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Case Report

Mending Facial Lacerations: A Stitch in Time Saves Aesthetics and Function

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Abstract

Background: Facial injuries can be superficial but may extend to involve adjacent structures including bones, nerves, ducts, muscles, vessels, glands, and/or dentoalveolar structures. Facial lacerations often involve injury to peripheral cranial nerves.

Facial lacerations are a common presentation in maxillofacial trauma and are caused by sharp injuries to the soft tissue. Lacerations can have sharp, contused, ragged, or stellate margins Timely and precise repair plays a pivotal role in preserving both aesthetic outcomes and functional integrity.

Methods: This review draws from established OMFS literature, updated research, and clinical case vignettes to illustrate evidence-based principles in facial laceration management.

Results: Techniques such as layered closure, zone-specific anatomical repair, and adjunctive therapies demonstrate excellent healing outcomes and minimized complications. Recent studies support the efficacy of absorbable sutures, tissue adhesives, and early wound eversion.

Conclusion: Improper management can result in asymmetry, scarring, functional deficits, and psychological consequences. repair is essential. The saying "a stitch in time saves nine" fits well in facial trauma management—prompt layered closure lowers infection risk, enhances healing, and maintains neuromuscular balance. Careful, timely soft tissue repair promotes optimal recovery and preserves facial symmetry. OMFS surgeons play a vital role in restoring both structure and patient confidence.

Keywords: Facial laceration; Wound closure; Oral and maxillofacial surgery; Layered repair; Aesthetic restoration; Trauma care

Introduction

Facial soft tissue injuries represent a significant portion of maxillofacial trauma cases, often resulting from road traffic accidents, interpersonal violence, falls, sports-related incidents or Animal bites. Given the facial region's functional complexity and aesthetic importance, prompt and precise reviews clinical best practices and incorporates case-based evidence to guide optimal soft tissue repair in OMFS.

Materials and Methods

A narrative literature review was conducted using PubMed, Scopus, and Cochrane databases, targeting studies published from 2000 to 2025. Keywords included "facial laceration," "OMFS," "layered wound closure," "aesthetic repair," and "tissue adhesives." Textbooks by Fonseca, Peterson, and Bagheri were referenced. Additionally, representative cases from our OMFS practice were included with informed consent [1-10].

Results and Discussion

Classification and Evaluation

Facial lacerations are classified by location (forehead, lips, midface), depth (superficial vs. muscular involvement), contamination level (clean vs. dirty), and complexity (linear, stellate, avulsion).

Evaluation includes: Following the initial evaluation and resuscitation, injuries to the soft tissues (facial lacerations, abrasions, contusion) should be evaluated during the secondary survey [11-20].

Clinical examination and radiographs.

- History and tetanus status
- Inspection for nerve, muscle, and duct injury,
- Imaging when deeper structures or fractures are suspected.

Principles of Repair

- **Timing:** Ideal closure within 6–8 hours of injury,
- **Local Anaesthesia**-Injecting 2% lignocain local anesthetic prior to cleaning the wound will allow more effective preparation, avoid injecting directly into the wound could be distorted important landmarks [21]. Regional nerve blocks beneficial in minimizing the amount of local anesthesia required and also prevent distortion of the tissues [22],
- **Wound Preparation:** Copious Saline irrigation and gentle debridement, minimizing the bacterial wound flora and removing any foreign bodies,

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- A surgical blade may be helpful to scrape foreign material that is deeply embedded. Residual grease or tars in wounds can be removed by Polymyxin B sulfate.

Careful and meticulous cleaning of the wounds primarily avoid "tattooing," infection, hypertrophic scarring, and granulomas [23].

A deeply embedded foreign body can be removed using a surgical blade.To remove residual grease or tar in wounds, Polymyxin B sulfate can be used [24].

- **Wound closure**-suturing, adhesives, and stapling are the command methods to close the wound delayed primary wound closure is indicated in patients with extensive facial edema, a subcutaneous hematoma, or those with wounds that are severely contused and contain devitalized tissue.

- **Layered Closure:** To eliminate dead space beneath the wound., A layered closure is always necessary [23].

