

CASE REPORT

Management of Maxillofacial Injury due to Firecracker in a Child

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ABSTRACT

The paper highlights the management of a 4 years old female child who suffered oral and maxillofacial injury due to explosion of a firecracker inside the mouth.

Keywords: Facial injury, Firecracker, Oral burn, Jaw fracture, Thermal oral burns.

How to cite this article: Yadav S, Rai S, Rattan V. Management of Maxillofacial Injury due to Firecracker in a Child. J Postgrad Med Edu Res 2014;48(2):98-99.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Firecracker injury in children can lead to extensive burn and damage to the body. The impact can result in a debilitated state for life. An enormous damage can occur when the oral and maxillofacial region is involved. With vital structures like eyes, nose, ears and oral cavity present in close vicinity, the extent of damage cannot be overemphasized. This paper highlights a case where a 4 years old female child reported with a complaint of injury to her face. Child had suffered trauma due to explosion of firecracker in her mouth on Diwali, an Indian festival.

CASE REPORT

The child was apparently playing with firecrackers without any adult supervision, when she kept a live firecracker in her mouth which exploded. She was managed conservatively at a local hospital with an oral intubation and suturing of the facial wound and referred to our maxillofacial unit (Fig. 1). On examination, patient was well oriented to time, place and person. There was approximately a 4 to 5 cm sutured laceration on right cheek with mobility in mandibular segments bilaterally leading to deranged occlusion. A diagnosis of bilateral mandibular body fracture with soft tissue laceration was made and confirmed by radiographs. The child had no other systemic injuries.

The child was posted for definitive management under general anesthesia. Facial sutures were removed and exploration and debridement showed right cheek torn from right oral commissure and extending to the right preauricular area and to the right angle of the mandible with herniating buccal pad of fat. All the residual explosive powder sticking on the skin and the oral mucosa was removed. The herniating buccal pad of fat was nonvital and hence was excised. Interfragmentary wires were placed between the mobile mandibular segments and titanium miniplates were used to fix the bilateral fractured segments after reduction (Fig. 2). Labial commissure was reapproximated and soft tissue was closed in a layer wise manner (Fig. 3). Infection developed and dehiscence was noted at the end of two weeks. After which remaining sutures were removed and regular daily dressing and saline irrigation was done (Fig. 4). As healthy granulation tissue slowly filled in the defect, she was taken in for a second surgery after 3 weeks where layer wise closer was done. It healed satisfactorily (Fig. 5). Postoperative phase showed restricted mouth opening. Mouth opening increased to 3 cm over a period of 2 months with physiotherapy.

DISCUSSION

Firecrackers are an important part of celebrations in India on religious occasions like Diwali and also to celebrate popular events like social celebrations, weddings and sport events. Burn injuries occurring due to firecrackers are common during these events or festivals. The patients mostly can be divided into rough categories where children are mostly innocent and quite unaware of the hazards whereas young adults can be inquisitive and are adventurous leading to a risky attitude. Adults are not actively involved in fireworks.

Maxillofacial injuries in children always present a challenge in respect of their management. Primary mouth



Fig. 1: Initial presentation of the child in the maxillofacial clinic

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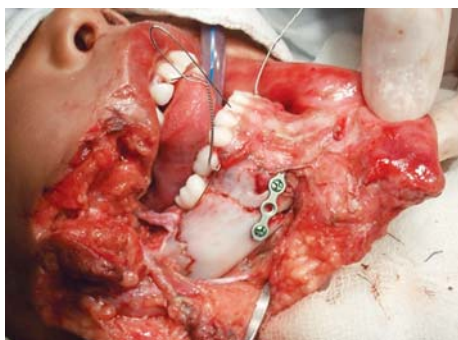


Fig. 2: Debridement of wound and exposure of fracture followed by fixation with titanium miniplates



Fig. 3: Primary closure of the wound



Fig. 4: Defect caused by the dehiscence of wound after 3 weeks

explosion is very rare and only a few cases have been described in the medicolegal literature.¹ The cause of injury could be identified ranging from misuse behavior, where the behavior of the person leads to accident as the victim might have been holding the lit cracker in hand or standing too close to it and lighting. Many times innocent victims like our patient or bystanders get hurt.

The most challenging problem with regard to explosion in mouth is restoring optimal oral function. These wounds exhibit, a multifaceted complexity ranging from extensive soft tissue trauma complicated by burns to foreign bodies, fractures and concomitant trauma. Post healing complications include trismus, scars and distorted facial appearance. It has a major impact on the psychological and physical growth of the child.

Management of such trauma cases has to be done in a stepwise manner. Thorough debridement to remove all



Fig. 5: Postoperative picture after the second surgery showing primary healing

residual powder and nonvital tissue is mandatory, followed by immediate reconstructive procedures, which includes fracture fixation and adequate management of soft tissue. Extruding buccal fat of pad though seldom encountered should be excised and no attempts should be made to put them back. Pediatric maxillofacial fractures should be preferably fixed with bioresorbable plates and screws. Using a metallic plating system may require second surgery to remove it. Due to unavailability of a bioresorbable system in our unit, we fixed the fracture mandible with titanium miniplates. The reason to encounter dehiscence of the orofacial wound maybe attributed to the thermal injury to the tissue. The heat produced in the explosion burnt the adjacent soft tissue turning it into a nonvital structure with compromised vascular supply. Due to paucity of literature for intraoral explosive wounds, it's debatable whether one should wait for the formation of a healthy granulation tissue bed or to go for early primary reconstruction. In our case, due the bilateral fracture mandible, we had to go for a definitive repair. Postoperative physiotherapy to relieve trismus is critical to restore oral functions.

These injuries are mostly avoidable. Children should be prohibited from handling fireworks and young adults should be supervised and safe handling of fireworks should be educated in schools. Adults should behave responsibly and supervise younger people. Fireworks should be subject to strict standardization, and only standardized fireworks should be marketed. Proper safety measures should be printed onto the packets. Strict enforcement of the existing laws is quite essential.² There is no immediate solution to the problem but it can definitely be reduced through proper advertisement and mandatory display of safety precautions.

REFERENCES

1. Di Benedetto G, Grasseti L, Forlini W, Bertani A. An explosion in the mouth caused by a firework. *Journal of Plastic, Reconstructive and Aesthetic Surgery* 2009;62:145-146.
2. Wang C, Zhao R, Du WL, Ning FG, Zhang GA. Firework injuries at a major trauma and burn center: a 5-year prospective study. *Burns* (2013). Available at: <http://dx.doi.org/10.1016/j.burns.2013.06.007>