

Complex Reconstruction of Nose and Upper Lip after Assault

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ABSTRACT

A 21-year male, farmer by profession, was admitted in Plastic Surgery Department via outpatient department, with amputation of nose and upper lip with the knife during resistance against robbery attempt. He was having the blockage of the right side of nostril and difficulty in mouth opening. Upper lip vermilion and mucosal reconstruction with the bilateral facial artery musculo-mucosal (FAMM) flap and moustache reconstruction was done with visor flap. Split thickness skin graft (STSG) was done over the donor site. Division and inseting of visor flap was done after two weeks. After three months, all three nasal layers were reconstructed. The inner lining was reconstructed with the turn down flap, L-strut from rib cartilage, and the outer lining with forehead flap.

Key Words: Nasal amputation, FAMM flap, Visor flap, Forehead flap, Turn down flap, L-strut.

INTRODUCTION

In ancient times, amputation of the nose was considered a form of punishment; it was a means of legal sentence throughout the world for adultery. Sometimes, this happens as a revenge due to rejection of relationships. It may sometimes result from a dog or human bite. This has been cited in many ancient scripts like, Hammurabi Code, by the Egyptian papyri, ancient scripts of Susruta and Charaka.¹

Mutilation of the most prominent parts of the face (nose, ears and lips) degrades the appearance of the individual's personality and functions of living parts. Amputation of nose along with the upper lip creates extensive disfigurement, which results in permanent alteration, and is also challenging for a Plastic Surgeon to deal with. These deformities are also seen in clinical scenarios of accidental injury, tumour ablation or granulomatous inflammation.

Reconstruction of nose and lip is quite challenging. Total and subtotal loss of nose requires all three layers. Nasal reconstruction has been mostly tried by nasal prosthesis, Tagliacozzi flap, forehead flap and free radial forearm flap.²

Ideal lip reconstruction requires all three layers. Total lip reconstruction has been tried with facial artery musculo-mucosal (FAMM) flap, tongue flap, nasolabial flap, visor flap, and free flap. The FAMM flap is a local flap, although non-identical to the vermilion of the lip, but still is an excellent option for lip reconstruction.³ This case report

is to share our experience of dealing with such complex scenario and the use of different reconstructive options to achieve cosmetically acceptable result.

CASE REPORT

A 21-year male, farmer by profession, presented through outpatient department with the history of traumatic amputation of nose and upper lip 15 days ago. Patient got this injury from the knife during resistance against a robbery attempt. Initial resuscitation and dressings were done in the local hospital. After 15 days, he was referred to Plastic Surgery Department for reconstruction.

Patient had history of difficulty in mouth opening and right-sided nasal blockage due to scarring (Figure 1a). Examination of nose revealed scarring over dorsum of nose, involving both the nasal sills. There was subtotal nasal amputation with loss of the nasal tip, both soft triangles, columella, and lower and partial upper lateral cartilages. Examination of lip revealed loss of 100% of upper lip vermilion extending up to both oral commissure with scarring of the remaining upper lip, which was adherent with gingiva, with microstomia (inter incisor distance 2.5 cm). Patient's main concern was correction of the disfigurement with reconstruction of nose and upper lip.

A staged reconstruction was planned after counselling of the patient. Patient remained admitted in the ward for initial procedures because he refused to go home with that condition.

Elective tracheostomy was performed first because of difficult airway. Initially, lip scar tissue was excised and defect was recreated. Central prolabium part was turned down. Muscles were released and stitched in the centre. Lip reconstruction was done with anterior based bilateral FAMM flaps, which were raised and stitched with lip tissue in the centre for mucosal reconstruction (Figures 1b and 1c).

The outer lining was provided with visor scalp flap as moustache reconstruction was one of the demands of

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Figure 1: (a) Preoperative frontal view, (b) Bilateral FAMM flap raised, (c) Insetting of the FAMM flap and visor flap raised, (d) Insetting of visor flap, (e) Division and inset of visor flap, (f) One-month follow-up of lip reconstruction.



Figure 2: (a) Marking of nasal turn down flaps and forehead flap, (b) Insetting of turn down flaps, cartilage framework made and forehead flap raised, (c) Insetting of forehead flap, (d) One-month follow-up after nasal reconstruction, (e) Follow-up at 6-month lateral view, (f) Frontal view.

the patient because of cultural issues. Bipedicled visor flap was raised, based on bilateral superficial temporal arteries and trimmed in midline to match with the size of moustache. The inset of visor flap was completed by stitching it with the margins of FAMM flap below and healthy tissue above (Figure 1d). The donor site at scalp was skin grafted. After lip reconstruction, tracheostomy was removed and patient was sent home. Division of the flap was done after two weeks (Figure 1e). One month after lip reconstruction, he was called for nasal reconstruction (Figure 1f).

Nasal reconstruction was planned in three layers. The inner lining was reconstructed by the turn over flaps of the native nasal skin. The outer lining was provided with paramedian forehead flap (Figure 2a). Patient had short

forehead and low set hairline, so forehead flap was designed in an oblique fashion. For cartilage framework, costal cartilage graft was used as Cantilever and Alar batten graft were stitched. Columellar strut was also used and secured with proline 5/0 with Cantilever (Figure 2b). The donor site over the forehead was skin grafted (Figure 2c). Healing was good and there was no flap failure or any donor site complication (Figure 2d). Patient was discharged after three days and called on follow-up at one week, then at one month, and later at 6 months (Figures 2e and 2f).

DISCUSSION

Patients with this kind of injury usually need a team approach. Patient counselling sessions are important to withstand the associated psychological stress and social stigma. In these complex cases, nasal reconstruction occupies special position because of its three-dimensional structure and central position in the face. Burget and Menick have written seminal text on functionally and aesthetically superior nasal reconstruction.⁴ Paramedian forehead flap is the gold standard for the reconstruction of nose. This flap is designed with the goals that skin paddle should be over the supratrochlear artery with narrow skin paddle at brow and should have maximum reach.⁵ Some surgeons narrow the flap to 13mm to 14mm to minimise the flap congestion.⁶

Lips are the complex, multi-layered, functional and aesthetic unit of the face.^{7,8} Reconstruction is best done with available lip tissue. Non-lip local tissue is not sufficient for lip reconstruction. In these cases, regional or free tissues are used to reconstruct the lip, but the reconstruction is always aesthetically unpleasant. The vermilion is a unique structure and it is difficult to replace it with other tissues. The FAMM flap, although not an ideal, is used in this case for vermilion reconstruction.^{9,10} FAMM flap is a composite flap with buccinator muscle included and based on facial artery and venous plexus around it.³ The use of hair bearing scalp to restore the moustache or beard is often desirable. Visor flap is a reliable flap with double blood supply from both superficial temporal arteries and different modifications can be used to reconstruct moustache or beard.¹¹

Various local and distant flaps are used in reconstruction of various subunits of nose, tip, soft triangle, columella, and nostrils. Rotation flaps, V-Y plasties and pedicled, bilobed flaps are known standard techniques.¹² The inner lining of nostril must be reconstructed to avoid nasal scarring. Cartilage scaffolding out of rib cartilage is needed to neutralise the bending forces. So, we have opted here L-strut from rib cartilage, turn down flap to reconstruct the inner lining and the outer lining with the forehead flap.

The aim of this case report was to share the experience of a complex reconstruction. These patients usually

require staged reconstruction with continuous psychological counselling and discussion with the patient about timing and outcome. Aesthetically pleasant results can be achieved with careful planning and using the principles of reconstruction.

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