

Traumatic upper cervical esophageal perforation in childhood with door handle

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Cervical esophageal rupture due to trauma in childhood is an extremely rare entity associated with a high rate of morbidity and mortality if misdiagnosed. There is still no consensus on the assessment and elective management of children with trauma and esophageal rupture. Surgical primary repair is usually not feasible in patients with delayed diagnosis, especially if the period extends over 48 h. We report a case of an 8-year-old boy who suffered a posterior oropharyngeal and cervical esophageal perforation after accidental intraoral penetration of a door handle. Primary repair was avoided because of late presentation of the patient. In nearly 1½ months, the perforation resolved completely without surgical

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Introduction

Cervical esophageal rupture due to trauma in childhood is an extremely rare entity associated with a high rate of morbidity and mortality if misdiagnosed [1–7]. There is still no consensus on the assessment and elective management of children with trauma and esophageal rupture. Surgical primary repair is usually not feasible in patients with delayed diagnosis especially if the period extends over 48 h. We report a case of an 8-year-old boy who suffered a posterior oropharyngeal and cervical esophageal perforation after accidental intraoral penetration of a door handle.

Case report

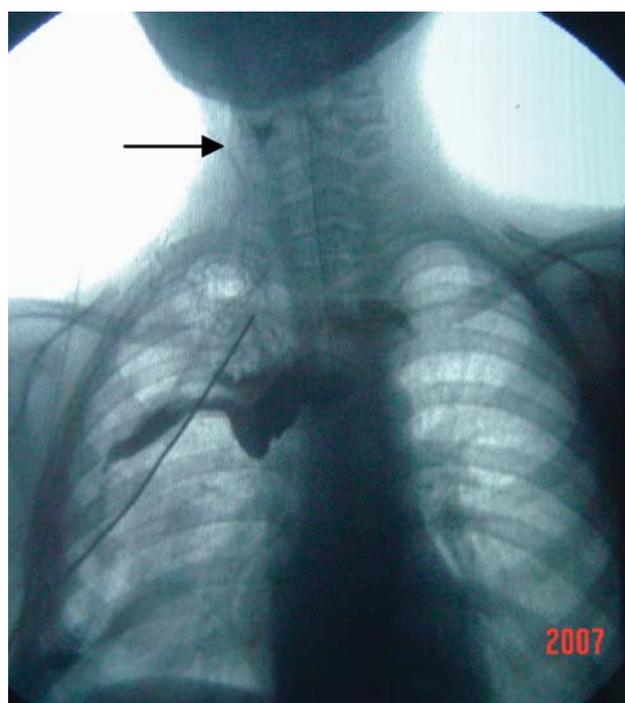
An 8-year-old male patient referred to our clinic with the complaint of severe neck swelling 36 h after an accidental intraoral penetration of a door handle during a school game. Severe cervical edema and subcutaneous crepitations were noted on initial evaluation. The patient seemed to be septic and had mild respiratory distress. The oropharynx was examined thoroughly. It showed a large posterior oropharyngeal perforation. A plain chest film seemed to be normal; subcutaneous free air was seen on cervical radiograph with no fractured cervical vertebrae. The next step was an upper gastrointestinal series, in which posterior oropharyngeal and cervical esophageal perforation draining to the posterior mediastinum was detected (Fig. 1). Emergency laryngobronchoscopy and esophagoscopy were performed. The upper and lower airways were normal except mild laryngeal edema. The esophageal perforation site could not be visualized at endoscopy, and a nasogastric tube was placed under anesthesia. The follow-up of the patient was continued in the intensive care unit due to progressing respiratory distress. Primary surgical repair was avoided due to late presentation of the case. Broad-spectrum antibiotherapy (cefoperazone/sulbactam) was administered. Two days after presentation, cervical exploration with drainage was performed under general anesthesia. During the procedure, right tube thoracostomy was also added, as an empyema was developed after diagnosis of perforation on the first day. The antibiotics and the drains remained

for a period of 3 weeks. Feeding was achieved through a nasogastric tube. A control esophagogram showed complete closure of perforation with no obvious esophageal stricture (Fig. 2). The patient was discharged uneventfully after 46 days (7 days at intensive care) of hospitalization.

