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Aesthetic considerations in flap reconstruction of the burnt face in males: A demonstrative case report

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ABSTRACT

INTRODUCTION: The face is unique because functional and aesthetic considerations are equally important. Extensive deep chemical burns of the face are usually reconstructed with flaps. In males, the use of the hair-bearing superficial temporal artery flap has the advantage of achieving a satisfactory outcome with regards to both function and aesthetics.

PRESENTATION OF CASE: A 49-year-old man sustained a deep chemical burn to the right side of the face and neck. The resulting right peri-oral and neck contractures were initially reconstructed with a latissimus dorsi myo-cutaneous free flap. The functional outcome was satisfactory. The cosmetic outcome was poor and caused the patient to go into depression. Salvage was done using a hair-bearing superficial temporal artery flap.

DISCUSSION: In males, the use of the hair-bearing superficial temporal artery flap in facial reconstruction respects the aesthetic units and is also able to achieve a satisfactory functional outcome.

CONCLUSION: We stress that aesthetic and functional considerations are equally important in facial reconstruction. In males, the hair-bearing superficial temporal artery flap is the flap of choice if the beard/moustache areas are involved.

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1. Introduction

Extensive deep chemical burns of the face are usually reconstructed with flaps rather than skin grafts [1]. The face is unique since functional and aesthetic considerations are equally important. Hence, the surgeon should take this in consideration during flap selection.

Males have a beard and a moustache and hence, deep chemical burns of these areas are best reconstruction using the hair-bearing superficial temporal artery flap. We present a case of a deep chemical burn of one side the face and neck that was reconstructed using a myo-cutaneous latissimus dorsi free flap. Although the flap was successful in restoring function, the poor cosmetic outcome led to psychological problems to the patient. Salvage was done using a pedicle superficial temporal artery flap. The work has been reported in lie with the SCARE criteria [2].

2. Case Report

A 49-year-old man sustained deep chemical burns to the right side of the face and neck. This led to right pinna necrosis, scarring

of the right side of the face with hair loss, and severe right peri-oral and neck contractures. The patient was initially managed at another center and a latissimus dorsi myo-cutaneous free flap was used to correct the peri-oral and anterior neck contractures. The posterior neck burn was treated with skin grafts. Although the free flap was successful in contracture release, the poor cosmetic outcome caused the patient to go into depression and he refused to interact socially. He always covered the lower part of his face with a scarf. The appearance of the face at the time of presentation to us is shown in Fig. 1a and b. In addition to the poor cosmetic outcome, there was retraction of the right ala, right nostril stenosis, a residual contracture of the right oral commissure, severe stenosis of the right external auditory meatus, and a mild residual neck contracture.

Reconstruction was done in stages. Priority was given to the aesthetic restoration of the face. A Doppler confirmed the presence of a patent superficial temporal artery on the right side. A tissue expander was used to expand the territory of the right superficial temporal artery flap. The expanded flap was raised and used to reconstruct the beard area and was inset in the desired location in the distal part only. The proximal half of the flap was tubed (to be used later for moustache reconstruction) and the donor site was closed primarily (Fig. 1c–e). The pedicle was divided (at the temporal part) after three weeks and the proximal (tubed) part of the flap was rotated and used to reconstruct the right hemi-moustache

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Fig. 1. (a) Front-view at the time of presentation to the authors. Note the right nostril deformity and the residual contracture of the right oral commissure. (b) Side-view at the time of presentation. Note that the free flap extended from the right peri-oral area across the beard to the neck; with no respect to the aesthetic units. There was also residual contracture of the neck. (c) Immediate post-operative appearance. The expanded superficial temporal artery pedicle flap was first used to reconstruct the beard area. (d) The donor site in the scalp is closed primarily. Note that the flap extended across the midline. (e) The healed flap. Note that the proximal part of the flap is tubed to be transposed later for moustache reconstruction. (f) Reconstruction of the right hemi-moustache using the proximal part of the flap. (g) Front-view at 5 months. (h) Side-view at 5 months.

(Fig. 1f). Three weeks later, the two portions of the flap (beard and moustache portions) were divided and inset into appropriate locations. Other surgical procedures that were done included: debulking of the remaining part of the free flap in the neck, release and full thickness skin grafting of the residual neck contracture, right commissuro-plasty, widening of the external auditory meatus

(this required a skin graft and stenting for 4 months), v-y release of the retracted right ala, and w-plasty followed by stenting to correct the right nostril stenosis.

The patient was satisfied with the final appearance, resumed normal social activities and went back to work 5 months after his

presentation to us. A prosthetic ear is planned. The final appearance at 5 months is shown in Fig. 1g and h.

3. Discussion

The hair-bearing superficial temporal artery flap may be used as pedicle or free flap for the reconstruction of the eye-brow, moustache, and beard in males [3–5]. Pedicle flaps are simpler than free flaps, and hence free flaps are generally used when the ipsilateral superficial temporal artery flap is not patent. In these cases, the contralateral superficial temporal artery flap is utilized as a free flap. In our case, the ipsilateral superficial temporal artery was patent and hence a pedicle flap was utilized.

The donor site morbidity of the superficial temporal artery flap is minimal because the scar is well concealed by the hair. No pre-operative expansion is required for eye brow and moustache reconstruction [6]. Beard reconstruction requires pre-operative expansion in order to close the donor defect primarily as seen in our case. Pre-operative tissue expansion also acts as a delay procedure allowing the flap to extend across the mid-line safely (see Fig. 1d).

The main message from our case is to stress on the fact that flap reconstruction of the face should take in consideration both aesthetics and function. Considerations of “aesthetic units” of the face is well described in the literature [7]. Our case shows that the hair-bearing superficial temporal artery flap in males should be the flap of choice if the beard/moustache areas are involved. In our case, the latissimus dorsi myo-cutaneous flap was successful in releasing the peri-oral and neck contractures. However, there was no respect to the aesthetic units and the flap did not provide hair to the moustache and beard areas. This led to a poor cosmetic outcome and our case also demonstrates that salvage is possible using the superficial temporal artery flap.

4. Conclusion

We demonstrate the advantages of using the hair-bearing superficial temporal artery flap in the reconstruction of the burnt face in males. We also stress that aesthetic and functional considerations are equally important in facial reconstruction.

Conflict of interest

None.

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Ethical approval

The study was approved by the Research Committee of National Hospital (Riyadh Care) Riyadh, Saudi Arabia.

Consent

Written informed consent was obtained from the patient for publication of this case report (including the illustrations). A copy of the written consent is available for review by Editor-In-Chief of this journal on request.

Authors' contribution

Both authors contributed significantly and in agreement with the content of the manuscript. The senior author (MMA) performed the surgery. Both authors participated in the literature review, data collection and writing of the final draft.

Registration of research studies

Not relevant here.

Guarantor

M M Al-Qattan.

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