



ORIGINAL RESEARCH PAPER

Otorhinolaryngology

CASE SUMMARY ON ACUTE WOUND MANAGEMENT OF EXTENSIVE FACIAL SOFT TISSUE INJURY

KEY WORDS: Functional, aesthetic outcome, contaminated wound, irrigation, soft tissue injury

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ABSTRACT

Injuries to the face are commonly encountered in the Emergency department and is usually seen following road traffic accidents. It may include injuries to the soft tissue or bones of the face. Soft tissue injuries of the face almost always include injuries to the nose, as it is the most prominent feature of the face. These injuries are often not life-threatening, but its mismanagement can hamper the functional and aesthetic outcome leading to permanent mental and physical strain. Thus, to achieve a suitable final outcome, proper understanding of the facial anatomy, assessment of the wound and its proper management is necessary.

This report discusses the case of a middle aged man who suffered from contaminated facial soft tissue injury following road traffic accident. Good functional and aesthetic outcome was achieved with special emphasis on the proper assessment, irrigation and meticulous repair of the wound. Follow-up of the patient was done after being discharged from the hospital.

INTRODUCTION:

Injury to the face and facial bony framework has become more common with the increase in the number of the road traffic accidents. Assessment of the extent and nature of the wound is necessary to allow the wound to heal properly. Proper care should be taken to remove the devitalized tissue and then repair the wound in layers to achieve optimal functional and aesthetic outcome and to decrease the scar formation.

CASE SUMMARY:

A 42 year male presented to the emergency department. He was admitted in ENT department of Gauhati Medical College & Hospital. He presented to our department with multiple lacerations over the alae, tip of the nose, columella, upper lip and over the dorsal surface of the tongue following a road traffic accident which happened two days prior to the day of his admission. The lacerations over both the ala measured about 1*1 cubic centimeter (cm³) and that over the upper lip was 3*1*1 cm³. The tongue laceration measured about 3*2*1 cm³. The columella was completely avulsed from its attachment at the tip. There were multiple abrasions over the forehead, over both the cheeks and chin. The wound status of the patient was not healthy. It was contaminated with debris and devitalized tissue. The patient also had an episode of loss of consciousness which lasted for an hour. But, there was no history of vomiting or seizure. On examination, he was found to be well-oriented with a Glasgow coma scale score of 15. Injury to the head and facial skeleton were ruled out by doing CT (computed tomography) scan brain and facio-maxillary region, which were within normal limits. The vitals of the patient were checked and he was found to have a low blood pressure. Intravenous fluids were started to normalize the blood pressure. The patient complaint of pain while eating. So, he was started on liquid diet. He was also started on injectable broad spectrum antibiotics and anti inflammatory drugs. He also complained of minimal bleeding from the nose, which was managed conservatively with injection tranexamic acid, botroclet drop, framycetin ointment.

As there was delay in the acute management of the wound, the wound was contaminated and covered with debris and devitalized tissue [figure1]. The wound was irrigated with normal saline with the help of syringe attached to needle regularly, followed by compresses which was given by

moistened gauze by gently pressing over the wound. These helped in removing the debris from the wound. It also helped in maintaining proper hydration of the wound. Debridement of the devitalized tissue was also done using scissors. Topical antiseptic ointment and paraffin gauze were used for dressing of the wound which was cut in the shape of the wound. It helped in providing a moist environment, re-epithelialisation of the wound and better cosmetic outcome. When the contamination of the wound decreased and the wound appeared healthy, then the patient was planned for primary repair of the wound, after two weeks. In this case delayed primary closure of the wound was done to decrease the risk of infection and for proper wound healing.

He underwent pre-anaesthetic check up and was advised to do the routine pre-operative investigations. The result of the investigations were within normal limits, which showed that the patient did not have any co-morbidities like anaemia, diabetes, cardiovascular disease, bleeding disorders, respiratory diseases or any other systemic illness. After being cleared for general anaesthesia, the patient was planned for repair. Preoperatively, he was given tetanus toxoid. The patient was given general anaesthesia and after proper positioning, dressing and drapping, mouth gag was applied to the oral cavity for proper visualization of the wound on the dorsal surface of the tongue. The margins of the wound were made raw, debris were removed and then the wound was repaired in layers with vicryl. Similarly the wound in the upper lip and over the philtrum was repaired in layers using vicryl and ethilon. The columellar tissue was avulsed from its attachment at the tip of the nose. Both the tissue margins were made raw and then repaired in layers. The alar granulation tissue of both the sides and the underlying fibrous bands were released and apposed using vicryl and ethilon in layers [figure2]. Framycetin soaked nasal pack was given in both the nostrils to prevent nasal stenosis. The patient was then revived back from anaesthesia, and then shifted to the ward. The procedure did not involve the use of any local flap or graft.

