AESTHETIC RESTORATION IN POST-BURN DEFORMED LIPS

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ABSTRACT

Objective — *To assess the aesthetic restoration of lip by using a cheiloplasty technique in terms of patient satisfaction rate.*

Study design — *Descriptive study.*

Place & Duration of study — *Department of Plastic Surgery, Quaid-e Azam Medical College, Bahawalpur, from May 2005 to January 2010.*

Methodology — *All patients who underwent cheiloplasty for lip aesthetic restoration were included. The salient features of the technique were excision of upper lip burnt skin, recreation of natural shape of the cupid's bow and advancement of the vermilion to the level required. The rest of the defect was reconstructed with full thickness inner arm skin graft with a tie over dressing. For the lower lip following excision of the excess vermilion, full thickness inner arm skin graft was applied.*

Post-burn cheiloplasty in males was performed by excision of the scarred cupid's bow and the alopecic skin with complete or partial moustache reconstruction using an island superficial temporal artery scalp flap or hair transplant into grafted skin.

Results — *Fifty six patients underwent cheiloplasty for upper lip aesthetic restoration. The age range was from 17 to 37 years. There were 39 females and 17 males. Thirty five (62.5%) patients had isolated facial burn scars while eighteen (11.6%) had facial burn scars as part of total body burn. Thirty five patients presented between one and six months after healing of their burns.*

The surgical plan was designed in 14 females (30.4%) for the resurfacing of aesthetic facial areas, release of contractures, and aesthetic lip line reconstruction. Twenty females and four males underwent cheiloplasty. In 8 male patients (17.4%) release of contractures and cheiloplasty were performed. Patient satisfaction rate was fairly good in 49 cases (89.1%).

Conclusions — *The techniques of removal of scar and reconstruction with full thickness skin graft with or without hair transplant and superficial temporal artery flap for upper lip reconstruction, produced good results with high satisfaction rate.*

Key words — *Upper lip reconstruction, Cheiloplasty, Hair transplant.*

INTRODUCTION:

The lips are a very important structure in the beauty of the face. They are a key element for conveying expressions, emotions and attractiveness. Reconstruction of cupid's bow and the white roll is crucial in preserving the aesthetic nature of the lip; even slight alterations or misalignments of these areas are overtly noticeable.[1] The lower lip's aesthetic line has a particular shape that characterizes the chin area below and the vermilion substance above.[2,3]

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The vermilion substance is cosmetically the lip's most apparent portion. Its pink-to-red color is due to the area's extensive superficial vasculature.[4,5] Deep burns destroy the vermilion substance and alter its red color to a depigmented scarred color. The attractive color of red lips has to be the object of very meticulous reconstruction as regards their form and pigmentation. This can be done only by using the tongue flap or buccal mucosa. A graft is less indicated.[6]

A number of different techniques have been developed and the ultimate goal of reconstruction is to achieve aesthetic results. This paper describes some clinical situations and possible reconstructive solutions.

METHODOLOGY:

This study was carried out in the Department of Plastic Surgery, Quaid-e Azam Medical College, Bahawalpur between May 2005 and January 2010. The post-burn aesthetic lip disfigurements analysis comprised of the following: deformed lip lines, unattractive lines, lazy M of the upper lip liner (cupid's bow) and lazy U of the lower lip liner, vermilion substance scarring, skin scarring, and in males alopecic moustache area. Those patients in whom the major complaint was functional disturbances i.e. eating, talking etc were excluded from the study.

All patients subjected to surgery signed a consent form stating the importance of their compliance with the long and detailed aftercare program and the need of immediate post-operative scar control. Lip scars were categorized in all patients as isolated lip scars, lip scars as part of facial burn scars, or lip scars as part of total body burn scars.

A scar control protocol was designed for patients with recent immature scars. This included pressure garments, topical corticosteroid creams, topical anti-scar gels, topical silicone sheets and corticosteroid injections. The program was conducted for 6-12 months until complete control of active scars and subsidence in the activity of hypertrophic or keloid scars achieved.

