Facial and spinal impalement injury: An airway challenge

Sir,

Impalement injuries to the face can present with airway challenges and produce a dramatic clinical picture. We discuss the management of a foreign body impalement to the face and cervical spine.

A 40-year-old male presented with an impalement injury to the face by an iron rod. The iron rod had penetrated lateral to root of the nose, traversing and exiting at the nape of the neck posteriorly [Figure 1]. The patient was conscious, oriented, hemodynamically stable, and had a Philadelphia collar. Radiographic imaging revealed a radio opaque rod consistent with the physical findings, traversing the face and entire skull base, fracturing both the anterior and posterior arches of Cl, lateral to the odontoid process on the left side [Figures 2 and 3].

Transoral exploration and disimpaction of the iron rod and repair of the defect with fascia lata and glue (in the supine position) and posterior fixation (in the prone posture) of the occiput (C2 – C3, with screw and rod fixation) was planned. Injection glycopyrrolate 0.2 mg IV and injection midazolam 0.5 mg IV were given. As the patient was cooperative, awake oral fiberoptic-guided intubation was planned. Preparedness to perform a tracheostomy was made in case the awake fiberoptic intubation was unsuccessful. In addition to lignocaine spray in the posterior part of the oral cavity, bilateral superior laryngeal nerve blocks were given, to achieve upper airway anaesthesia. Anesthesia was maintained with 60% N₂O in the oxygen with sevoflurane, injection fentanyl 2 mcg kg and vecuronium 0.02 mg kg. After removal of the rod transorally, the patient was placed in a prone position for posterior fixation. The surgery lasted for 11 hours and the approximate blood loss was 1300 ml. Mechanical ventilation was continued postoperatively considering the possibility of airway edema. He was successfully extubated the next day. The patient was discharged 20 days later without any neurological deficit.
Anesthetic considerations included: difficult mask ventilation, C-spine instability, transoral surgery, shared airway with surgeons, prolonged duration of surgery, prone position, risk of aspiration, bleeding, and postoperative airway edema. Airway management was a major concern in such presentations, because of cervical spine injury and the unpredictable extent of airway damage. Mask ventilation was a challenge due to the nature of the impacted foreign body. Usage of sedatives for premedication and induction were avoided for fear of airway loss. Awake fiberoptic-guided intubation helped in securing the airway safely and minimizing the movement of the cervical spine. Elective ventilation in the postoperative period was planned to ensure smooth recovery, as coughing and straining could have caused a cerebrospinal fluid (CSF) leak and infection.

There was considerable facial edema after removal of the foreign body and prolonged surgery in the prone posture.

Impalement injury of the face and spine, especially with a penetrating rod in situ, poses a challenge for the anesthesiologist and intensivists working as physicians in the Emergency Department. The most important principle of management is that the impaling object should remain in situ without manipulation, while the patient is rapidly transported to the Operating Theater. Meticulous planning and control of the airway is the key step in preventing secondary injury and facilitating a speedy recovery for the patient.

Babita Gupta, Pramendra Agrawal, Kapil Dev Soni, Nita D'souza, Sumit Sinha
Department of Anesthesia, Jai Prakash Narayan Apex Trauma Center, All India Institute of Medical Sciences, New Delhi, India

Correspondence:
Dr. Pramendra Agrawal, Senior Resident, Anesthesiology, A-148, sector-15, Noida – 201 301, U.P., India. E-mail: pramendraagrawal@yahoo.com

References
1. Arahiro K, Ishida K, Fujii N. Unusual facial impalement injury. Plast Reconstr Surg 2001;108:145-7.
2. Adams RF, Anslow P, Talbot K. Screwdriver headache: A case of traumatic intracranial hypotension. Clin Radiol 2001;56:676-80.
3. Henry RF, Vaceko AR, Mesa JJ, Balderston RA. Thoracoabdominal infections in penetrating injuries to the spine. Orthop Clin North Am 1996;27:69-81.
4. Powitzky R, Cordero J, Robinson M, Helmer R, Halldorsson A. Spectacular impalement through the face and neck: A case report and literature review. J Trauma 2008;65:E53-7.