

Choking after blunt trauma and an interesting radiological finding

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A 19-year-old man presented to the Emergency, few hours after sustaining a blunt trauma to the chest as he fell from a height of 10 feet above ground and landed on his chest. He complained of difficulty in taking food and water and coughing on attempting to do so. The vitals of the patient were stable and there was only a small bruise over his sternum at the site of injury. There was no evidence of injury to any other vital organs or bleeding from any site. Plain radiograph was unremarkable. An urgent Computed Tomography (CT) of Thorax was done [Figures 1 and 2], which showed an interesting feature.

QUESTIONS

- Q1: What is the radiological abnormality seen which explains his dysphagia and coughing on taking water and food?
Q2: What is the pathogenesis of the abnormality?
Q3: How should the patient be managed?

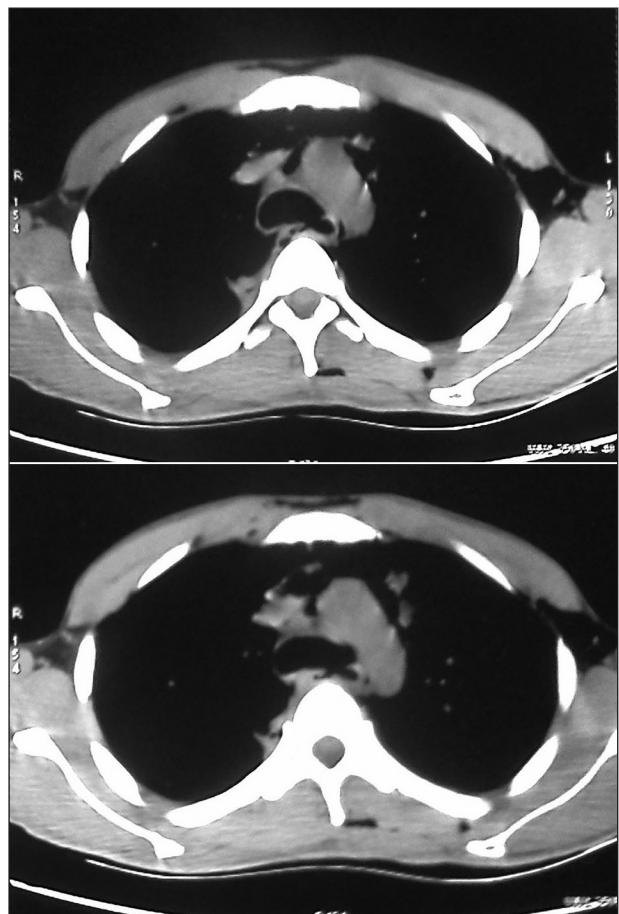


Figure 1: CT thorax showing the fistula between the trachea and the esophagus at around the level of carina

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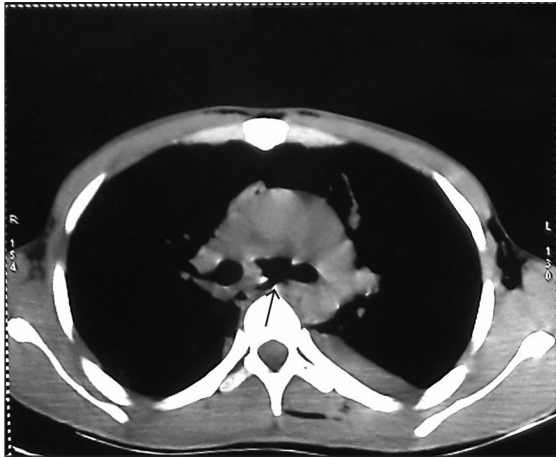


Figure 2: CT thorax showing the fistulous connection between the left main bronchus and esophagus

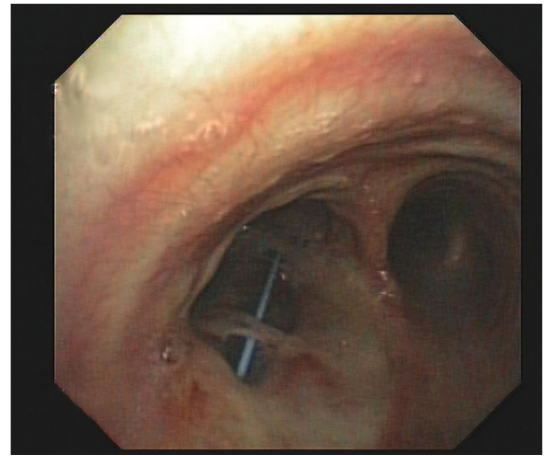


Figure 3: Bronchoscopic view showing the rent in the trachea and bronchus through which the Ryle's tube can be seen

ANSWERS

Answer 1: A communication can be seen between the trachea, bronchus and the esophagus around the level of carina, suggestive of tracheo-broncho esophageal fistula. There is evidence of pleural effusion on the left side.

Answer 2: It is believed that blunt trauma results in crushing of the esophagus and airway (trachea or bronchus) between the vertebral bodies and sternum. This causes ischemic necrosis of the posterior membranous wall of trachea/bronchus and the anterior wall of the esophagus thus leading to a fistulous communication between the two.

Answer 3: Due to the high risk of mediastinitis in this condition the patient should be taken up for urgent thoracotomy and repair.

DISCUSSION

Tracheo esophageal fistula (TOF) following blunt trauma is a rare entity with an incidence of less than 0.001% of cases of blunt trauma to chest.^[1] Tracheo-broncho esophageal fistula is considered a much rarer entity involving both the trachea and bronchus as also the esophagus. The most common site of TOF in the trachea is at the level of carina or just above it. Cervical esophagus is most commonly involved, followed by thoracic esophagus. Usually motor vehicle accident is the responsible cause.^[2] Majority of patients become symptomatic within 10 days. Coughing or choking on swallowing or swallow-cough complex (Ono's sign) is considered a classical sign. Other symptoms are hemoptysis, hematemesis, dyspnoea,

chest pain, dysphagia etc. The most commonly reported findings include pneumothorax, pneumo-mediastinum or subcutaneous emphysema. The diagnosis is confirmed by a combination of chest imaging and endoscopy. Contrast enhanced esophagography or contrast enhanced CT thorax is generally helpful. Bronchoscopy (bronchoscopic image of the same patient is shown in Figure 3, which shows a Ryle's tube visible through the tracheobroncho-esophageal fistula; the fistula was visualized around 3-4 cm above the carina and extended to about 2-3 cm below the carina into the left main bronchus) or esophagoscopy can directly visualize the defect in the trachea or esophagus respectively. The management is usually surgical with early thoracotomy and repair of the defect. The mortality rate is high if intervention is not planned early.

The important learning point of this article is that following blunt trauma if patient has suggestive symptoms, fistulous connection between the tracheobronchial tree and esophagus should be suspected and chest imaging should be sought early. The presence of such fistulous connections may be evident on CT thorax and confirmation is done by endoscopic studies.

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