

Tracheoesophageal fistula following blunt trauma to the right chest

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Abstract Tracheoesophageal fistula after blunt trauma is very rare. Typically the patient is a young male driving a car and is thrust onto the steering wheel following sudden deceleration as in a high speed road traffic accident. In our case that victim is a motorcyclist who fell down on his right side and developed such a fistula after 3 days. We report the clinical summary and a brief review of literature.

Keywords Fistula · Trauma · Tracheoesophageal

Introduction

Tracheoesophageal fistula following blunt chest trauma is a rare but potentially life threatening complication. It is usually encountered during high velocity motor vehicle accidents. Diagnosis requires a high index of clinical suspicion

especially in the presence of other associated injuries. Early surgical repair is associated with better outcome.

Case report

A 28 year old male fell down onto his right side from his motorcycle and sustained injury to the front of his right chest. He was initially managed at a local hospital. Computed Tomogram of chest showed large pneumothorax with minimal contusion of the right upper lobe (Fig. 1). Intercostal chest drain was inserted and Chest X-ray showed complete expansion of the right lung. Three days later, the patient developed severe cough and choking on ingestion of food or liquids. He was then transferred to our hospital. On the arrival, he was hemodynamically stable and maintained a saturation of 95 % on room air. Since the symptoms were characteristic, we went ahead with bronchoscopy. This showed a 2 cm slit in the posterior wall of trachea just above the carina through which food particles appeared on coughing (Fig. 2).

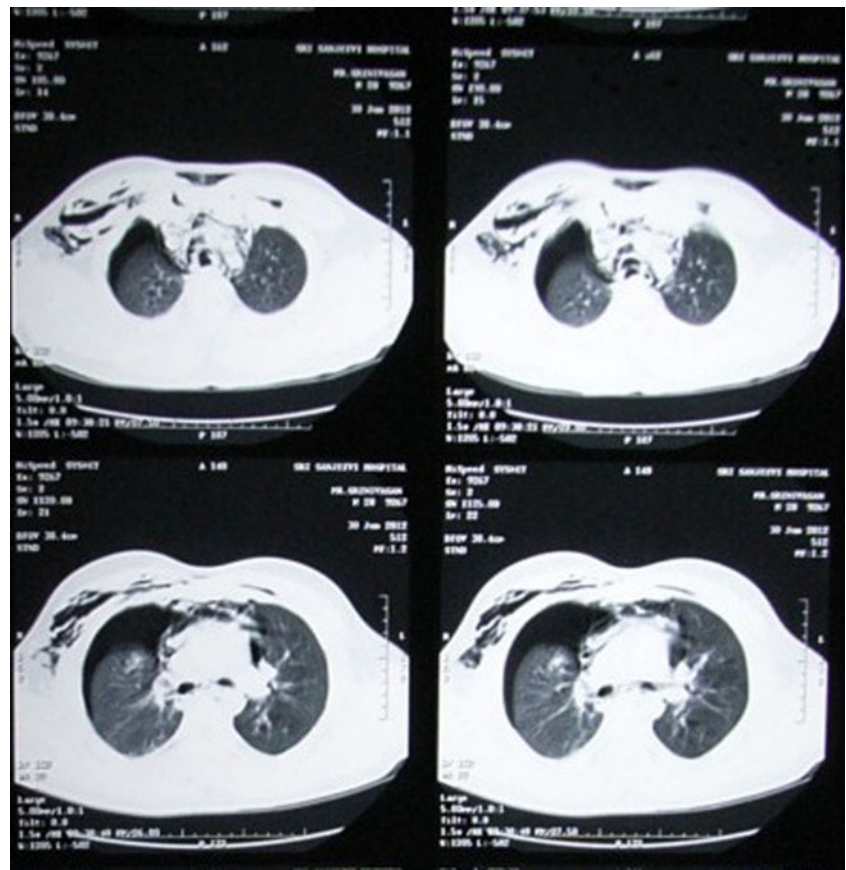
The patient was taken up for surgery on the same evening after a percutaneous endoscopic gastrostomy was done. Double lumen endotracheal tube was positioned into the left main bronchus and right chest was entered through a 4th space posterolateral thoracotomy. Azygos vein was divided between ligatures. The fistula site was identified. Trachea and oesophagus were dissected apart in this area (Fig. 3). The defect in the trachea was closed with simple interrupted 4-0 truglyde (Sutures India, Bangalore) sutures. The suture line was reinforced with a layer of pedicled pleural flap. The defect in the esophagus was repaired in a similar fashion