Postoperatively, proper care of the operated site was taken with regular dressing by moistened paraffin gauze, irrigating the wound with saline and regular application of topical antiseptic. Antiseptic gargle and topical antiseptic was also given for proper healing of the oral cavity wound. Postoperatively, the patient was also given injectable broad

spectrum antibiotics and anti-inflammatory drugs. The patient was discharged on the tenth postoperative day after removal of the non absorbable sutures. On discharge, the patient was prescribed oral antibiotics, anti-inflammatory drugs and was advised to take proper care of the wound by using topical antiseptics. He was called for checkup after 2 weeks of discharge. On examination, the wound status was found to be healthy with good functional and aesthetic outcome [figure3].



Figure 1: Contaminated Facial Soft Tissue Injury



Figure 2: Intra-operative Status After Primary Closure



Figure 3: Postoperative Status After 1 Month Of The Surgery

DISCUSSION:

Facial soft tissue injuries are not life threatening injuries, but its mismanagement can cause aesthetic and functional deformities which may remain for lifelong. Therefore, to achieve a suitable final outcome, proper understanding of the facial anatomy, assessment of the size of the wound and the layers involved, assessment of injury to nearby neurovascular structures, risk factors associated, presence of contamination and the time of presentation, play a vital role in the meticulous repair of wound. Risk factors which may delay the wound healing process includes age of the patient, diabetes mellitus, use of immunosuppressive drugs, obesity, alcohol and smoking, presence of contamination, oxygen status of the wound and nutritional status of the patient[1].

Knowledge of the facial anatomy is very important to rule out injuries to nearby vital structures and also for meticulous repair, as its mismanagement can cause disfiguring facial injuries. This may impair the ability to ingest food, speak and other important functions, and can also have psychological and social consequences[2]. Size of the wound should be assessed properly to repair the wound in layers. Presence of any risk factors that may delay wound healing should be looked for properly. Increased age i.e. people over 60 years of age is a major risk factor for wound healing as it is associated with delayed immune response, re-epithelisation, collagen synthesis and angiogenesis[3]. Systemic diseases like cancer, cardiovascular diseases, atherosclerosis and other such diseases can cause deregulation of the immune system and impair wound healing process[4]. Diabetic individuals with uncontrolled blood sugar level also suffer from delayed wound healing due to venous stasis, impaired perfusion and impaired angiogenesis[1]. Immunosuppressant drugs like systemic steroids and chemotherapeutic agents inhibit wound healing process by its anti-inflammatory effects and suppression of cellular wound response[1]. They also impair collagen production, fibroblast proliferation and wound contraction[5]. Obesity also impairs wound healing by causing tissue hypoperfusion, ischemia, increased wound tension and increased tissue pressure. Obese individuals also suffer from heart diseases, atherosclerosis, diabetes, hypertension, dyslipidemia etc., which further contributes to impaired wound healing[1]. Smoking and alcohol consumption delays healing process by impairing inflammatory response, angiogenesis and collagen production[6,7,8,9]. Nutrition is an important factor for wound healing. Energy, carbohydrate, protein, fat, vitamin and mineral metabolism can affect the healing process by affecting capillary formation, fibroblast proliferation, collagen synthesis and wound remodelling[10]. Presence of contamination with superadded infection also impairs wound healing. This can be decreased by maintaining proper hygiene of the wound using compresses, irrigation and proper antibiotic coverage[11]. Compresses can be given by moistened gauze or paraffin gauze. It helps in removing surface debris from the wound and provides a moist environment[11].

A moist environment is essential to prevent cell dehydration and death, to improve phagocytosis and for angiogenesis and re-epithelisation[12]. It also reduces pain and improves the cosmetic outcome[14]. Paraffin gauze has additional advantage as they do not shed fibres and can easily be cut into the shape of the wound. Irrigation of the wound further aids to the process of wound healing. It can be done using bulb syringes or syringes attached to needle or catheter, or by plastic containers with nozzle[12]. It helps in maintaining proper hydration of the wound and also helps in removing deeper debris[12]. Debridement of the devitalized tissue is an important procedure to facilitate wound closure which is done by using scalpel or scissor[13]. Presence of infection in the wound delays wound healing. This can be decreased by the use of topical and systemic broad spectrum antibiotics. Tetanus prophylaxis should also be given depending on the patient's immunization status. Proper wound closure is also an important factor to improve wound status and decrease scar formation. Sutures are the most commonly used method for wound closure[12]. Other methods include staples, strips or tissue adhesives[15].

In the presented case, the patient suffered from extensive and contaminated facial soft tissue injury with delayed presentation to the emergency department. Delayed primary repair of the wound was done after proper control of the infection. The patient did not have any other co-morbidities. The patient was called for follow-up after two weeks. On follow-up, we and the patient found the aesthetic outcome to be satisfactory. Furthermore the patient also reported about having proper nasal ventilation and had no difficulty in having food or speaking.

CONCLUSION:

The face is crucial for human identity. Thus, any disfiguring facial injuries or its mismanagement can hamper the functional and aesthetic outcome, and can lead to psychological and social consequences. The presented case demonstrates the importance of factors like time of presentation in relation to injury, size of the wound, presence of contamination, risk factors and co-morbidities in the management of acute facial injury. It also emphasizes that proper care and meticulous repair of the wound can result in optimal functional and aesthetic outcome.

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