

A Child with Traumatic Asphyxia

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Abstract

Background: Most reports of traumatic asphyxia, a condition which is rare in children pertain to injuries sustained following motor vehicle accidents. The clinical picture which is diagnostic of this condition should be recognized for appropriate management.

Objective: We report a child with traumatic asphyxia with an unique mechanism of injury.

Case report: 4 year old child was injured due to compression between the moving belts of an industrial equipment. He had classic clinical picture suggestive of traumatic asphyxia with pulmonary contusion and was managed conservatively.

Conclusion: Though the clinical presentation looks alarming in traumatic asphyxia, the outcome is good in majority. It is important to recognize associated organ injuries which can influence the outcome. Causes other than road traffic accidents and stampede can also result in traumatic asphyxia in children.

Keywords: Trauma; Asphyxia; Mechanism.

Introduction

Traumatic asphyxia, or Perte's syndrome, is associated with craniocervical cyanosis, subconjunctival hemorrhage, multiple petechiae, and neurological symptoms. This syndrome occurs as a result of sudden or severe compression of the thorax or upper abdomen, or both. This is most often seen in motor vehicle accidents, as well as industrial and farming accidents. We report a child with traumatic asphyxia who had a favourable outcome following a conservative management.

Case report

4 year old boy while playing near his father's work place, was accidentally caught in

between the moving belts of a motor of an industrial equipment and was compressed against the machine for 5 minutes. On examination in the emergency room, he was drowsy, tachypneic and had diminished breath sounds over right hemithorax. Oxygen saturation in room air was 96% and he was hemodynamically stable. He had abrasions over right side of his chest and abdomen, with edema and congestion of face. There were ecchymotic and petechial hemorrhages strikingly only over face and neck with subconjunctival hemorrhage in the right eye (Figure 1). He had tenderness in right hypochondrium. He had no obvious fractures or strangulation marks. CT chest showed acute pulmonary hemorrhage in right lung (Figure2).

Figure 1: Subconjunctival hemorrhage in right eye



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Figure 2: Acute pulmonary hemorrhage in right lung

CT brain, cervical spine and abdomen were normal. Blood investigations revealed haemoglobin - 11.5 gm/dl, platelet count- 3 L/cumm, normal PT, aPTT, aspartate transaminase -570IU/l, alanine transaminase-410 IU/l, serum amylase 68 IU/l and lipase 57 IU/l. He was managed conservatively in intensive care unit discharged after 4 days. He was advised to avoid strenuous activity and contact sports. This entity is rare in children and the clinical presentation is unique to this condition

Discussion

Traumatic asphyxia is a rare condition presenting with cervicofacial cyanosis and edema, subconjunctival hemorrhage, and petechial hemorrhages of the face, neck, and upper chest that occurs due to a compressive force to the thoracoabdominal region.[1] Although the exact mechanism is controversial, it is probably due to sudden thoracoabdominal compression causing increased intrathoracic pressure. The fear response, which is characterized by deep inspiration and closure of the glottis, is crucial for the manifestation of this entity.[1,2] The acute increase in pressure is transmitted ultimately to the head and neck veins and capillaries, with stasis and rupture producing

characteristic petechial and subconjunctival hemorrhages.[2] The skin of the face, neck, and upper torso may appear blue-red to blue-black but it blanches over time. The discoloration and petechiae are often more prominent on the eyelids, nose, and lips. In patients with traumatic asphyxia, injuries associated with other systems may also accompany the condition.[3] Jongewaard *et al.* reported chest wall and intrathoracic injuries in 11 patients, loss of consciousness in 8, prolonged confusion in 5, seizures in 2, and visual disturbances in 2 of 14 patients with traumatic asphyxia.[4] Pulmonary contusion, hemothorax, pneumothorax, prolonged loss of consciousness, confusion and seizures, ophthalmic injuries such as exophthalmos, retinal hemorrhages and visual loss, and abdominal injuries such as liver and splenic lacerations and gastrointestinal hemorrhage have also been reported in patients with traumatic asphyxia.[1,5,6] Our patient had pulmonary contusion and hepatic injury. Traumatic asphyxia has a good prognosis. Supportive treatment such as oxygenation and elevation of the head to 30° is usually sufficient in the management of these patients. Rapid and efficient cardiopulmonary resuscitation may be required if the situation warrants. However in most situations specific treatments may be needed for the associated injuries. The prognosis is usually good as in our patient,

however a prolonged thoracic compression could lead to cerebral anoxia and neurological sequelae. The patient's recovery is ultimately related to the severity of the injury, the duration of the injury, and the associated injuries.[7] Traumatic asphyxia has to be differentiated from strangulation, where the mechanism of injury involves mechanical compression to the airway and major blood vessels resulting in acute and severe cerebral ischemia and hypoxia resulting in a poor outcome in comparison. Traumatic asphyxia should always be kept in mind as a possible complication of injuries to the chest and abdomen.

Conclusion

- Incidence is difficult to ascertain -due to rare pathology.
- Only supportive treatment is required in majority.
- Prognosis is good despite alarming initial appearance.
- Neurological lesions are rare and may recover within 48 hours(Intracranial

hemorrhages/cerebral edema).

- Sequelae due to associated cerebral injury is rare.

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