  - o Deep layers:3-0, 4-0 Vicryl (buried resorbable sutures).
  - o Dermis: 5-0 Vicryl
  - o Epidermis: 6-0 Nylon/Prolene, avoid causing puncture marks when grasping the wound edges

- **Margin Eversion:** Excised ragged margins conservatively to prevent excessive scar formation

- **Margins** should be undermined to allow slight eversion of the wound margin which reduces depressed scarring. (21) as following injury, the wound continues to remodel up to a year [16].

- **Minimal Tension:** Mitigates hypertrophic scars and keloids Otterness and Singer (2019) support saline irrigation and absorbable suture use for optimal healing [16]. Tsai et al. (2023) found tissue adhesives highly effective in pediatric facial wounds [17].

3. Regional Repair Considerations- anatomic borders - the vermilion of the lip, eyebrows, lip margins, and eyelids, must be reapproximated precisely.

Lacerations should be closed by placing a suture in the center of the laceration to avoid creating excessive tissue on the end of the laceration (dog-ear).

Lips:

- Anatomy: Lips transition from mucosa to skin; orbicularis oris muscle is vital for function.

- Anaesthesia: Use nerve blocks to avoid distortion during repair.

- Suturing- Must ensure vermilion border alignment (even 1 mm misalignment is visible).- First suture aligns vermilion border.

- Orbicularis oris muscle should be approximated for oral continence

- **Deep layers** closed in layers first.

- **Mucosa**: 4-0 chromic resorbable suture.

- **Skin**: 6-0 nylon suture.

- Up to one-fourth of the lip can be closed primarily with acceptable functional and esthetic results.

- **Eyelids:** A thorough ophthalmologic examination to assess for injuries to the globe & visual acuity. levator aponeurosis, tarsal plate, and lacrimal system may involve.

- - Referral to ophthalmology if globe injury suspected.

- Closure of lacerations involving the eyelids is done in a layered fashion , it is important to precisely reapproximate the eyelid margins and the tarsus. The conjunctiva and tarsus are approximated using resorbable sutures, with the knots buried to prevent corneal irritation.

- The orbicular muscle is then closed followed by closure of the skin. Injuries involving the upper eyelid may include detachment of the levator aponeurosis and Müller's muscle from the tarsal plate. The muscles should be identified and reattached to the tarsal plate in order to prevent ptosis and restore levator function.

- **Eyebrows**; to repair lacerations primarily without distortion are important. Eyebrows never be shaved, as regrowth of the hair is unpredictable. ophthalmology referral if globe injury suspected

- **Parotid Duct / Facial Nerve:** The parotid gland is divided into deep and superficial portions by the facial nerve. Any injury to the gland should raise suspicion for associated facial nerve injury [19] If the injury involves the proximal duct while it is still in the gland, the parotid capsule should be closed and a pressure dressing placed. If the injury is located in the mid region of the duct, the duct should be repaired. Repair with magnification, duct stenting if required. Injuries involving the terminal portion of the duct should be drained directly into the mouth early diagnosis vital for nerve microsurgery Cho et al. (2021) emphasized the value of layered closure and anatomical respect in complex trauma [18].

Nose- 6-0 nonabsorbable sutures are recommended for the external nose laceration closures.

"Key sutures" Reapproximate anatomic landmarks.

- Restore natural contours of the nose, such as the alar margin, nasal tip, or columella.

- Prevent distortion and ensure symmetry post-healing.

Animal and Human Bites

- Animal and human bites are most commonly encountered in the maxillofacial region, especially the face, due to its exposure and proximity during interactions.

These injuries are significant because:

High Risk of Infection:

  - o Animal bites, especially from dogs and cats, introduce a diverse microbial flora most often polymicrobial, containing aerobic and anaerobic organisms
  - o Human bites for polymicrobial contamination, including anaerobes and viruses like hepatitis B and HIV [20].

