

Utilization of the paramedian forehead flap pedicle as a delayed full-thickness skin graft to optimize forehead cosmesis



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INTRODUCTION

The paramedian forehead flap (PMFF), based on the supratrochlear artery, is the preferred technique for repairing large, deep nasal wounds, and the secondary forehead defect is typically repaired by primary closure.¹

CASE REPORT

An 81-year-old male presented for treatment of a basal cell carcinoma on the right nasal tip. Clear margins were achieved after 3 stages of Mohs micrographic surgery with a final defect measuring 2.5 × 2.2 cm, extending to perichondrium (Fig 1). A standard PMFF extending from the glabella to the right medial anterior hairline was designed. The 8.5 × 2.5 cm forehead pedicle was incised, interpolated, and inset. In the donor site area, undermining was performed in the subfrontalis loose connective tissue plane and primary closure of the forehead area corresponding to the PMFF stalk was achieved with minimal tension. However, the superior donor site, the distal end of the PMFF, was under significant closure tension due to the wide nasal donor defect and the inelastic galea aponeurotica (Fig 1).

At this point, reconstructive options included forcing primary closure, donor site healing by second intention, harvesting a full-thickness skin graft (FTSG), or executing a large bilateral hairline rotation flap. Suturing the forehead under too much tension inevitably leads to suture track marks,

Abbreviations used:

FTSG: full thickness skin graft
PMFF: paramedian forehead flap

wound edge necrosis, wound dehiscence, scar depression, or some combination.¹ With second intention wound healing, the patient must perform wound care for at least 6 to 8 weeks, and cosmetic results, while often acceptable, are unpredictable. FTSGs and rotation flaps introduce greater patient discomfort with minimal cosmetic benefit compared to second intention healing.¹ Finally, a right angle PMFF could have been performed initially in hopes of capitalizing on tissue laxity.²

In this case, the portion of the superior forehead that could not be easily sutured without excessive tension was left to granulate while the pedicle flap integrated with the nasal blood supply. At 3 weeks, the granulating forehead defect had reduced in size but remained an open wound measuring 2.0 × 1.5 cm (Fig 2). After determining that all pedicle skin edges were well-perfused, the midpedicle and base were excised and repurposed as a FTSG. The pedicle flap edges were trimmed and sutured into place, and the remaining glabellar wound was repaired with a local glabella advancement flap. The final nasal wound dimensions measured 3.2 × 2.7 cm. The retained upper half of the excised

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with the understanding that this information may be publicly available.

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Fig 1. 2.5 × 2.2 cm defect after Mohs micrographic surgery for a nasal tip basal cell carcinoma repaired with a paramedian forehead flap.



Fig 2. Granulating wound prior to full thickness skin graft application at 3 weeks.

pedicle was prepared to be used as a FTSG by removing fibrotic and newly epithelialized tissue. The forehead skin edges were freshened with a scalpel. The pedicle-derived FTSG was secured with interrupted and running 6-0 polypropylene (Surgipro, Covidien) sutures and left in place for 7 days (Fig 3). The patient returned 6 months after PMFF takedown and FTSG placement (Fig 4). No revision was required.

DISCUSSION

We report delayed skin grafting using the PMFF stalk to achieve total forehead closure. To our knowledge, this technique has only been mentioned once in the literature for midline forehead flaps and is not routinely implemented.³ Delayed FTSGs have excellent rates of graft vascularization,⁴ and recently, dermatologic surgeons have converted remaining pedicle tissue into a Burow's FTSG for nasal tip necrosis.⁵ In our case, the patient already required a second stage in his repair, the pedicle takedown; repurposing the pedicle flap stalk as a FTSG in repairing the superior forehead secondary defect was a reasonable option and did not introduce an additional procedure. This graft had a higher chance



Fig 3. Immediate postpedicle takedown with reconstruction of forehead defect using a full-thickness skin graft from the pedicle stalk.



Fig 4. Appearance 6 months after Mohs micrographic surgery.

of survival when placed at takedown versus during the initial repair because of the nicely vascularized bed of granulation tissue that developed over a 3-week period. Furthermore, the pedicle flap was

harvested from the forehead and therefore color and texture match were optimal.

The main shortcoming of this technique was the additional step of attaching the FTSG with a longer overall operative time. However, by using the remaining pedicle tissue as a FTSG, postoperative healing time was greatly reduced compared to second intention wound healing. Second intent healing offers adequate cosmesis in many cases, and, therefore, this approach is likely best suited for patients with slow wound healing or large secondary defects.

Conflicts of interest

None disclosed.

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