

Management of Traumatic Intraoral Injuries for Toddlers under Local Anesthesia: Report of Two Cases

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ABSTRACT

Traumatic dental injury is very frequent among children. Timely management of traumatic injuries facilitates for better healing outcomes. Emergency dental treatment for situations like traumatic dental injuries and facial cellulitis are frequently managed under general anesthesia (GA). However, treating very young children under GA is not always feasible due to systemic health conditions of the patient, age related anatomic limitations, possible complications, and reluctance of the parents to expose their children to GA. This case report highlights the management of laceration injuries under local anesthesia in two patients aged 14, and 21 months.

KEY WORDS

children, infants, laceration, local anesthesia, toddlers, traumatic injuries.

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INTRODUCTION

Traumatic dental injury is very frequent among children. Fall injuries are very common among children whereas, trauma due to road traffic accidents (RTA) and assaults are more common among adult population. Since traumatic injuries are accidental and unexpected, patients are naturally apprehensive and they often feel lost. Timely management of traumatic injuries thus, facilitates for better healing outcomes, and at the same time lessens the patients' apprehension.¹

Management of traumatic injuries among infants and toddlers possess significant challenge to the clinician and the team alike. Emergency dental treatment for situations like traumatic dental injuries and facial cellulitis are frequently managed under general anesthesia (GA).² However, treating very young children under GA is not only unrecommended but is also not considered a 'cake walk' for all. The reasons being systemic health conditions of the patient, age related anatomic limitations, possible complications, and reluctance of the parents to expose their children to GA. This case report highlights the management of laceration injuries under local anesthesia (LA) in two patients aged 14, and 21 months.

CASE REPORT

Case I:

A 14-month-old male patient was referred from the emergency department. There was history of trauma due to fall eight hours back. There was no history of loss of consciousness, vomiting, or bleeding from ear and nose following the trauma. On examination, patient was alert and responsive. There were no significant extraoral findings. On the intraoral examination, a typical inverted 'Y' shaped laceration on the left soft palate was evident. (Figure 1a). There were no any significant hard tissue findings, and occlusion was intact.



Figure 1. 1a: Pre-operative photograph; 1b: Immediately after suturing; 1c: Two-weeks follow-up visit.

Case II:

A 24-month-old male patient was referred from the emergency department with a history of trauma. Patient had suffered from fall injury while playing five hours back. There was no history of loss of consciousness, vomiting, or bleeding from ear and nose following the trauma. On examination, patient was alert and responsive. There were no significant extraoral findings. On the intraoral examination, there was



Figure 2. 2a: Intra-operative photograph, use of active and passive physical restraints, and suturing under LA; 2b: Immediately after suturing; 2c: Six-weeks follow-up visit.

through-and-through laceration from the dorsum to ventral part of the tongue. Occlusion was intact.

After discussion with the parents, consent was obtained to manage the injuries under LA. As resistance and movements from the patients were expected, 'protective stabilization' using clothes wrapper were utilized (Figure 2a). For the purpose of stabilization, 'active restraint' was also used, wherein the patients were gently held by the parents and the experienced staff (Figure 2a). 'Tender-loving-care' approach and use of 'non-verbal' communication was maintained throughout the procedure to calm the patients. Infiltration local anesthesia was administered around the periphery and body of the wound. With the onset of anesthetic effects, the crying patients were calmer as compared to the pre-anesthesia state. Debridement of the wound was done, which was then followed by suturing with 3-0 vicryl suture (Figure 1b, Figure 2b). Antibiotics and analgesics were prescribed and parents were advised to maintain good oral hygiene and consumption of only soft diet for two weeks. On the follow-up visit of one, two, (Figure 1c) and six weeks (Figure 2c), there was adequate healing of the wounds.

DISCUSSION

Traumatic injuries are very common worldwide. Traumatic injuries in young children are more prevalent in the orofacial and head areas. This is due mainly to their under-developed ambulatory skills, developing neck muscles and disproportionately larger size of the head that results in shift of the center of gravity towards their upper body part.³

Along with hard tissue injuries that involve the teeth and orofacial bones in traumatic injuries, soft tissue injuries are also common among children. A study conducted among Japanese children in 2025 revealed the prevalence of soft tissue injury to be 64%.⁴ This high prevalence indicates that trauma management guidelines should focus primarily on the soft tissue injuries (especially laceration injuries) alongwith.

While providing any type of treatment to the infants and

toddlers, considerations for the behavioral factors is equally important. Children in various stages of their emotional and cognitive development coupled with varied environmental influence, perceive and react to things differently. This underscores the understanding of child psychology and behavior guidance while treating young patients. This consideration increases fourfold particularly in situations where the need for co-operation is prime for overall management of injuries inside the oral cavity.^{2,5} In case of infants and toddlers, effective verbal communication might not be established. Yet, application of non-verbal communication and 'tender loving care' approach, along with parental presence in the operatory helps calm the apprehensive children.^{2,6}

Provision of treatment under GA is not advisable in very young children specially under age of four year.⁷ Vital systems like cardiovascular system (CVS), central nervous system (CNS) and respiratory system of infants and toddlers are highly sensitive to the depressant effect of the anesthetic drugs used in GA. Also the occurrence of perioperative and postoperative morbidity and mortality related to GA is higher in very young children as compared to the older ones and adult patients. Studies have shown that sedatives used in GA have neurotoxic effects, especially among the very young. Complications like aspiration and respiratory obstruction have also been shown to occur more frequently among these younger population.^{7,8} The vital systems like CVS, CNS and respiratory are immature and are vulnerable to peri- and -postoperative adverse effects of GA. Due to the possible adverse complications, sometimes anesthesiologists rule out the possibility of GA in these very young ones.⁹ Apart from the abovementioned patient-related factors, other factors like finances and unavailability of skilled anesthesiologist and proper operation theatre set-up, sometimes limits the access of these patients to GA.^{10,11} Many a times, such patients have to suffer the burden of untreated soft tissue injuries for days just because provision of GA to them was not possible. Very frequently, parents refuse GA for their children due to the fear of adverse effects on their cognitive development.¹²⁻¹⁴ In both of the present cases, parents showed reluctance to accept the treatment of their children under GA. The authors have encountered and managed cases under LA where the possibility of GA was ruled out by the anesthesiologist.

While treating orofacial injuries of infants and toddlers under LA, apart from the thorough knowledge of child psychology and behavior guidance, adequate paincontrol, appropriately counselled parents/caregivers, skill in the part of treating dentist/surgeon, skilled and empathetic staff, with the availability of proper instruments and materials holds prime importance.^{2,6,11} In both of the cases presented, successful management of the laceration injuries under LA could be accomplished with within a short duration, which resulted in relieved parents through relief of their injured children from

agony, thereby mitigating the possibility of development of adult dentophobe in the future.

CONCLUSIONS

Traumatic injuries are accidental injuries where the patients are usually not prepared to face and deal with. In case of infants and toddlers, provision of treatment under GA is not just always possible, and unadvisable too. However, such benevolent souls need not suffer the agony, provided proper trauma management team/system skilled to handle such injuries under LA with ease are available. Thus, provision of health education regarding traumatic orofacial injuries to the general population, and medical practitioners treating children for referral to experts in such situation helps for timely intervention thus, taking care to guide the behavior appropriately to prevent any adult dentophobe.

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