A series of photographs were taken of each deformed lip at the time of presentation, pre-operatively, and immediately and late post-operatively. All patients underwent pre-operative assessment of their general condition for operative fitness.

Our technique of upper lip cheiloplasty included excision of upper lip burnt skin, recreation of the natural shape of the cupid's bow and advancement of the vermilion on to the level required. The rest of the defect was reconstructed with full thickness inner arm skin graft. For the lower lip excision of the excess vermilion with full thickness inner arm skin graft, were done.

In males excision of both the scarred cupid's bow and the alopecic skin with complete or partial moustache reconstruction was performed using an island superficial temporal artery scalp flap or if the skin was good single follicular unit hair transplant technique added.

All patients attended for scheduled post-operative follow-up visits in the aftercare program. This program was conducted for 6 to 12 months and included detailed scar control, as follows: pressure garments for the grafted chin area, silicone sheets, silicone-containing creams and gels, topical corticosteroid-containing creams, and intralesional injection of corticosteroids. After scar control, residual hyper-pigmentation was controlled by topical bleaching agents for 3 months. The aftercare program also included physiotherapy and advice on camouflaging and permanent make-up. After 12 months follow-up the end result was assessed by patient satisfaction.

RESULTS:

There were a total of 56 patients (age range, 17-37 years; 39 females and 17 males) included in this study. Thirty five patients (62.5%) had isolated facial burn scars (27 females and 8 males), while eighteen (11.6%) had facial burn scars as part of total body burn (12 females and 9 males). Thirty five patients presented between one and six months after healing of their burns and 21 (39.1%) presented six or more months after healing. Four out of these 21 patients had primary surgery for their facial scars, while 17 (30.4%) had not had any surgical reconstruction before.

The surgical plan was designed in 16 females (30.4%) for the resurfacing of aesthetic facial areas, release of contractures, and aesthetic lip line reconstruction; 23 females (43.5%) were designed only for cheiloplasty; 12 male patients (17.4%) were designed for the release of contractures and cheiloplasty, and 5 male patients (8.7%) were designed only for cheiloplasty.

Two cases (4.3%) were complicated by minor spotty partial loss of the full-thickness skin graft, which required frequent dressings until complete healing by secondary intention, followed by additional scar control for the scarred spots. In one case (2.2%) complicated by superficial necrosis of the superficial

Fig I: Post burns deformity of the face.

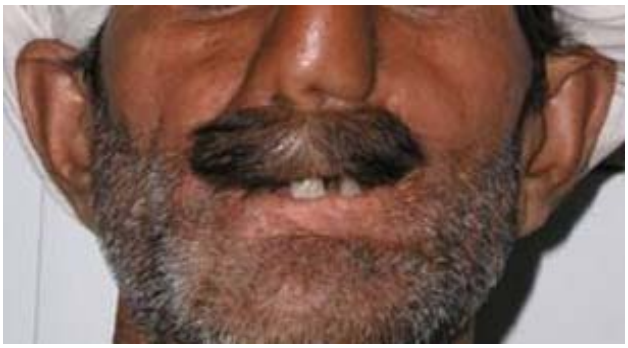

Fig II: Result after aesthetic surgery.

temporal artery island flap, dressing was carried out until healing occurred with no additional scars. A secondary procedure for additional refinement for the purpose of debulking the graft was performed in two male patients. Infection rate was 0%. Donor site morbidity for the full-thickness skin graft was minimal and controlled by local care. Hair transplant was done in four patients for moustache reconstruction. Near original density was achieved with this procedure. Patients' satisfaction was fairly good in 49 cases (89.1%).

DISCUSSION:

One of the consequences of face burn is upper lip deformation with philthrum injury. The philthrum absence poses severe cosmetic defects. A literature review shows no effective developed technique which allows the surgeon to restore the upper lip and the philthrum in a single-stage procedure. Partial- and full-thickness skin grafts are commonly used for resurfacing scarred perioral regions, including lip borders and lines, as also for reconstructing post-burn deformed lower lips and, above all, for releasing contracted and everted lips. Skin graft losses are higher in the case of full-thickness skin grafts around the mouth opening because of contamination by food and fluids.

