

Case Report

## MANAGEMENT OF SOFT TISSUE INJURIES – CASE SERIES

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### Abstract :

Soft tissue injuries, whether isolated or in combination with other injuries, are amongst the most common traumatic craniofacial injuries encountered in our day to day practice.

Soft tissue injuries may involve the skin, subcutaneous tissue, underlying muscle or a combination of any of these elements. Although rarely life-threatening, the treatment of these injuries can be complex and may have significant impact on the patients' facial aesthetics and function. Hence one should know the "do's and don'ts".

Disfigurement following trauma, has a detrimental effect on the victim's personality and future. Therefore such cases should be most appropriately managed with thorough knowledge of applied anatomy, an aesthetic sense and meticulous tissue handling, along with surgical skills to repair composite structures.

**Keywords :** Soft tissue injury, Trauma, Management

### Introduction :

Injuries to the head and neck are more common, accounts for more than 70% of road traffic accidents. Of the 613 maxillofacial injury patients treated in the casualty of KSHEMA hospital, Mangalore (2010-2011), 542 patients sustained soft-tissue injuries.<sup>(1)</sup> Facial soft tissue injuries vary in severity based on the impact force and type of injury into minor superficial wounds to massive avulsions.

Classification of soft tissue injuries:

- Contusion
- Abrasion
- Laceration

Simple laceration

Stellate laceration

Flap like laceration

- Avulsion injuries
- Bites
- Burns

### Classification of Wound

Centers for Disease Control & Prevention (CDC) 1999<sup>(2)</sup>

- CLEAN – 75% of surgical wound
- CLEAN CONTAMINATED
- CONTAMINATED
- DIRTY/INFECTED

The aim of managing such complex injury is to achieve functional and aesthetic recovery in the shortest time period. The operating surgeon should understand the biomechanics and molecular biology of wound healing and the art of soft tissue repair. Management of complex soft tissue injuries are always a challenge to the surgeons.

Since there are a very few literatures on principles of managing soft tissue injuries we have attempted to highlight the same in this article.

### Case Series :

Here we present a series of 3 road traffic accident cases who reported to our department with facial soft tissue injury.

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**Case 1:**

A 21 year old male patient reported with severe laceration soft tissue injury of upper and lower lip following a bike accident.



**Figure 1 :** Pre Operative

Wound debridement done with hydrogen peroxide and povidone – iodine followed by thorough irrigation with normal saline. Suturing was done in layers. Subcutaneous layer, orbicularis oris muscle layer closed with 4-0 vicryl and skin with 4-0 prolene.



**Figure 2 :** Post Operative



**Figure 3 :** Post Op Day 4

Post operative day 4: patient reported with a complaint of discoloration of lower lip. Patient was placed under observation. On day 7 sutures were removed and the avulsed necrosed portion of soft tissue was removed.



**Figure 4 :** Post Op Day 7

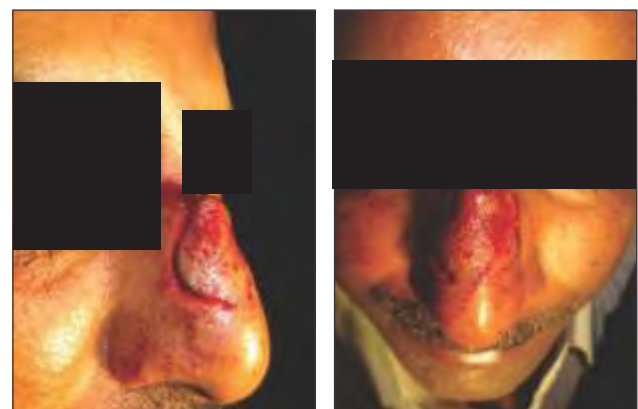
On alternative days chlorhexidine acetate dressing was changed and the area was kept moist. Wound was allowed to heal by secondary intention.



**Figure 5 :** Post Op Day 10

**Case 2 :**

A 50 year old male patient reported with lacerated nasal soft tissue injury caused due to a cut by a glass piece. Patient reported to the department after 9 hours of injury. Blackish discoloration of the soft tissue noted and patient was explained the complications.



**Figure 1 :** Pre Operative

Suturing was done with 5-0 prolene and patient was on regular follow up.