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Fig. 1 Computed tomogram showing right sided pneumothorax with subcutaneous emphysema



after guiding a nasogastric tube into the stomach. Thus there were 2 layers of pleura intervening between the trachea and the esophagus. Chest was closed over a chest tube placed to drain the mediastinum. Patient was extubated after the procedure. After a day, feeding was commenced through the percutaneous gastrostomy tube but nothing was given per orally for 10 days. Barium swallow done on the 11th day

demonstrated good healing without any leak. Oral feeding was started and patient was discharged on the 14th day.

Discussion

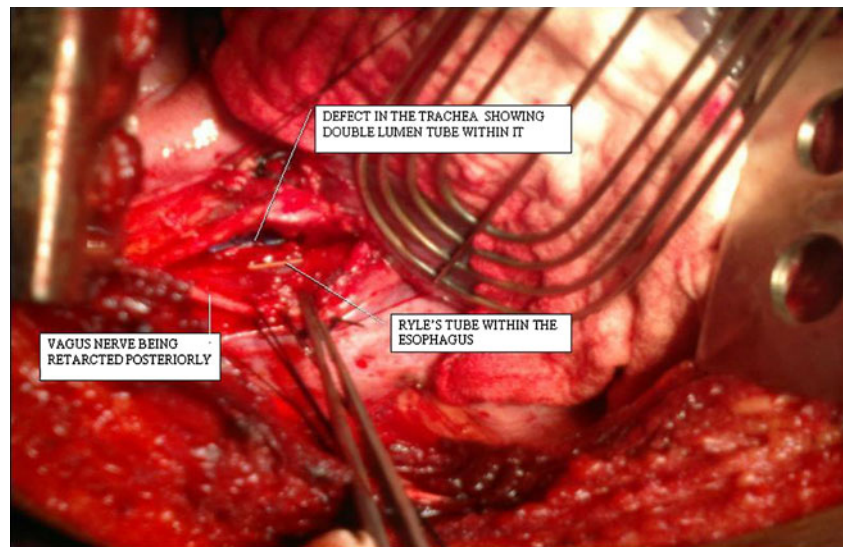
Tracheoesophageal fistula is a rare but potentially fatal complication [1]. The clinical presentation, diagnosis and treatment have already been well documented in literature [1, 2]. The proposed mechanism of injury is that the trachea and the esophagus get compressed between the sternum and the vertebra causing laceration of the membranous trachea and contusion of the anterior wall of the esophagus [1]. The mucosa undergoes ischemic necrosis and a fistula is formed after 3–6 days. In our case, the victim had unilateral blunt trauma to the right chest and developed tracheoesophageal fistula. Unlike anteroposterior compression, unilateral thrust causing such a condition has not been reported so far.

Early surgery provides the best chance to repair the fistula [1, 3]. Delay in treatment exposes the patient to risk of mediastinitis and also the tissues become more friable making primary closure difficult. Right thoracotomy through the 4th space is the preferred approach. A double



Fig. 2 Bronchoscopy showing the fistula just above the carina

Fig. 3 Intraoperative picture demonstrating the longitudinal fistula between the trachea and esophagus. Double lumen tube positioned into the left bronchus and Ryle's tube in the esophagus can be seen well. Vagus nerve has been retracted posteriorly



lumen endotracheal tube placed into the left main bronchus enables least interference with ventilation. A variety of techniques have been described to repair the fistula and reinforce the suture line to prevent its recurrence [1–4]. We found it simpler and safer to use 2 layers of pleura to separate the tracheal and esophageal suture lines rather than trying to fit a relatively bulkier intercostal muscle flap into the narrow tracheoesophageal groove.

High index of clinical suspicion, early diagnosis and prompt surgical repair are the key features in successful treatment of tracheoesophageal fistula.

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