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Case Report

A Case Report of Pediatric Laryngeal Fracture

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Abstract

Background: Laryngeal fractures are one of the complications of direct damage to the neck, which can lead to airway obstruction and life-threatening conditions. Other causes of laryngeal fractures include injuries during fights, sports injuries, hangings, and iatrogenic causes. In this study, we introduce a child with a laryngeal fracture following an accidental hanging.
Case Report: A 9-year-old girl was presented to the emergency department with respiratory distress and inability to speak after being hanged by her scarf. We secured the cervical spine with a hard collar and provided two intravenous (IV) lines. Then, the patient was transferred to the radiology department to perform cervical and thoracic computerized tomography (CT) scans. In the cervical CT scan, the fracture of laryngeal cartilage was detected. We repaired the fracture by prolene sutures. Then the patient was transferred to the intensive care unit (ICU) ward. After 2 days, she was transferred to ward and discharged without any complications.
Conclusion: The cervical trauma is a critical condition that must be managed carefully and urgently. For the rapid diagnosis of possible damage, imaging is necessary. Among all modalities, CT scan is the best choice for detection of the vertebral injuries and airway competence in emergent conditions.

Keywords: Larynx; Bone Fractures; Pediatrics; Hanging

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Background

Laryngeal fracture is a complication of direct neck injury which may lead to airway obstruction and life-threatening conditions, requiring urgent diagnosis and management (1, 2). Laryngeal fractures can be divided into penetrating or non-penetrating, and high or low velocity (3). In most patients, laryngeal fractures are caused by a motorcycle accident, but in rare cases, they may occur following injuries during assault, sport, hanging, and iatrogenic trauma (4, 5). In this study, we introduce a child with a laryngeal fracture following an accidental hanging.

Case Report

A 9-year-old girl was presented to the emergency department with respiratory distress and inability to speak after being hanged by her scarf which was tangled up in a water pump. In physical examination, she was aphonic, anxious, and drooling. There was ecchymosis in the upper neck under the laryngeal prominence and an abrasion on the left cheek. Her mouth and lips were slightly cyanotic. Subconjunctival hemorrhage was seen in both eyes. Her neck was symmetrical in appearance. In palpitation, the anterior neck had crepitation and laryngeal instability. The respiratory rate was 28 per minute, and the pulse rate was 128 per minute. The oxygen saturation was 66%. The patient was conscious with the Glasgow coma scale (GCS) of 4/4 for eye-opening response, 6/6 for motor response, and 5/5 for verbal response.

For the management of accidental blunt trauma in this case, we paid special attention to other vital organs, in addition to the cervical airway. For example, injury of the carotid artery may result in brain injury, an esophageal injury may cause mediastinitis, and the cervical spine injury may damage the spinal cord. Initially, we secured the cervical spine with a hard collar and provided two intravenous (IV) lines. Therefore, due to airway stability of patient, the patient was transferred to the radiology department to perform cervical and thoracic computerized tomography (CT) scans with close observation. In the cervical CT scan, the fracture of laryngeal cartilage was detected (Figure 1).

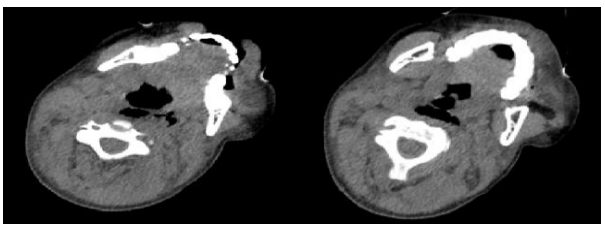

Figure 1. Cervical computerized tomography (CT) scan, showing the laryngeal fracture

The thoracic CT scan was normal. In such a trauma case, it is very important to secure the airway as soon as possible. We did it by making an incision in the cartilaginous tracheal rings of numbers 4 and 5 to insert a tracheal tube in operating room. In addition, we repaired the fracture by prolene sutures (Figures 2 and 3).

Figure 2. The laryngeal fracture before surgery

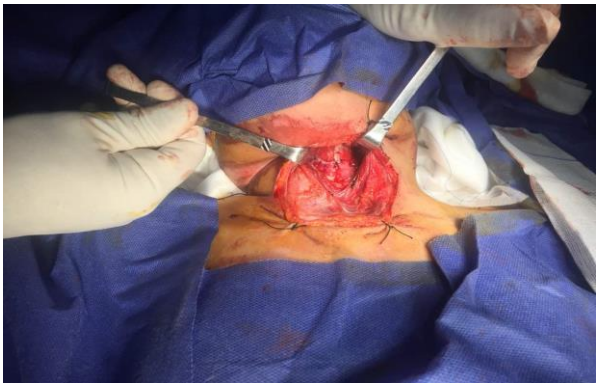

Figure 3. The laryngeal fracture after the surgical treatment

Then the patient was transferred to the intensive care unit (ICU) ward with oxygen and cardiac monitoring. After 2 days, she was transferred to ward and discharged without any complications after 2 days.

Discussion

Blunt neck injuries can rapidly deteriorate. Therefore, a misdiagnosis or delayed diagnosis can cause irreversible damage (6). The laryngeal laceration happens less often with lower severity in children compared to adults, partly because of the several unique features of the pediatric larynx (7, 8). In hanging, as a subtype of strangulation, the external forces exerted on the neck are produced by the gravity and the weight of the suspended body (9). In older age, the laryngeal structures such as hyoid and thyroid horns become calcified and more brittle (10). Therefore, these structures are more susceptible to mechanical injuries in adults, and laryngeal fracture in children is a rare condition that we described in this case report.

The cervical trauma is a critical condition that must be managed carefully and urgently. For the rapid diagnosis of possible damage, imaging is necessary. Among all modalities, CT scan is the best choice for detection of the vertebral injuries and airway competence in emergent conditions.

Conflict of Interest

The authors declare no conflict of interest in this study.

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