Vermilion Reconstruction with Genital Mucosa

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Summary: Functional and aesthetical reconstruction, especially of the upper lip after ablative tumor surgery, can be very challenging. The skin of the lip might be sufficiently reconstructed by transpositional flaps from the nasolabial or facial area. Large defects of the lip mucosa, including the vestibule, are even more challenging due to the fact that flaps from the inner lining of the oral cavity often lead to functional impairments. We present a case of multiple vermilion and skin resections of the upper lip. At the last step, we had to resect even the whole vermilion mucosa, including parts of the oral mucosa of the vestibule, leaving a bare orbicularis oris muscle. To reconstruct the mucosal layer, we used a mucosal graft from the labia minora and placed it on the compromised lip and the former transpositional flaps for the reconstructed skin of the upper lip with very good functional and aesthetic results. (Plast Reconstr Surg Glob Open 2016;4:e701; doi: 10.1097/GOX.0000000000000703; Published online 5 May 2016.)

Reconstruction of the vermilion of the upper lip can be very challenging, especially in tumorous relapse conditions, due to the limited local mucosa available. This accounts even more for resections solely involving mucosa or even skin of the upper lip leaving the orbicularis oris muscle intact. In these cases, an aesthetic reconstruction of the red/white border or the white roll is very hard to achieve. Even the color of the reconstructed vermilion is very important. Sometimes an appealing shape of the cupid bow and color of the “vermilion” can only be achieved by a tattoo. We present a case of multiple vermilion and skin resections of the upper lip due to a lentigo maligna melanoma. In the last step, we had to resect even the whole vermilion mucosa of the upper lip, including parts of the oral mucosa of the vestibule leaving a bare orbicularis oris muscle. Due to the fact that we reconstructed the vermilion of the upper lip several times with local transpositional flaps or even crosswise pedicled mucosa flaps from the vermilion of the lower lip, we now had to harvest mucosa transplants for the reconstruction of the upper vermilion without impairing lip or cheek function. For this purpose, we performed a mucosa-free flap from genital mucosa (labia minora).

CASE REPORT

A patient, now 46 years old, presented in 2004 for the first time with a lentigo maligna melanoma on the upper lip. In several steps, the lentigo maligna melanoma was resected. In 2011, the patient presented again and had additional 6 resections within this course; she was referred to our clinic. At the last resection, we had to resect the whole skin and subtotally the vermilion of the upper lip under microscopic histopathological control preserving the underlying structures. The skin of the upper lip was reconstructed using bilateral nasolabial and modified Esser flaps. Subsequently, we lost nearly the complete vermilion and oral vestibule of the upper lip, resulting in a very disappointing aesthetic and functional outcome (Fig. 1). After a thinning pro-

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procedure of the flaps, we planned the reconstruction of the vermilion and vestibule. For that purpose, we incised at the upper vermilion border and reshaped the cupid bow and the course of the red/white border and the white roll. At the level of the orbicularis oris muscle, we dissected a submucosal flap to reconstruct the vestibule. To cover the new vermilion and the orbicularis oris muscle, we harvested mucosal graft from the genital mucosa (Fig. 2) and transplanted it to the new vermilion (Fig. 3). We applied soft pressure (sponge); a soft diet was given for 10 days and a heparinic rinse for 2 days. The patient was also put on voice rest for 10 days. The transplant was well integrated and the color nearly resembled that of the original vermilion (Fig. 4). The patient was very satisfied with this result, and we will improve the lining of the upper lip by further thinning the skin flaps.

**DISCUSSION**

The sole reconstruction of the mucosa of the lips can be very challenging, especially at the upper vermilion. If you have to resect full-thickness parts of the lip, you are normally able to solve such problems by local transpositioning flaps or pedicled flaps from the other lip (like Abbe or Estlander flaps). Dealing with less than full-thickness defects, eversion flaps (more likely in the lower lip), visor flaps, or transpositional mucosal flaps can be used from the vestibule or the other lip.

These techniques find their limitations in repeated resections of lip mucosa. Bluntly said, you
are running out of flaps you can use without causing scarring, functional loss, and aesthetic impairment. Spina\(^1\) described in 1950 a technique for areola reconstruction after ablative tumor surgery of the breast using mucosal transplants of the labia minora. In 1993, Ahuja\(^2\) described the reconstruction of a lower lip vermilion using a mucosal graft from the labia minora. Adopting this technique, we were able to reconstruct the vermilion of the upper lip subtotally and even more the inner lining of the upper lip to deepen the oral vestibule. We hereby show that this graft also works in an already compromised tissue that has been operated on before and that does not have that perfect blood supply the anatomically uncompromised lip has. In aesthetical aspects, especially the coloring of the transplant, the result is very satisfying. The technique is very simple and comparable with other free full-thickness skin grafts. Depending on anatomical variations, you can harvest large grafts for complete vermilion reconstruction and close the donor site primarily and they do not cause any visible scars. Risk factors at the donor site worth mentioning are labial bleedings that might be overlooked due to their intralabial dispersion. At the recipient site, you have the same risk factors as in skin-free graft transfer. The transplant will show some volume loss to scarring, and you might lose some parts or the whole transplant due to insufficient nutrition.

We consider this technique as an excellent possibility for the reconstruction of the oral mucosa, especially the vermilion.

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