

Esophagopleural Fistula due to Ingestion of Corrosive Substance

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1. Introduction

Esophago - pleural fistula is a rare entity, despite of an anatomical proximity of these structures. Causes of esophago - pleural fistula include esophageal malignancies, post - surgical, irradiation, iatrogenic and corrosive substance injury. Spontaneous development of fistula between esophagus and pleura is a very rare clinical finding. If not diagnosed promptly, it can lead to fatal consequences.

We, hereby present a case of development of fistula between esophagus and pleura post accidental ingestion of corrosive chemical in a 14 year old child.

2. Case Report

A 14 year old male was admitted after alleged history of accidental ingestion of caustic soda. The patient had complains of pain in the oral cavity with difficulty in swallowing and had a history of fever for 3 days. The patient had one episode of hematemesis. The patient was subsequently managed and was started on antibiotics for the next few weeks. But there was no significant improvement in the symptoms with the patient having intermittent spikes of fever and the complains of difficulty in swallowing for about 4 weeks.



Figure 1: CT scan of chest: demonstrating the site of fistula (white arrow) and right sided hydropneumothorax

Plain chest radiograph demonstrated a pneumothorax on the right side.

A urograffin swallow study (esophagogram) was then performed under fluoroscopic guidance. It demonstrated a fistulous tract coming from the esophagus just above GE junction communicating with the right pleural space. (fig.2a and 2b) Also multiple air fluid levels were observed in the right upper lung suggestive of loculated collections of hydropneumothorax and collapse - consolidation of the adjoining right lower lobe.

CT scan of chest after 4 weeks of admission, revealed a communication between the esophagus and the right pleura with air fluid levels.



Figure 2: Esophagogram study AP view

A chest drainage tube was then inserted for management of pneumothorax and patient was planned for esophageal stenting and transferred to the Cardiothoracic and Vascular surgery department for further management.

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Esophageal stenting was done soon after (fig.3a) and significant improvement was seen in the symptoms in the following week.



Figure 2: Esophagogram study Right oblique view



Figure 3a: Post esophageal stenting CT Scan (Coronal view)



Figure 3b: Post esophageal stenting CT Scan (Axial View)

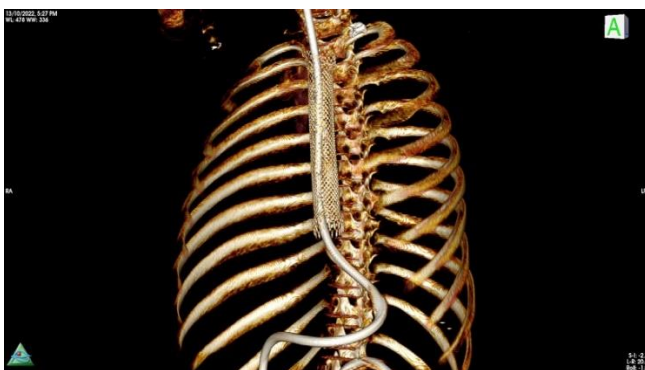


Figure 3b: 3D Reconstructed esophageal stent

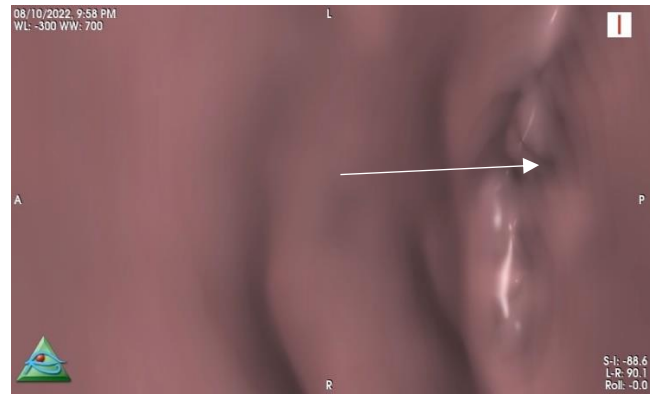


Figure 3c: 3D Reconstructed Virtual bronchoscopy demonstrating fistula site (white arrow)

3. Discussion

Esophageal injury can be caused by iatrogenic trauma, ingestion of corrosive substance diseases of the esophagus such as corrosive esophagitis, esophageal ulcer and neoplasm.

Esophagus injury should be considered when patient presents with dysphasia especially when the patient gives antecedent history of ingestion of corrosive substance. As in our case, perforation of the oesophagus and subsequent development of fistulous track between esophagus and pleura was caused by the ingestion of corrosive substance. Esophagopleural fistula was not suspected until persistence of dysphagia and intermittent fever even after 4 weeks of management with broad spectrum antibiotics. CT scan of chest demonstrated the site of fistula and hydropneumothorax was observed with volume loss of lung segment. Furthermore, oesophagogram in which urografin was given orally confirmed the findings under fluoroscopic guidance. Hence, contrast given orally seen in the pleural space is a pathognomic sign of the entity.

The findings on the chest radiograph are nonspecific and include pleural effusion, pneumothorax, or hydropneumothorax. The radiological signs of the esophagopleural fistula depend upon site, duration, and severity of perforation; and more importantly, the integrity of pleura. CT shows the exact extent of mediastinum involvement, confirms the X - ray findings, and can differentiate pleural from pulmonary disease. Esophagographic studies may confirm the presence of the EPF and demonstrate its site as in our case.

4. Conclusion

The diagnosis of EPF is difficult because the clinical signs and symptoms are nonspecific. Esophageal injury should be considered when a patient presents with retrosternal chest pain, fever, dysphagia, and dyspnea, especially when the patient gives antecedent history of ingestion of corrosive substance. The diagnosis of EPF can be suspected clinically; however, for confirmation, imaging is required. The imaging modalities include chest radiograph, barium swallow, contrast - enhanced computed tomography (CT), with each modality having its advantages. Esophagographic studies done under fluoroscopic guidance may confirm the presence of the esophagopleural fistula and demonstrate its site as in our case.