



Case Report

Detection of Iatrogenic Tracheoesophageal Fistula in Intensive Care Unit

Authors

Dr Manish Khandelwal, Dr Varun Kumar Saini, Dr Gaurav Sharma

Department of Anaesthesia, RUHS College of Medical Sciences, Jaipur, India

Abstract

The Sengstaken-Blakemore tube (SB tube) is used to control esophageal and gastric variceal bleeding in intensive care units specially in hemodynamically unstable patients. Various complications related to SB tube insertion have been reported. We herein present a rare case of Tracheoesophageal fistula (TEF) in a 58-year-old male patient after repeated and prolonged insertion of the SB tube to control variceal hemorrhage.

Material and Methods- Nil

Result- Nil

Conclusion- *This case report shows tracheoesophageal fistula as a complication of Sengstaken-Blakemore tube insertion.*

Keywords: *Tracheoesophageal fistula; Sengstaken-Blakemore tube; Variceal hemorrhage*

INTRODUCTION

Tracheoesophageal fistula (TEF) is an abnormal communication between the trachea and the esophagus. Although TEF is rare but there are multiple reasons which can cause TEF like trauma, tuberculosis, esophageal cancer, cuff-induced tracheal necrosis from prolonged mechanical ventilation, traumatic endotracheal intubation, foreign body ingestion, prolonged presence of rigid nasogastric tube, surgical complication and diverticula in adults.

We here in presenting a case of an 58-year-old male patient who experienced TEF after undergoing repeated and prolonged insertion of the Sengstaken-Blakemore tube (SB tube) to control recurrent esophageal variceal bleeding.

CASE REPORT

A 58-year-old man was admitted to the hospital for massive hematemesis. The patient presented with intermittent hematemesis of 5 days. He was diagnosed with alcoholic liver disease previously, but had never undergone any further evaluation or treatment.

At the time of visit, vital signs were blood pressure 94/58 mmHg, pulse rate 119 beats/minute, respiratory rate 22 breaths/minute, the body temperature 36.7degree C.

On physical examination, pale conjunctivae, mild ascites, mild hepatomegaly were observed. Laboratory findings were as follows: white blood cell count was 14000/mm³, hemoglobin 9.3 g/dL, hematocrit 26.3%, platelet count 118,000/mm³, BUN 42.8 mg/dL, creatinine 1.16 mg/dL, total protein 5.38 g/dL, albumin 2.22 g/dL, AST 125

IU/L, ALT 89 IU/L, total bilirubin 2.46 mg/dL, direct bilirubin 0.83 mg/dL, ALP 158 IU/L, GGT was 77 IU/L, PT was 17.8 sec (control: 10~14 seconds), a PTT 35.4 sec (control: 23~35 seconds). 24 hours post admission – patient had massive hematemesis followed by cardio-respiratory collapse. Resuscitation done, Patient intubated, put on ventilator, supportive t/t started including inotropes, FFP, blood transfusion etc.

SB tube inserted - gastric balloon inflated with 300 ml of air & esophageal balloon inflated up to 45 mmHg of pressure.

On the 3rd hospital day, the SB tube was deflated and removed but still haematemesis was there so SB tube was reinserted after 6 hours. Patient was already on inotropic support to maintain BP, he was also given blood products due to deranged haematological profile. Again after 24 hour SB tube was removed but ventilation became difficult with loss of tidal volume and an upper airway leak. No cause was found after thorough search so the ventilator was changed but ventilation was difficult to manage although saturation was near about 90 %.

On examination, an obvious leak was audible. A new Endotracheal tube was inserted, but despite

this, an intermittent upper airway leak persisted and ventilation was inadequate. There was frequent suctioning of muddy coloured secretion from ETT which was difficult to explain. On auscultation – B/L Crepitations were present. Further it was tried to change ETT by senior. On direct laryngoscopy - bubbles were found to be arising from esophageal opening, New ETT inserted. Leak persisted with inadequate ventilation. Frequent suctioning of muddy colored secretions, inadequate ventilation, subnormal saturation, loss of tidal volume, upper airway leak, and bubbles arising from esophageal opening made a provisional diagnosis of tracheo esophageal fistula.

Fibreoptic Bronchoscopy was done to confirm the provisional diagnosis. A TEF was seen more than peanut size, situated at postero-lateral wall, 1-2 cm proximally from carina.

After confirming the diagnosis the patient was transferred to CT ICU for further evaluation and management by thoracic and gastro intestinal surgeons but because of poor general condition and deranged haemodynamic profile he was not operated for repair of fistula and unfortunately patient died after 48 hours

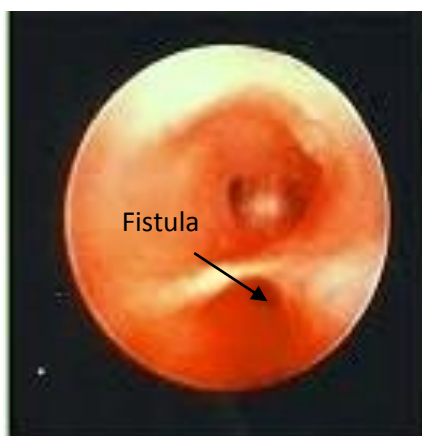


Fig 1

Fig 1 -Bronchoscopic view showing fistula in wall of trachea

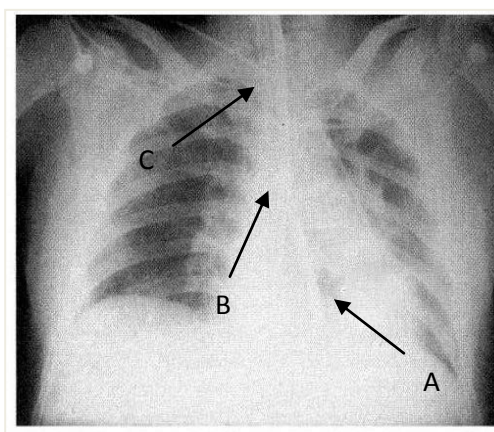


Fig 2

Fig 2-Chest X ray after inserting SB tube, A-gastric balloon, B-SB tube, C-ETT

Discussion

TEF is rare in the absence of malignancy or recent surgery. Causes include closed or open chest trauma, granulomatous mediastinal infections,

immunodeficiency syndromes, and iatrogenic trauma.

Acquired TEF secondary to the ETT cuff or tracheostomy has replaced granulomatous

infection as the primary cause of non-malignant TEF with an incidence of 0.5%. Most are associated with prolonged mechanical ventilation and use of a nasogastric tube. Immediate management involves securing the airway and maintenance of oxygenation and ventilation.

This is best done by placing the ETT cuff distal to the TEF within the trachea. Correct placement can be checked via bronchoscopy, increase in tidal volumes and decrease in air leak. Complications of TEF may include pneumonia or pneumonitis and inadequate nutritional intake further delaying recovery.

Spontaneous closure of a documented TEF is extremely uncommon and operative closure is always necessary, but the timing and type of repair is very important which require careful consideration.

After tracheal repair, prolonged positive pressure ventilation increases the risk of anastomotic dehiscence and stenosis.

Some Clinicians suggest surgery should be postponed until the patient is weaned from mechanical ventilation.

Successful resolution of a TEF in a ventilated patient using a combination of tracheal stenting and surgical repair has been reported. Open, thoracoscopic, endotracheal, and oesophageal stenting procedures have all been described; the approach in a given situation is best guided by local expertise and experience.

Conclusion

This case report highlights the rare possibility of iatrogenic TOF as a result of SB tube insertion due to ischemic necrosis of already friable esophageal wall or trauma during insertion.

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