Double island pedicle or V-Y flap repair for partial-thickness combined defects of the cutaneous and mucosal lip

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Background: Removal of skin cancer at or near the vermilion border may result in a partial-thickness combined cutaneous and mucosal lip defect for which repair has potential for poor cosmetic and functional outcomes.

Objective: We sought to describe the closure and results from repair of combined lip defects using 2 island pedicle or V-Y flaps, 1 for the cutaneous lip and 1 for the mucosa.

Methods: A retrospective review of all patients with combined defects of the lip who underwent double island pedicle or V-Y flap repair from June 2008 to December 2013 was performed.

Results: Ten patients (6 female, 4 male; ages 35-89 years, mean age 60 years) had defects on the upper lip in 8 cases and on the lower lip in 2 cases. Follow-up was for 3 months or longer with good or excellent outcomes in all cases.

Limitations: This was a nonrandomized, unblinded clinical case series with a limited sample size.

Conclusion: Double island pedicle or V-Y flap repair is an elegant closure with good to excellent results and may avoid potential problems inherent in other repair options. (J Am Acad Dermatol 2014;71:1198-203.)

Key words: island pedicle flap; lip; Mohs micrographic surgery; skin cancer; vermilion; V-Y flap.

The lip is composed of beautifully curved cosmetic units and re-creation after cancer excision is a reconstructive challenge, particularly in younger patients and in women in whom the lip is fuller and where the vermilion border, central Cupid bow, and philtral columns are better defined. Functional outcomes are also important, with speech, eating, and drinking all being important tasks of the lip.

Removal of skin cancer at or near the vermilion border may result in a partial-thickness combined cutaneous and mucosal lip defect, spanning this visually important border. In this article, the authors describe their approach to these combined lip defects and review their results in using 2 island pedicle flaps, one to repair the cutaneous lip and the other for the mucosa.

METHODS

See Figs 1 to 8. After institutional board ethics approval, a retrospective review of all patients with combined defects of the lip who underwent double island pedicle flap repair from June 2008 to December 2013 was performed. All patients had undergone Mohs micrographic surgery in a day-surgery setting.

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Surgical technique

The vermilion border was marked before Mohs micrographic surgery and renewed as necessary at the time of reconstruction. An infraorbital or mental nerve block and minimal local infiltration (to minimize distortion) were used, with ropivacaine 0.75% (S. C. H.) or lidocaine 2% (R. J. H.). In some cases (R. J. H.), patients had their reconstruction performed the following day with a combination of local lidocaine and sedation anesthesia in a day-surgery setting.

Usually, the flaps were designed in a vertical fashion, as triangles above and below the defect; this permitted exact re-creation of the line of the vermilion, including the Cupid's bow where defects were centrally located. Vertical flaps also lent themselves to simulation of the philtral columns. However, where the cutaneous defect was taller than it was wide or there was insufficient cutaneous tissue above the defect to create a vertically oriented flap, the cutaneous flap was drawn in a horizontal direction, coming from the lateral lip. The tail of the mucosal flap extended almost to the gingival sulcus.

The technique for both skin and mucosal flaps was similar, although the cutaneous defect was closed first to ensure approximation of the vermilion border. The flap was incised down to the muscle layer. Undermining of the flap's advancing edge and tail and the lateral edges of the defect was performed, the advancing edge was undermined by 5 mm. Meticulous hemostasis was performed, especially on the lower lip where the vascular mentalis muscle formed part of the flap pedicle.

The key suture was a buried 5-0 absorbable suture from the leading undersurface of the flap and 4 to 5 mm back from the advancing edge; this was sutured into the orbicularis oris at the base of the defect to correctly reposition the vermilion border and to prevent retraction. This suture also helped prevent subsequent trapdooring. If mobilization was difficult, initial closure of the secondary defect behind the tail with buried sutures aided flap advancement but this was otherwise the second step. Subsequent buried sutures aligned the advancing lateral tissue of the flap at the vermilion border. Interrupted, nonabsorbable, 6-0 nylon, superficial sutures were then used to reinforce the correct positioning of the flap at the vermilion junction. Buried and then running superficial sutures were used to close the remainder of the flap. The mucosal flap differed in having absorbable 5-0 or 6-0 sutures to close the mucosal surface.

Once both flaps were in position, trimming of the advancing edges recreated the shape of the vermilion junction, this could be a relatively straight line or mimic curves such as the Cupid's bow. The advancing edges of the flaps were sutured together as the last step. At this early point, both flaps, but particularly the vermilion flap, appeared concave and depressed. At 2 to 3 months postoperatively, the flaps were level with the surrounding skin.

White soft petroleum; 3-layer dressings with low adherent perforated film, cotton/acrylic absorbent pad, and hydrophobic backing; and self-adhesive, nonwoven fabric tape were applied to the cutaneous wound for 48 hours then renewed daily by the patient until suture removal at 7 days. All patients were directed to use 10- to 15-minute ice packs on an hourly basis until bedtime on the day of surgery. Minimizing talking and a no-chew diet were advised for 24 to 48 hours with oral saline rinses after each meal until suture removal. Patients with dentures were directed to take special care during denture removal to avoid trauma to the wound.

CAPSULE SUMMARY

- Removal of skin cancer along the vermilion border results in a combined cutaneous and vermilion defect that is challenging to repair.
- Double island pedicle flap repair is described step by step and outcomes are reviewed.
- This elegant repair has good outcomes and may avoid potential problems inherent in other repairs.

RESULTS

See Table I. Ten patients (6 female, 4 male; ages 35-89 years, mean age 60 years) had defects on the upper lip in 8 cases and on the lower lip in 2 cases. Defect sizes ranged from 9×13 to 19×20 mm. Nine patients had 2 vertical flaps. Follow-up was for 3 months or longer with good or excellent outcomes in all cases.

Minor hypertrophic scarring was treated on 1 or 2 occasions in 2 patients with 0.2- to 0.4-mL intralesional triamcinolone acetonide (10 mg/mL). One patient with a lower lip defect had a small postoperative bleed necessitating takedown of the cutaneous flap and further hemostasis before resuturing. No vermilion border mismatch or flap necrosis occurred.

DISCUSSION

The repair options for partial-thickness combined vermilion and cutaneous lip defects include

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