Discussion

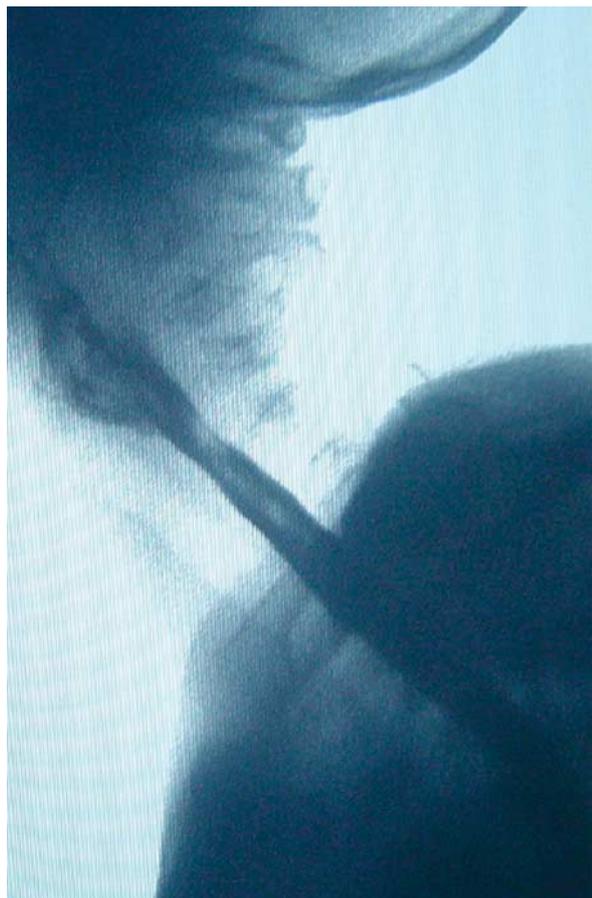
The anatomic characteristics of the esophagus make its perforation 1 of the most serious of all perforations of the gastrointestinal tract. Among those, perforations affecting

Fig. 1



Upper gastrointestinal series: perforation drains to the posterior mediastinum and right hemithorax.

Fig. 2



Complete resolution of the perforation.

its cervical portion and the hypopharynx are considered to have a better prognosis, but still they have high morbidity and potential mortality. The diagnosis time is crucial, in which early diagnosed cases may have primary surgical repair with good results. Early diagnosis of esophageal perforation significantly reduces morbidity and mortality [8–10]. At suspicion of the perforation, plain radiographs may show wrong catheter placement or free air along the catheter, but still 12–33% of plain films seem to be normal [8]. A contrast esophagogram more accurately shows the perforation site in more detail, but it still has a 10% false-negative rate [8,9]. Flexible endoscopies show the interior aspect of injury more accurately, but it is hard to differentiate mucosal tear from full layer perforation. Endoscopy is very helpful as a guide to the lumen for the placement of feeding catheters [4]. After being diagnosed, most cases should be aggressively treated with antibiotics and have their airway secured, as frequent

saliva aspiration may lead to complications ranging from mild aspiration pneumonia to severe respiratory distress. In cases of cervical esophageal perforations resulting in neck abscess, additional surgical drainage may be required. Posterior oropharyngeal tears may drain to the mediastinum and hemithorax. Control chest radiographs may predict empyema, which should also be managed by the drainage tube. During the whole course of treatment, the enteral feeding should be prompted instead of parenteral nutrition to avoid complications such as metabolic imbalance, catheter infection, and liver insufficiency. In our opinion, the primary repair is a choice in cases diagnosed in the first 24 h. The majority of late-presented or late-diagnosed cases can be successfully managed conservatively [1–5,10]. The algorithm should be individualized to the clinic and should be generated by a specialized team, including pediatrician, pediatric surgeon, otorhinolaryngologist, and nutrition specialist. The whole setting must have intensive care unit support.

Conclusion

The type of trauma and the cause of perforation (door handle) are unique in this case. However, the treatment, being individual to each patient, is mostly based on the time of presentation. Early diagnosed cases have a higher chance of successful primary repair, whereas delayed ones require conservative treatment as in our case.

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