Traumatic asphyxia: A rare syndrome in trauma children

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CASE REPORT

A 12-year-old boy (31 kg), with no medical history, had falling from a horse-drawn carriage and was crashed by its wheels at the thorax and upper limbs for approximately 30 seconds. 45 minutes later, he was admitted to our emergency department. On arrival, he was lethargic, with a Glasgow Coma Score of 12(E3V4M5); both pupils were equal and reactive to light. His blood pressure was 110/60 mmHg and his heart rate was 110/min. He had tachypnea with respiratory rate of 41/min, the pulsed oxygen saturation in ambient air was 94%.

He had facial purple congestion, diffuse head and neck edema and petechiae in the entire face, neck and upper chest (Figure 1). Ophthalmologic examination revealed the presence of sub-conjunctival hemorrhages without impact on visual acuity with a normal fundus (Figure 2). Abdominal examination showed epigastric abrasion without tenderness. Examination revealed a deformation of the right arm and ecchymotic bruises and abrasions...
The clinical and radiological presentation of our case was in favor of traumatic asphyxia syndrome, because of the mechanism of the trauma which was the compression of the chest between the ground and a heavy object and because of the presence of classical triad of traumatic asphyxia in the head and neck region. The differential diagnosis in our case was obstruction of the superior vena cava and the skull base fracture, these diagnosis were ruled out by cerebral and thoracic CT scan.

The patient was hospitalized in the intensive care unit and was monitored continuously. Support was symptomatic including facial mask oxygen therapy at 6 L/min, fluid replacement, and multimodal analgesia including paracetamol 15 mg/kg/6H associated to morphine 20 µg/kg/H. The head of the bed was elevated to 30 degrees to help venous drainage of the head and the neck. Pneumothorax was minimal, it spontaneously regressed and there were no indication to chest drainage.

Neurological involvement, which makes the severity of this syndrome, is common (90%). It’s variable from confusion to coma, the frequency of neurological disorders contrast with the rarity of radiological findings [8]. The mechanism of neurological injury includes cerebral hypoxia, ischemia and venous hypertension, which lead to cortical dysfunction [2]. Usually, neurological events are reversible within 24 to 48 hours under Early and adequate treatment [8]. Our patient had alteration of consciousness that lasted 6 hours, and was confused during 24 hours, but recovered a normal neurological
status under symptomatic treatment.

Visual disturbances occur in some cases [9], secondary to the same mechanism as neurological involvement with multiple presentations: retinal hemorrhage, retrobulbar hemorrhage and vitreous exudates [2]. Therefore, ophthalmological follow up is important. Our case had no ophthalmological abnormalities in fundoscopy.

The differential diagnosis of this syndrome includes obstruction of the superior vena cava, skull base fracture which clinical presentation contains: sub-conjunctival hemorrhage, periorbital ecchymosis, epistaxis and otorrhagia. Tamponade can also induce cyanosis, respiratory distress, but more likely hemodynamic instability [10].

Traumatic asphyxia cases should be monitored after securing the airway. Oxygen therapy and fluid replacement need to be initiated and the patient shall be intubated and followed on mechanical ventilation as needed [1]. The management should include the elevation of the head at 30 degrees; and specific treatments may be needed for associated injuries.

The elasticity of children chest makes the difference of this syndrome in comparison with adults. Thus, in some pediatric cases, even with severe chest and abdominal compression, thoracic lesions weren’t associated with rib fracture [10]. In children, the prognosis is generally favorable in the absence of severe associated lesions, with the exception of possible visual sequelae, and the mortality rate is usually low [4].

CONCLUSION

Traumatic asphyxia should always be considered as a possible complication of injuries of the chest and abdomen. The prognosis of this syndrome depends on the nature and duration of the compressive force and the presence of others injuries. However, despite the dramatic appearance of Perthes syndrome, mortality remains low, especially in children, due to chest elasticity.

Keywords: Traumatic asphyxia, Perthes syndrome, Pediatrics, Trauma

How to cite this article


Article ID: Z01201702CL10113MB

doi:10.5348/ijcri-201703-CL-10113

Author Contributions

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The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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