

An Early Tracheo-Innominate Fistula: Lessons Learnt from a Clinical EncounterDania Aijaz Shah,¹ Adil Aijaz Shah,² Amarah Shakoor,³ Saulat Hasnain Fatimi⁴

Madam, a tracheo-innominate fistula is an infrequent yet life threatening complication which can approach rates of 0.1-1% after a tracheostomy. The incidence peaks 1-2 weeks after the procedure.¹ Despite immediate surgical intervention, the prognosis remains poor with mortality rates approaching 70% to 90%.² We encountered an early tracheo-innominate fistula which became evident within 72 hours of a tracheostomy; much sooner than anticipated.

A 50-year old female presented after a traffic accident, in a comatose state, with a sub-dural haematoma diagnosed on CT-scan. After surgical evacuation of the haematoma she underwent a tracheostomy after developing ventilator-associated pneumonia. She began bleeding from the tracheostomy within 72 hours. CT-scan of the neck exhibited a pseudo-aneurysm in the innominate-artery and the presence of an early tracheo-innominate fistula which was confirmed with bronchoscopy. The lesion was approached via median-sternotomy. The artery was adherent to the distal trachea with surrounding abscess formation. After proximal and distal control, the arterial defect was repaired with a saphenous vein-patch (Figures-1 and 2). Cultures revealed Methicillin-Resistant-Staphylococcus-aureus (MRSA) and Multi-Drug-Resistant-Pseudomonas. Vancomycin and Polymyxin were started. Ventilatory care was withdrawn on the 5th post-operative day after no signs of improvement and re-bleeding.

A higher incidence of tracheo-innominate fistulae is reported in patients with head injuries due to excessive hyper-extension of the neck.³ The pathogenic mechanisms are pressure necrosis from the tube-tip and an angulated neck of the tube rendering the anterior tracheal mucosa ischaemic and eroding the innominate-artery. Haemorrhage control takes priority to prevent hypoxaemia and respiratory compromise.⁴

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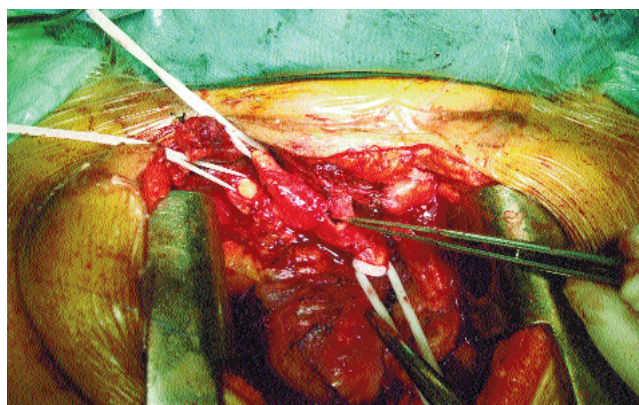


Figure-1: Opening of tracheo-innominate fistula, visualized prior to repair.

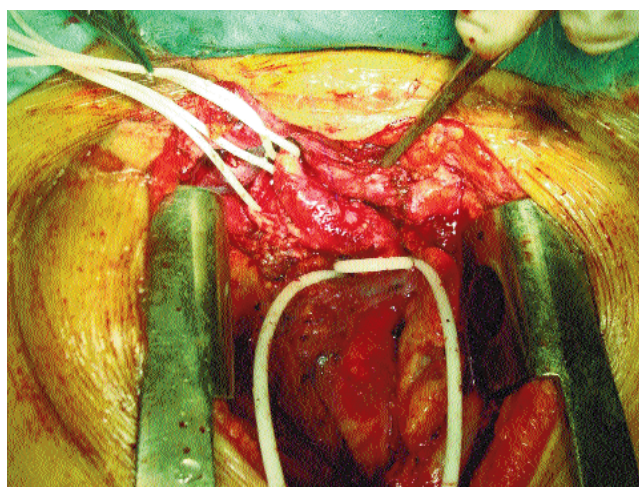


Figure-2: Site of tracheo-innominate fistula after graft placement.

Immediate over-inflation of the cuff serves to compress the damaged artery, allowing the patient to ventilate.² It also provides a time-window to fully investigate the site of damage.⁵

Bleeding after tracheostomy indicates a tracheo-innominate fistula in 95% of cases.⁴ Despite heroic surgical measures the prognosis is often poor. To see one in a patient this early is rare and unprecedented.

References

1. Epstein SK. Late complications of tracheostomy. *Respiratory care* 2005;50:542-9.
 2. Ogawa K, Nitta N, Sonoda A, Takahashi M, Suzuki T, Kitamura S, et al. Tracheo-brachiocephalic artery fistula after tracheostomy associated with thoracic deformity: a case report. *J Med Case Rep* 2011; 5: 595.
 3. Kapural L, Sprung J, Gluncic I, Kapural M, Andelinovic S, Primorac D, et al. Tracheo-innominate artery fistula after tracheostomy. *Anesth Analg* 1999; 88: 777-80.
 4. Solanki SL1, Gupta D, Patil VP, Jain M. Tracheo-innominate artery fistula: report of two fatal cases and preventive measures. *Anaesth Intensive Care* 2013; 41: 807-8.
 5. Praveen CV, Martin A. A rare case of fatal haemorrhage after tracheostomy. *Ann R Coll Surg Engl* 2007; 89: W6-8.
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