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Non Operative Management of Post-Traumatic Esophageal Perforation in Children: A Case Report

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Abstract | **Case Report**

Cervical esophageal perforation in children is generally less severe than thoracic or abdominal perforations, with slower spread to the mediastinum due to anatomical barriers. Common symptoms include neck pain, dysphagia, dysphonia, and subcutaneous emphysema, which is present in approximately 95% of cases. Diagnosis primarily relies on contrast-enhanced CT, which is the most sensitive modality (92–100%) and provides valuable information on disease extent and complications. Contrast esophagography remains the gold standard, with water-soluble agents like Gastrografin preferred initially. Standard radiographs may reveal prevertebral air or other signs, but early imaging can be falsely negative. Management depends on the severity and location. Nonoperative treatment may be appropriate for small, contained, iatrogenic perforations. Early-detected cases may be treated with endoscopic clipping. Surgical intervention, typically via left cervicotomy with primary repair and drainage, is reserved for more extensive or complicated cases. We present a case of cervical perforation of the esophagus in a 7 years old patient.

Keywords: Non Operative, Cervical Esophagus, Post-Traumatic, Perforation, Children.

INTRODUCTION

Esophageal perforation (EP) was first described in 1723 by Hermann Boerhaave, [1]. It is a rare condition associated with high rates of mortality and morbidity [2]. The cervical esophagus is the most frequent site of perforation. Various therapeutic options exist for the management of esophageal injuries, with conservative medical treatment being appropriate in carefully selected cases [3].

CASE REPORT

A 7-year-old female patient with a 10-day history of cervical trauma presented to the pediatric surgical emergency department at the children's hospital in Rabat, Morocco, with severe dysphagia, cough and fever.

Clinical examination revealed a voluminous, non-inflammatory left laterocervical mass that expanded and retracted with respiratory movements.

The chest X-ray showed a left laterocervical clarety (fig 1).

Fig. 1: Cervical and chest X-ray showing laterocervical clarety

The patient underwent a cervico-thoracic CT scan showing esophageal perforation complicated by a voluminous posterior mediastinal collection communicating with the esophagus, with signs of mediastinitis (fig 2).

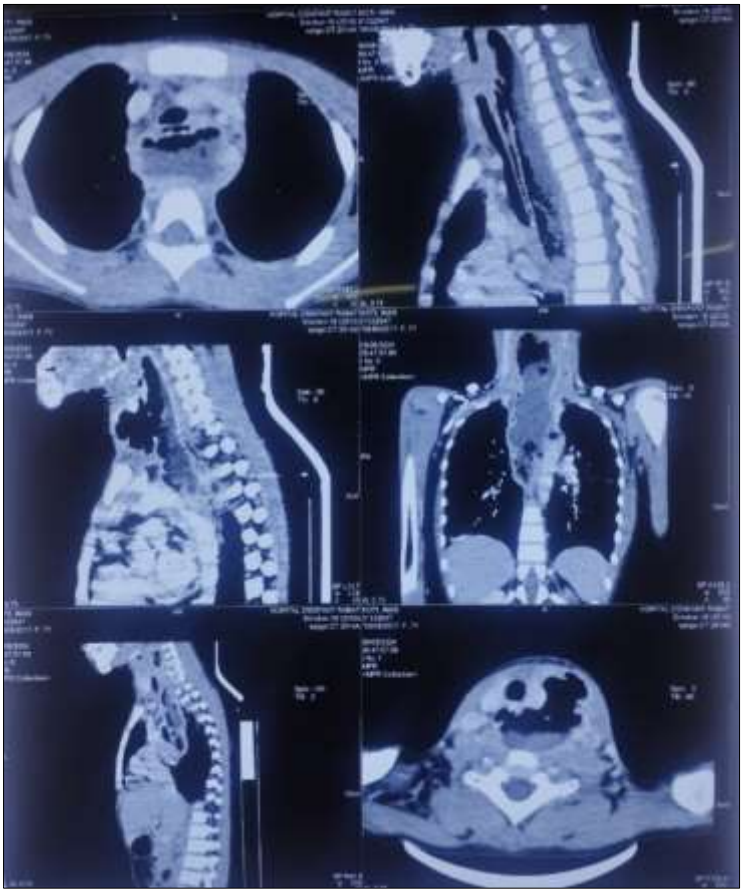

Fig. 2: Cervico-thoracic CT scan showing esophageal perforation

Gastrographic esophageal transit revealed extravasation of contrast medium in the left laterocervical region, with the aspect of a collection fed by an esophageal fistula (fig3).

Fig. 3: Gastrographic esophageal transit showing the extravasation of contrast medium

The patient was urgently admitted to intensive care for treatment of his mediastinitis.

A non-operative treatment was then adopted in our patient (antibiotic treatment, monitoring...), with good progress and the fistula drying up within 2 months (fig4).