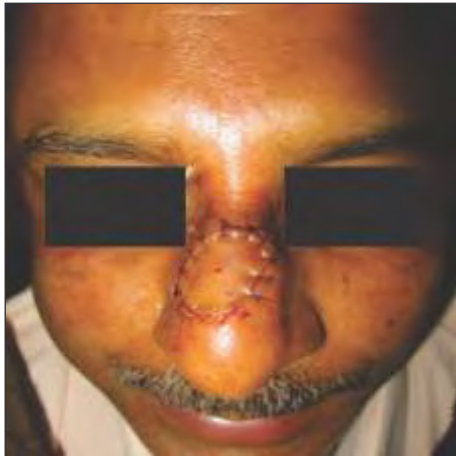


Figure 2 : Post Operative

On post operative day 2 blackish discoloration of soft tissue noticed. Till post operative day 5 lignocaine without adrenaline was given along the suture line to cause vasodilation. Noticed colour change from blackish discoloration to reddish pink on post operative day 10. Later on patient was prescribed contractubex (R) for better results.



Figure 3 : Post Op Day 2



Figure 4 : Post Op Day 10

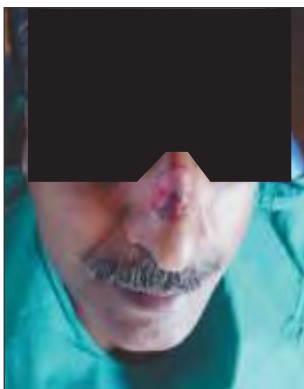


Figure 5 : Post Op Day 12

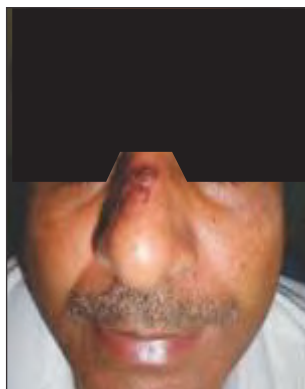


Figure 6 : Post Op Day 15

**Case 3 :**

A 45 year old woman reported with severe soft tissue injury of mid maxillary region following a fall. Wound was debrided and suturing done in layers with 4-0 ethilon.



Figure 1 : Pre Operative



Figure 2 : Post Operative

Post operative day 2 necrosis of the soft tissue noticed. Daily change of bactigras (chlorhexidine acetate) dressing was done as we planned for a wait and watch. On post operative day 3 dehiscence of the wound noted in the both right and left commisure of the lip. Barrel bandage placed and patient was adviced to restrict the mouth opening. On day 4 collagen membrane suturing was done to act as a scaffold for the wound. Patient is currently on regular follow up.



Figure 3 : Post Op Day 4

**Discussion :**

Facial soft tissue is more common since the incidence of road traffic accidents is very high. Facial soft tissue injury is given maximum attention because the management is based on both aesthetic and functional aspect. Necrosis of the soft tissue is one of the major complications of deep or massive soft tissue injury. Since orofacial region has numerous blood supplies from branches of facial artery, the end result of treatment is most often positive.

Clinical evaluation should be carried out under adequate light source, copious irrigation and hemostasis. Horizontal injury across the facial region is less likely to damage the facial nerve than the vertical injuries. Ideally facial wounds without additional injuries should be repaired as soon as possible. In major trauma requiring the resuscitative measures, the wound can be managed after 4–6 hours.<sup>(3)</sup>

Local anaesthetics without adrenaline are preferred in such injuries to avoid vasoconstriction which compromises the blood supply to injured area. According to the literature hydrogen peroxide and povidone – iodine should be avoided in fresh wounds since they impede with healing process. The author has quoted that non-ionic detergent minimises inflammatory response.<sup>(4)</sup> Irrigation removes enough bacteria if used with 7 pounds of pressure per square inch. This pressure is generated by forcefully expressing saline from 35 ml syringe with 18 gauge needle.<sup>(4)</sup>

Regeneration of cells occurs from stratum germinatum or basal layer in the epidermis. Regeneration of cells on the face results from both basal layer and epidermal pegs. Epidermal pegs are numerous in the face and hence significant portion of epidermal layer can be removed without scarring.

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Wounds in the face should be closed in layers to attain anatomic alignment and to avoid dead space. The most common reasons for suture scar or suture mark is closing the wounds under tension and delayed removal. Ideally facial sutures should be removed between post operative days 4 to 6. Pressure dressing should be avoided in devitalised tissues to prevent anaerobic infection.<sup>(5)</sup>

Topical antibiotic ointment for post operative use should be discontinued after 7 days to prevent tissue reaction.<sup>(6)</sup>

Following are the timings for removal of sutures based on different areas of head and neck,

Face / ear – 4 to 6 days

Scalp – 6 to 8 days

Eyelid – 3 to 5 days

Neck – 5 to 7 days.

Conclusion: Successful treatment of the patient with orofacial soft tissue injury requires regular follow up to ensure proper healing of the wound, in order to prevent functional & esthetic facial derangement. The surgeon should be familiar with the anatomy of the facial structures, various treatment modalities and should closely monitor the patient until optimal healing of the soft tissue had occurred in order to prevent scar formation.