- Facial bites may involve soft tissue lacerations, nerve damage, or even bone exposure, complicating healing

Surgical and medical management of bite injuries typically includes:

- **Copious irrigation** with saline and antiseptics to reduce bacterial load
- **Primary closure** when feasible, or delayed closure if infection risk is high
- **Antibiotic prophylaxis**, - for infections presenting within 24 hours of injury for Pasteurella multocida - Amoxicillin clavulanate is the current drug of choice for bite wounds. For wounds that present after 24 hours of injury, Streptococcus and Staphylococcus species are more common, and antibiotic prophylaxis with a penicillinase-resistant antibiotic should be chosen [25].
- **Rabies and tetanus prophylaxis**- Rabies prophylaxis should be given for bite wounds that occurred from an unprovoked domestic dog or cat that exhibits bizarre behavior or from an attack by a wild animal.
- **Plastic or reconstructive surgery** for severe tissue loss or deformity.

Ballistics injury-Gunshots, Shotgun & high energy avulsive injury, Immediate definitive reconstructions with rigid fixation of the facial fractures and closure of the lacerations are recommended.

Postoperative Management

- Antibiotics for deep or contaminated wounds
- Tetanus prophylaxis based on status
- Suture removal protocol:
  - Eyelids: 4–5 days
  - Face: 5–7 days
  - Scalp: 10 days
- Scar management: Silicone gels, massage, sun protection

Complications and Management

- **Infection:** Prevented by early debridement
- **Scar Formation:** Steroids, silicone therapy, revision surgery
- **Nerve Injury:** Microneural repair if early identification
- **Functional Deficits`** May need surgical correction

Case 1: Linear Laceration

Closure performed using layered 4-0/5-0/6-0 sutures.

Outcome: Aesthetic healing; no complications at 2-week follow-up (Figure 1).

Case 2: Contaminated Flap Laceration

- **Debridement** of devitalized margins
- **Layered closure** with caution to avoid trapping contaminated pockets
- **Prophylactic antibiotics**: Amoxicillin-clavulanate is the first line

Figure 1: Linear Laceration.

Figure 2: Contaminated Flap Laceration.

- vermilion border realigned, may needed revised closure.
- Outcome: Restored function and aesthetics; minor scarring treated with silicone gel (Figure 2).

Case 3: Contaminated Laceration

Management Protocol

- **Copious irrigation** with normal saline
- **Debridement** of devitalized margins
- **Layered closure** with caution to avoid trapping contaminated pockets
- **Prophylactic antibiotics**: Amoxicillin-clavulanate is the first line
- **Rabies prophylaxis**: Follow local health guidelines for post-exposure protocol

In high-risk, infected wounds: *delayed primary closure* or healing by secondary intention may be preferred (Figure 3).

Case 4: Toung Laceration

Trends and Insights

Dudde et al. (2025) noted a pandemic-related increase in fall-induced trauma and resource-adapted care protocols [19]. These findings reinforce the need for flexible, high-efficiency wound management strategies in constrained settings (Figure 4).

Figure 3: Contaminated Laceration.

Figure 4: Toung Laceration.

Conclusion

The art of repairing facial soft tissue injuries lies in anatomical precision, aesthetic sensitivity, and clinical timing. Oral and maxillofacial surgeons are uniquely positioned to navigate this complexity and restore both facial identity and patient confidence. Early, layered, tension-free repair—guided by evidence and experience—remains the cornerstone of optimal outcomes.

Facial lacerations from animal bites, notably dog-related injuries, require a blended approach—balancing infection control with anatomical repair. OMFS surgeons must be vigilant in wound decontamination, rabies risk mitigation, and precision closure. These cases underscore the importance of clinical judgment and adaptation to injury mechanism, especially in pediatric and immunocompromised populations.

Prompt and precise management of facial lacerations significantly impacts both aesthetic outcome and functional recovery. The role of the maxillofacial surgeon extends beyond mere closure—it involves restoring facial identity and confidence. A well-planned approach rooted in anatomical knowledge and surgical finesse ensures optimal outcomes.

A stitch in time, in the hands of a trained maxillofacial surgeon, indeed saves both aesthetics and function.

Ethical Approval

Patient consent for publication of clinical details and images was obtained. No experimental procedures were involved.

