

# Maxillofacial Injury due to Pressure Cooker Explosion in a 13-year-old child: Surpassing The Obvious

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## ABSTRACT

Pediatric maxillofacial trauma is quite commonly encountered in the pediatric emergency department. Management of pediatric maxillofacial trauma depends upon the cause and extent of the injury. Maxillofacial trauma due to the explosion of pressure cooker is rare in children. Here, we report a case of pediatric maxillofacial injury due to the explosion of pressure cooker in a domestic setting.

**Keywords:** Explosion, maxillofacial trauma, pediatric, pressure cooker.

## INTRODUCTION

Pediatric maxillofacial injury is a very commonly encountered phenomenon. The common causes of trauma include motor vehicle accidents followed by other accidental causes such as sports related injuries, violence, falls etc.<sup>1</sup> However, maxillofacial injury due to pressure cooker blast in pediatric population is rare.<sup>2</sup> Pressure cooker blast incidents are mostly due to improper use of the device or faulty apparatus itself. Though the misuse of pressure cooker as an explosive is also not uncommon.<sup>3</sup> Pressure cookers used for domestic purposes are associated with different forms of injuries ranging from minor cuts, burns and scalds to major mishaps involving fire accidents and bursts.<sup>4</sup>

## CASE REPORT

A 13-year-old female child reported to the pediatric emergency department due to injury by pressure cooker

blast while cooking. As per the informant she was taken to a nearby zonal hospital where the primary management of wound irrigation and en-masse suturing was done to control the bleeding. She was then referred to the higher center for further management. On presentation in the emergency department, there was an extra-oral lacerated wound over the right cheek region measuring approximately 6 cm in maximum dimension and extending from the lower eyelid till the temporomandibular joint area. En-mass suture was present in the wound with no active bleeding from the wound (Figure 1). The buccal mucosa underneath was intact. In addition, the patient had a lacerated wound over the right upper eyelid causing difficulty in opening her right eye. Her vitals were within the normal limits, but she was very apprehensive and stressed.

The child and both the parents were counseled regarding the treatment procedures along with the needed psychological support. After completing preliminary routine investigations, the previous sutures were removed, and the wound was explored thoroughly under local anesthesia to check for any embedded foreign body or metallic parts. The wound was deep, involving the muscle layers and extending till the maxillary and zygomatic bone but the underlying bony architecture, parotid gland and ducts were intact. Thereafter, primary closure of the wound was done by using multilayered suturing technique (Figure 2).

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### Citation

Poudel K, Koirala B, Dali M, Shrestha S. Maxillofacial Injury due to Pressure Cooker Explosion in a 13-year-old child: Surpassing The Obvious. *J Nepal Assoc Pediatr Dent.* 2020;1(1):20-2.



**Figure 1.** Preoperative: With en-mass sutures placed at a zonal hospital.



**Figure 2.** Post operative: After wound debridement and multilayered suturing.



**Figure 3.** Wound healing at 7 days follow up.



**Figure 4.** Wound healing at 3 months follow up.

Ophthalmology consultation was also made regarding the difficulty in eye opening. The patient was kept on analgesics and antibiotics and under regular follow until the satisfactory wound healing was seen (Figure 3). The patient turned up for a follow up after 3 months and the wound had healed properly but with a scar (Figure 4).

## DISCUSSION

The injury caused due to pressure cooker can range from burns to mechanical trauma. The heat from the outer surface of the pressure cooker can cause burn injuries. Scalds can be caused to the person nearby by the steam under pressure escaping from the nozzle. Sometimes, the hot nozzle and lid may escape and can cause serious damage which can be a combination of mechanical injuries and burns.<sup>2</sup> Injuries due to the improvised explosive devices (IED) were also common during the 13 years conflict period in Nepal and still prevail.<sup>5,7</sup> The most common form of IED included Socket, Sutali, and Pressure cooker bombs.<sup>5</sup> Literature regarding accidental domestic pressure cooker injuries mostly include ocular injuries, penetrating facial injuries and traumatic brain injuries.<sup>8</sup>

Though pressure cooker related traumatic brain injury in pediatric population is reported in the literature, only one pressure cooker related maxillofacial injury in children could be found.<sup>9</sup> Most of these cases of pressure cooker related injuries had penetrating foreign bodies. The search for foreign body is a must as pressure cooker blast might have metal impinged over the injured site.<sup>2,4</sup> In this case as per the parents who witnessed the accident, cause of pressure cooker injury was by whole of the lid, which

was intact; still any foreign body using radiographs and manual exploration of the wound.

Management of a patient with pressure cooker related injuries follows the principle similar to patients sustaining blast injuries. The primary goal is to resuscitate the patient and maintain the airway and hemodynamic status after which definite management can be performed.<sup>8</sup> Though, this is an uncommon cause of maxillofacial injury in children, one must be prepared to manage such case. Accidental domestic pressure explosion can result in serious and potentially life threatening injuries. Based on the available literature it is difficult to ascertain whether these injuries are less common or have not been well addressed in the literature. Though uncommon, these injuries are life threatening, devastating and disfiguring so management of these cases should follow appropriate guidelines. These are preventable injuries, thus education for making the public aware regarding such mishaps should be a part of awareness campaigns.

## CONCLUSIONS

A rare case of maxillofacial injury in pediatric population involving pressure cooker blast injury was reported where the child was managed effectively with proper wound exploration and debridement followed by multilayered suturing. Satisfactory healing was observed on regular follow up and patient is still under follow up in dermatology department.

**Conflict of Interest:** None

INAPD

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