

Emergent Soft Tissue Repair in Facial Trauma



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KEYWORDS

• Facial trauma • Reconstruction • Soft tissue

KEY POINTS

- Soft tissue injuries to the face are frequently encountered by the plastic surgeon and can have significant implications for patients both functionally and aesthetically.
- Management of soft tissue injuries to the face ranges from simple to very challenging based on the complexity of the injury and underlying structures that may be involved.
- A thorough evaluation and appropriate treatment plan are vital to ensuring the optimal aesthetic and functional outcome for each individual patient.

INTRODUCTION

Acute soft tissue injuries to the face are commonly encountered in the emergency setting as isolated injuries or with concomitant facial skeletal trauma. The most common etiology of facial soft tissue injuries varies based on the population studied; however, all facial soft tissue injuries can lead to poor cosmesis, loss of function, and/or social stigmata.¹ Facial soft tissue injuries require thorough evaluation, planning, and surgical treatment to achieve optimal functional and aesthetic outcomes while minimizing the risk of complications.

Facial soft tissue injuries are classified into multiple categories including closed versus open, facial subunit(s) involved, and the presence of additional injuries to related structures (eg, nerve, parotid duct). The classification of the wound guides appropriate treatment as well as helps predict postrepair form and function.

Soft tissue injuries can initially be classified as open or closed wounds. A closed wound is one that damages underlying tissue and/or structures without breaking the skin. Examples of closed

wounds include hematomas, contusions, and crush injuries. In contrast, open wounds involve a break in the skin, which exposes the underlying structures to the external environment. Open wounds include simple and complex lacerations, avulsions, punctures, abrasions, accidental tattooing, and retained foreign body.

Injuries to the head and neck are also classified according to the subunit(s) involved. The major aesthetic subunits are the scalp, forehead, nose, periorbital, cheek, perioral, auricle, and neck.¹ Additionally, the major subunits are frequently divided into smaller subunits by location. The optimal aesthetic result is frequently achieved when individual subunits are reconstructed separately when possible and appropriate.

Due to the frequency, varying complexity, and impact on the patient of facial soft tissue injuries, knowledge of the appropriate evaluation and management of these injuries is vital for all health care personnel involved in their care. This review will discuss the evaluation, general principles of management, and specific treatment considerations and potential complications pertinent to individual

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subunits. Additionally, evaluation and treatment considerations of injuries to underlying soft tissue structures, such as the facial nerve and parotid duct are discussed.

EVALUATION AND ASSESSMENT

All patients with trauma initially should be assessed and managed according to the principles of Advanced Trauma Life Support. Soft tissue injuries of the face and neck can be accompanied by significant soft tissue swelling as well as underlying injuries to the skeletal and laryngotracheal complex, leading to airway compromise. Emergency personnel should have a low threshold for securing the airway, which includes awake tracheotomy if necessary. The patient also should be assessed for associated ophthalmologic, intracranial, and cervical spine injuries, which might alter the management plan² (**Fig. 1**).

History

Once the patient has been evaluated for life-threatening injuries and stabilized as necessary,

a thorough yet focused history and physical examination of the face should be performed by the plastic surgeon. A systematic history elucidates the timeline and mechanism of injury, which is important for determining the need for further assessment and creation of an appropriate treatment plan. The timeline of the injury is important to clarify. Early treatment of soft tissue injuries is associated with optimal aesthetic outcomes and helps the surgeon estimate the resultant swelling of the wound that might make the identification of important landmarks challenging when performing the repair.¹

Determining the mechanism of injury may identify special considerations for the surgeon when managing the wound(s). For example, crush injuries may result in a larger area of compromised tissue than appreciated on initial examination. Tissue that appears healthy initially may subsequently necrose, which may require management of the wound in a delayed fashion with serial debridement.³

Gunshot wounds are another example. The soft tissue damage created by a gunshot wound is

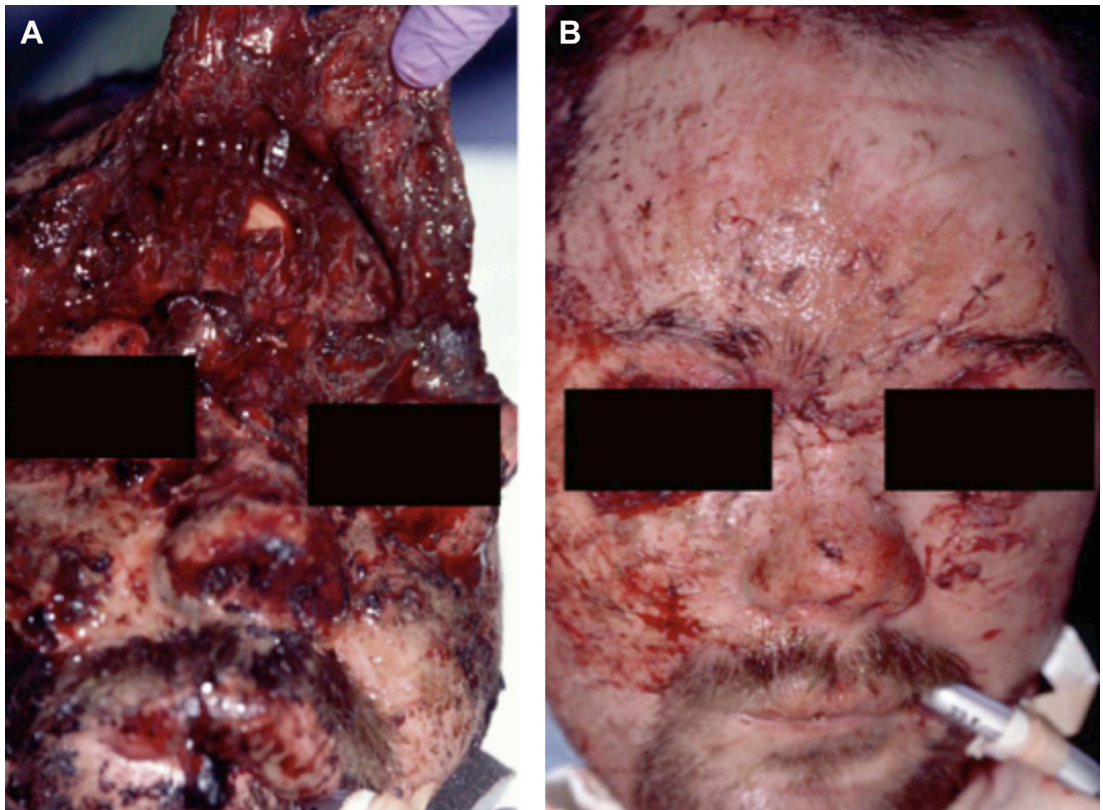


Fig. 1. (A) Complex facial laceration following motor vehicle crash. (B) Postoperative result following irrigation, debridement, and careful repositioning of remaining soft tissue. (From Wells MD, Skytta C. *Craniofacial, Head and Neck Surgery; pediatric plastic surgery*. In: Mueller RV. *Plastic Surgery*. 3rd edition. vol. 3. London: Elsevier Saunders; 2013. p. 32; with permission.)

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