An overall master plan must be developed that may need modification as treatment progresses and patient status changes. Appropriate timing of surgical intervention is essential to a successful outcome. Many factors may aggravate the problem, e.g. increased burn depth, late presentation, incorrect primary treatment, incorrect aftercare and surgical reconstruction, and the timing of surgical reconstruction.[7,8] The normal aesthetic appearance of the skin in the perioral region is an important factor in the attractiveness of the lips. In men, the persistence of moustache care, including shaving, is an expression of masculinity.[9]

This work was done to present a detailed surgical plan for the correction of post-burn deformed lip aesthetics that does not add more scars to the perioral area with the application of local dermocutaneous flaps. We used cheiloplasty to restore upper and lower aesthetic lip linings, borders, and volume.

Lew D et al reconstructed severely burned lips in two patients using a bi-pedicle lip flap to transfer both bulk and vermilion, from the relatively normal donor lip to the atrophic burned lip. The result was an increase both in tissue bulk and in the size of the vermilion.[10] Lyons GB et al performed upper lip reconstruction using the free superficial temporal artery hair-bearing flap in male patients.[11] Foyatier JL et al presented many examples of burn scar treatment; they reconstructed the anatomical units and applied certain aesthetic techniques (such as rhinoplasty, lifting, tattooing, and autologous fat injections) that made equal contributions to the improvement of the quality of results.[12] Hafezi F et al used a bitemporal artery hair bearing flap in nine cases to reconstruct the moustache and beard area as a substitute for facial deformed skin.[13]

Danino A et al revised the reconstructive procedures of lower lip skin and presented the various possibilities of classic surgical reconstruction in relation to the size of the defect, including the use of full-thickness skin grafts.[14] Demir Z et al reported the successful use of a hair-bearing submental island flap for moustache and beard reconstruction in eleven male patients. This had the same characteristics as the facial area, consisting of thin, pliable, hair-bearing tissue with a good colour match.[15]

Our technique created natural lip lines and natural lip red substance, restoring the beauty of the lips and the self-confidence that female burn victims had lost. This technique, specially designed for the aesthetic reconstruction of lip aesthetic borders and volume in females, involves the use of local tissue having the same characteristics and colors as those damaged in the burn accident. We recommend the

technique in selected cases presenting a deformed cupid's bow of the upper lip, a lazy U border of the lower lip, and a deformed vermilion border in either condition. Certain precautions are advised when using the technique. It must not to be used unless there is complete control of any active scar in the lip area and there must be a certain expectation of good healing capacity.

Vermilion advancement is an easy one stage reconstruction of lip aesthetics. The operating time is short with good pre-operative marking. It is a reliable technique because it uses local tissues, without any aggressive undermining and without adding more scars. There is no need of post-operative occlusive dressings. Full thickness skin graft from inner arm is a nice replacement for the upper lip burnt skin with good color match and is used in severe form of upper or lower lip burns. For male patients beard or mustaches is a component for reconstruction. We used island superficial temporal artery flap and in few cases used single follicular unit hair transplant with very good results.

There are certain disadvantages of this technique. The full thickness skin grafts have a certain percentage of morbidity in the form of partial loss, which may alter the aesthetic results. The possibility of contamination is inevitable in some patients with bad eating habits that could affect such a delicate surgical procedure. The long-term aftercare program may be tedious for irritable patients seeking immediate results and the possible need of secondary refinement procedures in male patients with a bulky superficial temporal artery island flap for moustache reconstruction.

CONCLUSIONS:

The techniques of removal of scar and reconstruction with full thickness skin graft with or without hair transplant and temporal artery flap for upper lip reconstruction, have good patient satisfaction rate. However studies are required to compare these techniques with others.

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