

Lip Reconstruction with a Palatal Mucoperiosteal Graft

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Abstract

To achieve complete lip closure, the lips must have sufficient and uniform thickness, which provides good aesthetic and functional results. There are many advantages to using palatal mucoperiosteal grafts for vermilion lip reconstruction: (1) the graft structure is anatomically and histologically similar to the vermilion lip, (2) donor site morbidity is less than that at other donor sites, (3) the color and texture match are good, (4) there is little postoperative shrinkage, and (5) the graft tissue is thicker than a palatal mucosa graft, helping ensure complete engraftment.

This article outlines a novel procedure for lip reconstruction with a palatal mucoperiosteal graft.

Keywords: Palatal mucosa; Palatal mucoperiosteal; Lip reconstruction

Introduction

In the repair of lip defects, the reconstructive surgeons' goals are to preserve lip function and achieve an aesthetically acceptable outcome. When choosing the type of repair, the surgeon considers the defect's size and location. Mucosal grafts, such as those taken from labial, buccal, and palatal mucosa, are typically used for lip reconstruction [1-4]. Free mucosal grafts have several advantages for lip reconstruction: 1) the donor structure is anatomically and histologically similar to that of the vermilion lip, 2) there is no donor site morbidity, and 3) good aesthetic and functional results can be obtained. The major drawbacks to vermilion lip reconstruction using free mucosal grafts are inadequate bulk in the reconstructed lip and reduced elasticity in the lips due to postoperative shrinkage of the graft and deformation of the grafted tissue. We previously performed reconstruction of the posterior lamella of the eyelid using hard palate mucosa with periosteum to compensate for the drawbacks of reconstruction with mucosal tissue only, and we obtained satisfactory results [5,6]. In this report, we describe the use of this palatal mucoperiosteal graft technique to vermilion lip reconstruction [7].



Figure 1: The patient had a depression of the left side of the lower lip caused by scar contracture and loss of mucosal volume from previous surgeries.

Case Report

An 81-year-old man underwent resection of a malignant tumor (squamous cell carcinoma) on the left side of his lower lip. The tumor was resected with ample tumor-free margins, and the defect, with minor commissural involvement, was repaired using Estlander's method [8]. A commissuroplasty was performed 6 months later. A year after this second operation, the patient was referred to our hospital because of drooling and food spillage due to a depression in the left half of the lower lip (Figure 1). The depression had occurred because of insufficient lip tissue and contracture of the surgical scar.

Because the patient was elderly and the remaining amount of mucosal tissue around the lip was insufficient owing to atrophy, we decided that reconstruction with a local mucosal flap, such as a V-Y advancement flap, was not appropriate. We released the scar contracture and performed reconstruction of the lip with a hard palate mucoperiosteal graft. Part of the graft was denuded and buried under the mucosa to augment the height of the lower lip.

Ten days after surgery, the sutures were removed, and the patient's jaw was released. There were no postoperative complications. The donor on the palate healed completely by 4 weeks (Figure 2). Follow-up at 6 months showed that the patient had perfect closure of the mouth without leakage of saliva, and the reconstructed lower lip had a normal contour (Figure 3). Favorable aesthetic and functional results were achieved (Figure 4).

Discussion

When selecting a graft for lip reconstruction, the surgeon must consider not only the graft's texture match, but also its shrinkage rate, and donor site morbidity. Table 1 compares the free mucosal grafts commonly used in lip reconstruction. For my patient, a palatal mucoperiosteal graft was applied. The palatal mucoperiosteum is wet,

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Figure 2: The donor site for the palatal mucoperiosteal graft healed by 4 weeks.



Figure 3: At 6 months after the third operation, the reconstructed lower lip had a normal contour.



Figure 4: At 6 months, perfect lip closure was obtained, and there was no leakage of saliva.

stiff, soft, and flexible and has a texture similar to that of the labial mucosa. The postoperative shrinkage rate for a palatal mucoperiosteal graft is 10%, which is less than palatal mucosa only [9,10], because the periosteum contains dense fibrous tissue that supports the palatal mucosa, and the lamina propria is firmly attached to the periosteum by grouped collagen fibers [6,7]. This structure provides tissue stability and minimizes graft shrinkage as well as facilitating complete engraftment. Harvesting this graft is also easy, and there is almost no bleeding or donor site morbidity.

There are many advantages to using palatal mucoperiosteal grafts for vermilion lip reconstruction: (1) the graft structure is anatomically and histologically similar to the vermilion lip, (2) donor site morbidity is less than that at other donor sites, (3) the color and texture match are good, (4) there is little postoperative shrinkage, and (5) the graft tissue is thicker than a palatal mucosa graft, helping ensure complete engraftment.

Conclusions

Vermilion lip reconstruction with a palatal mucoperiosteal graft can produce good aesthetic and functional results. This type of graft should be considered as an option for reconstruction in patients with a functioning orbicularis oris muscle who require supplementation of the lip tissue.

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	Histologic Composition	Graft Texture	Graft Shrinkage	Donor Site Morbidity
Labial mucosa	Mucosa	Thin	>10%	Moderate
Hard Palate mucosa	Mucosa	Similar	10-30%	None
Hard Palate mucoperiosteum	Connective tissue with mucosa	Similar	<10%	None

Table 1: Comparison of mucosal grafts used for lip reconstruction.