Abstract

Objective: To describe a method of obtaining reliable internal nasal lining for full-thickness nasal defects.

Methods: We present a series of patients who underwent staged interpolation of subcutaneous tissue pedicle melolabial flaps for internal lining in full-thickness nasal defects. These procedures were performed at our institution from 1998 to 2005. We reviewed the surgical technique, complication rates, and outcomes for these cases.

Introduction

The melolabial crease separates the cheek from the upper and lower lip. This crease is deep enough to allow elevation of the flap to the midline of the face and is located superior to the facial nerve. The skin adjacent to the melolabial crease has color, thickness, and texture similar to that of the lower nose and upper lip, making it well-suited to reconstruct these areas. Melolabial skin can be successfully pedicled either superiorly or inferorly for nasal reconstruction. Interpolated subcutaneous tissue pedicle flaps are commonly used to replace nasal alar skin. Interpolated cutaneous pedicle melolabial flaps can be used in a similar fashion. In both of these instances, the goal is to use the skin external to the nasoseptal pedicle to reconstruct the area of interest.

We have recently explored using interpolated subcutaneous tissue pedicle melolabial flaps to reconstruct moderate and large defects of internal nasal lining. Below we discuss the surgical technique and present two cases.

Surgical Technique

Case 1

BC is an 80 year-old woman who underwent excision of a left alar basal cell carcinoma, aggressive growth pattern, at an outside institution in 2005. She underwent nasal reconstruction at that time using a left melolabial flap for external cover. At presentation to us she was found to have an extensive recurrence and underwent an initial attempt at nasal reconstruction using split calvarial bone grafts and a forehead flap for external lining. The paramedian forehead flap failed and the split calvarial bone became exposed and was lost, creating a large nasocutaneous fistula. To stabilize the wound, a second stage forehead flap was used to close the fistula. Once the anterior wound was healed, a melolabial subcutaneous tissue pedicle flap was delayed. This was harvested at a second stage measuring 5x3 cm and was placed under a cartilaginous osteocartilaginous graft with a third forehead flap for external cover. A total of seven stages were required.

Case 2

JG is a 49 year-old man with a history of ethmoid sinus squamous cell carcinoma with nasal skin invasion who underwent an external approach for resection. Negative margins were achieved and he underwent an initial attempt at nasal reconstruction using split calvarial bone grafts and a forehead flap for external lining. Due to prior use of an ipsilateral melolabial flap, a left-sided interpolated subcutaneous melolabial flap was marked out and delayed. At the second stage, the interpolated melolabial flap, auricular cartilage grafting, and an interpolated paramedian forehead flap were placed. The melolabial flap was taken down at a third stage. At the fourth stage, the forehead flap was taken down and thinned. The alar-nasal resection was rebuilt at a final fifth stage. She developed a breakdown but has healed since surgery. She has a patent left nasal airway at 24 months from the final stage.

Discussion

Full-thickness nasal defects present a reconstructive challenge requiring replacement of external soft tissue covering, internal lining and structural support. For large defects, internal lining is possibly the most difficult of these three layers to successfully replicate. Local mucosal flaps like the bipedicle and septal hinge flap are the primary workhorse for reconstructing small to moderate internal lining defects in the lower half of the nose. Superiorly-based contralateral septal mucosal flap can be swung laterally through a cartilage defect to relieve the middle vault. These different local mucosal flaps depend upon blood supply from the superior labial or anterior ethmoid arteries, which may have been destroyed by surgery or trauma, or made less effective by radiation to the area.

In these cases, a different source of pliable, vascular tissue is required. Some authors have utilized the galeal or perforated components of the forehead flap for internal lining. Typically, near-total defects of internal lining have required a second forehead flap or even a radial forearm free fascia flap for reconstruction.

In this report, we describe the use of the interpolated melolabial flap to reconstruct moderate to large defects of internal lining. We have harvested a skin pedicle as large as 5x3 cm, which rivals the maximum dimensions of a septal hinge flap. The donor site can be closed in the melolabial crease by advancing the lax cheek skin, providing excellent scar camouflage.

If the internal lining flap fails, the rest of the nasal reconstruction will fail. For this reason, we have delayed all of our interpolated melolabial flaps for internal lining, and have had no loss of tissue. In a young, healthy, non-radiated patient, this may not be necessary.

Bibliography


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