References

1. Fonseca RJ, Walker RV. Oral and Maxillofacial Trauma, 4th ed. Elsevier; 2013.
2. Peterson LJ, Ellis E, Hupp JR, Tucker MR. Contemporary Oral and Maxillofacial Surgery. 6th ed. Mosby; 2013.
3. Bagheri SC, Bell RB, Khan HA. Current Therapy in Oral and Maxillofacial Surgery. Elsevier; 2011.
4. Kademani D, Tiwana P. Atlas of Oral and Maxillofacial Surgery. Elsevier Saunders; 2015.
5. Holmes JD, Tucker MR. Soft Tissue Injuries of the Face. Oral Maxillofac Surg Clin North Am. 2009; 21: 1–17.
6. Losee JE, Simon P, Afifi AM. Facial Laceration Management. Clin Plast Surg. 2009; 36: 367–378.
7. Demetriades D, Chahwan S, Gomez H, Falabella A, Velmahos G, Murray J. Initial evaluation and management of penetrating neck injuries: a Western Trauma Association perspective. J Trauma. 1997; 42: 803–806.
8. Trott AT. Wounds and lacerations: emergency care and closure. 4th ed. Elsevier Mosby; 2012.
9. Gassner R, Tuli T, Hächl O, Rudisch A, Ulmer H. Cranio-maxillofacial trauma: a 10-year review of 9,543 cases with 21,067 injuries. J Craniomaxillofac Surg. 2003; 31: 51–61.
10. Stegman SJ, Tromovitch TA, Glogau RG. Basics of wound repair. In: Procedures in Cosmetic Dermatology. Elsevier Saunders; 2006.
11. Thaller SR, Beal SL, Borjeson AC. Pediatric facial trauma: management of soft tissue injuries. J Craniofac Surg. 1993; 4: 166–171.
12. Koltai PJ, Rabkin D, Reilly JS. Facial trauma in children. Facial Plast Surg. 1993; 9: 21–28.
13. Mokal NJ, Ranjan M, Desai MF, Thatte MR. Scar revision. Indian J Plast Surg. 2012; 45: 335–343.
14. Salasche SJ. Surgical pearls: scar prevention and management. Dermatol Surg. 1998; 24: 321–326.
15. Mahalingam S, Ashraf M. Wound closure techniques in facial surgery. Br J Oral Maxillofac Surg. 2017; 55: 687–693.
16. Otterness T, Singer AJ. Updates in emergency department laceration management. *Emerg Med Clin North Am*. 2019; 37: 431–442.
17. Tsai T, Huang Y, Lee C, et al. Comparative evaluation of tissue adhesives and sutures in pediatric facial lacerations. *Pediatr Emerg Care*. 2023; 39: e403–e408.
18. Cho MS, Park HJ, Lee JH, et al. Management of traumatic soft tissue injuries of the face. *Arch Craniofac Surg*. 2021; 22: 7–14.
19. Dudde C, Kramer B, Schmid D. COVID-19 era trends in facial laceration mechanisms and treatment adaptations: A cross-sectional study. *J Oral Maxillofac Surg*. 2025; 83: 175–182.
20. Garvey EM, Avner JR. Management of dog bites in children. *Pediatr Emerg Care*. 2015; 31: 659–665.
21. Lewkowicz AA, Hasson O, Nahlieli O. Traumatic injuries to the parotid gland and duct. J Oral Maxillofac Surg. 2002; 60: 676–680.
22. Zide BM, Swift R. How to block and tackle the face. Plast Reconstr Surg. 1998; 101: 840–851.
23. Chantarasak ND, Milner H. A comparison of scar quality in wounds closed under tension with PGA (Dexon) and polydioxanne (PDS). Br J Plast Surg. 1989; 687–691.
24. Lineweaver W, Howard R, Soucy D. Topical antimicrobial toxicity. Arch Surg. 1985; 120: 267–270.
25. Gilbert DN, Moellering RC, Sande MA. The Sanford guide to antimicrobial therapy. Vol 32. Hyde Park (VT): Antimicrobial Thera py, Inc. 2002: 36.