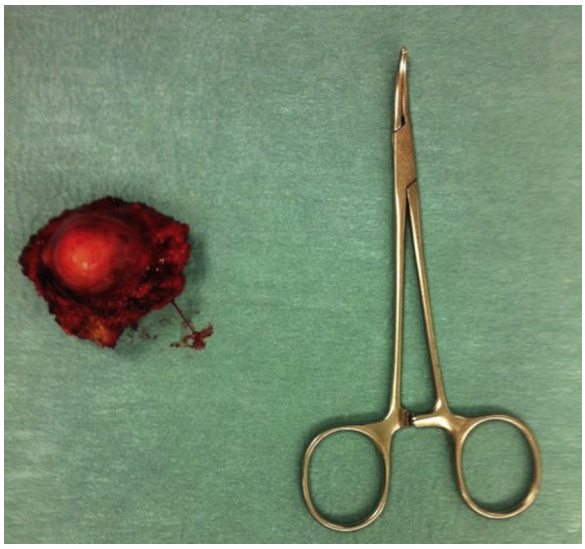

Fig. 3. Case 1. Pleomorphic adenoma of the soft palate.

Case Reports

Case 1

A 29 year-old patient presented with a pleomorphic adenoma in the left soft palate. After the tumour had been excised the area was reconstructed with a posteriorly-based myomucosal flap, the pedicle of which was tunnelled beneath the pterygoid ligament. The flap was associated with Bichat's fat pad to avoid stress on the flap. Weeks later, the back of the pedicle flap needed to be cut because of wound dehiscence and overbite. Currently, the patient's function is good with no complications (Figs. 3–6).

Case 2

A 72-year-old patient presented with a squamous cell carcinoma of the soft palate and first maxillary quadrant, and on the cervicofacial scan there was an enhanced tumour 25 x 18 mm in the area of the right anterior maxilla. The patient had an inferior partial maxillectomy under general anaesthesia, and

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