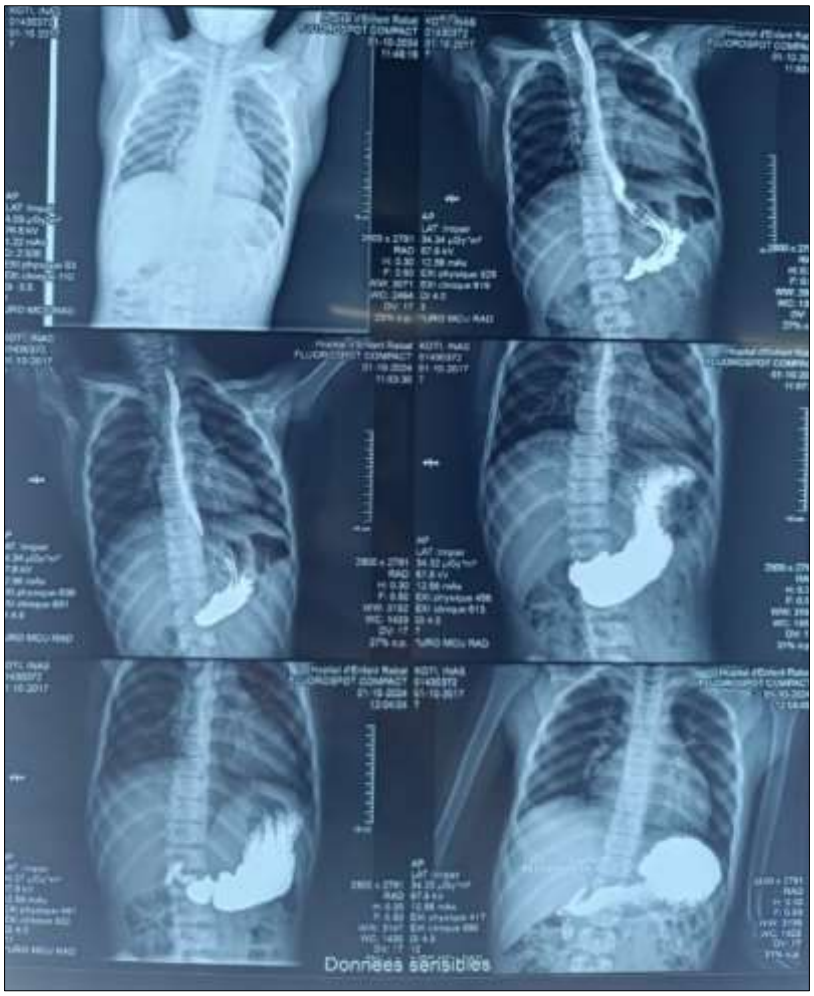

Fig. 4: Gastrographic esophageal transit showing recovery of initial lesions

DISCUSSION

The clinical manifestations of esophageal perforation are primarily dictated by the underlying cause, the precise anatomical location of the lesion, and the duration between the onset of perforation and its recognition [4].

Cervical esophageal perforation is typically less severe and more amenable to treatment compared to intrathoracic or intra-abdominal perforations. Contamination spreads more slowly into the mediastinum via the retroesophageal space following cervical perforation, and the esophagus's anatomical attachments to the prevertebral fascia in this region help restrict the lateral dissemination of esophageal flora.

Clinically, patients with cervical perforation may present with neck pain, odynophagia or dysphagia localized to the cervical region, dysphonia, or hematemesis. Subcutaneous emphysema is a common physical finding and is radiographically detectable in approximately 95% of cases involving cervical esophageal perforation [4].

Complementary Investigations

Conventional Radiography

Lateral cervical X-rays may reveal prevertebral air in cases of cervical esophageal perforation. In thoracic perforations, standard chest radiographs are abnormal in approximately 90% of cases [5], typically demonstrating pleural effusion, pneumothorax or hydropneumothorax, pneumoperitoneum, or retroperitoneal air. Pneumomediastinum and subcutaneous emphysema generally take at least one hour to develop following perforation, which explains why radiographs performed too early may yield falsely reassuring results [6].

Cervicothoracoabdominal CT Scans

Gastrointestinal contrast-enhanced CT is currently the diagnostic modality of choice, with a sensitivity ranging from 92% to 100%, surpassing that of an esophagogastroduodenal contrast study [7]. Additionally, contrast-enhanced CT provides valuable information on the extent of disease and involvement of adjacent structures—such as mediastinitis, pleural effusion, subpleural abscess, or intraperitoneal fluid—which is essential for guiding appropriate management. Finally, when esophageal perforation is not confirmed, CT imaging may facilitate the diagnosis of alternative

conditions, such as aortic dissection, perforated duodenal ulcer, or pancreatitis [8].

Contrast Esophagography

Contrast esophagography remains the gold standard for the diagnosis of esophageal perforation**.** Water-soluble contrast agents, such as Gastrografin, are recommended as the initial imaging modality in suspected cases due to their rapid absorption in the event of extraluminal leakage [9].

Treatment

Nonoperative management may be considered for small, contained perforations—typically of iatrogenic origin—provided that close monitoring is feasible. Endoluminal clipping is an option if the perforation is identified early. Currently, the use of endoprostheses at this site is not recommended due to technical challenges in positioning and the high risk of migration [10]. Surgical management involves a left cervicotomy with a two-layer closure of the perforation, potentially reinforced with a tissue flap—particularly essential in cases involving associated tracheal injury—along with appropriate drainage. In cases of extensive esophageal damage or when the perforation site cannot be localized, simple drainage may be an acceptable alternative [11].

CONCLUSION

Despite recent advances in intensive care, diagnostic techniques, and therapeutic strategies for esophageal perforation, overall mortality remains high. This poor prognosis is partly attributable to diagnostic delays caused by the frequent atypical clinical presentations, as well as the absence of standardized management protocols.

Conflict of Interests: The authors have no conflict of interest to declare

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