

Traumatic Hemi Facial Soft Tissue Amputation. Immediate Surgical Flap Reconstruction

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Citation

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Abstract

Large soft tissue defects of the face present a challenging reconstructive problem to the surgeon. Optimal treatment of facial soft tissue injury includes definitive reconstruction of the main aesthetic units of the face.

The author presents a case of immediate soft tissue flap reconstruction of the face following a car accident. The accident resulted in significant loss of the left soft facial structures with exposed facial bone i.e. hemi facial soft tissue amputation. Immediate soft tissue reconstruction was performed utilizing a rotation cervico pectoral flap to cover the lower half of the face and transposition of a temporoparietal scalp flap to cover the upper half. Surgical case and post operative aesthetic results are being presented in this case report.

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INTRODUCTION

The principles of immediate reconstruction of facial soft tissue defects following tumor excision, trauma are well documented in the literature (1,2,3,4,5). Aesthetic facial reconstruction requires adequate understanding of the face regional anatomy and the dynamics of tissue movement and the ability to use innovatively the tissue adjacent to the defect to create a reconstruction that preserves the function of the area and the cosmetic facial units.

The temporoparietal scalp flap is a useful source of tissue for correcting aesthetic units of the face (6,7,8,9,10,11,12). The quality of the tissue may be enhanced, and a successful color and texture match may be achieved. The donor scar is hidden under the hair-bearing area.

The cervicopectoral flap has the same characteristics as facial tissue, consisting of thin, pliable tissue with a perfect color match (13). Cervicopectoral rotation flaps provide a straightforward, reliable, and efficient means to reconstruct complex defects of the face, lateral skull base, and neck, with the potential for excellent cosmetic results. The pedicle of the flap is quite reliable and enables a wide range of applicability

CASE / SURGICAL PROCEDURE

The patient is 34 male pedestrian, while walking and crossing the highway a high speed car hit him. He fell down on his left facial side and lost his consciousness. Immediately he was taken to the hospital and intubated in the emergency room. On examination, there was major soft tissue loss of the left facial structures extending from the left forehead and temporoparietal region. The left temporalis muscle was avulsed with exposed temporal bone. The outer third of the eyebrow was also avulsed. The zygomatic body was exposed with fracture of the arch. The avulsed soft tissue extends downwards into the cheek to include branches of the facial nerve, anterior part of the parotid gland. There were multiple sites of exposure of the mandible ramus and body (Fig-1).

Figure 1

Figure 1: Left hemi facial soft tissue amputation. Endotracheal tube in place.



Clinical and radiological findings revealed no major body organ injury with no intracranial pathology. There was only displaced fracture of the left zygomatic arch.

Following immediate resuscitation of the patient, immediate surgical reconstruction was performed within 24 hour. Surgical debridment of all necrotic avulsed tissue was performed initially. The zygomatic arch was reduced and fixed with screws and plate. The surgical decision was made to utilize local and regional flaps to cover such defect, local transposition of left temporoparietal scalp flap to cover the upper portion of the face and regional rotation of left cervicopectoral flap to cover the lower portion of the face.

The temporoparietal scalp flap was outlined and incised. The flap was raised along the plane between the galea and pericranium. The flap was transposed to cover the exposed temporal bone. The residual donor site was skin grafted.

A curvilinear incision outlined the cervicopectoral flap over the left neck and upper chest wall. The flap included all residual cheek and neck skin caudal to the defect, as well as the chest skin cephalad to the third or fourth intercostals space i.e. above the nipple.

The flap is elevated just deep to the platysma muscle and the anterior pectoral fascia until the identification of the internal thoracic artery perforators. The flap was rotated and transposed in cephalic direction assisted by a back cut at the base to facilitate rotation. The flap did manage to cover just beyond the exposed body of the zygoma and the fractured arch. The dog ear at the anterior jaw line was excised primarily. Suction drain was inserted through the posterior skin, helping the flap in close contact with the underlying

counters. The donor site was closed primarily without skin grafting. The patient was extubated in the following day in good stable condition. Facial contours were restored without distorting surrounding structures as shown Fig 2- A-C.

Figure 2

Figure 2a: The patient 6 weeks following surgery. The cervicopectoral flap gives excellent color match with the face. The temporoparietal scalp flap successfully covered the upper portion of the face. The skin grafted donor site was excised in later stage.



Figure 3

Figure 2b: Lateral view



Figure 4

Figure 2c: Anterior view



DISCUSSION

For facial skin defects, the reconstructive surgeon should strive to optimize tissue match and scar camouflage while minimizing the distortion to neighboring facial landmarks. The surgeon must have an intimate understanding of the local anatomy and must be able to use the appropriate flap for the given characteristics of each defect and patient. Knowledge of several types of flaps and versatility in modifying these flaps are required for optimal facial soft tissue aesthetic results.

Segmenting the facial wound in this case, was useful to develop a reconstruction plan to replace tissue with similar tissue and to provide consistently satisfying aesthetic results.

The temporo-parietal scalp flap is a reliable technique for reconstructing large scalp and forehead defects (8). This flap reliability is based on the rich blood anastomotic arterial network of the scalp. The flap can be harvested in variable length and width with excellent tissue match. The main disadvantage of this flap is the residual donor defects. However, the skin graft can be reduced in size by serial excision.

The cervicopectoral skin flap is a massive flap of chest and neck skin whose major application is coverage of large cheek and facial defects (14,15,16,17). The cervicopectoral skin flap is analogous to the popular deltopectoral flap of Bakamjian (18). The blood supply consists of internal thoracic artery perforators. The overlying neck skin receives nourishment from platysma musculocutaneous perforators as well. The flap will reach, in ideal situation; it will reach cephalad to the zygomatic arch. The residual scars are favorably located with acceptable aesthetic result with

excellent flap reliability.

We now believe that the deep plane is the level of choice for dissection of cervicopectoral flaps when used for reconstruction of cheek or other facial defects.

Relatively bigger defects of the cheek can be easily covered with this flap with preservation of cosmesis and without any distortion in the symmetry of the face.

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