An Early Tracheo-Innominate Fistula: Lessons Learnt from a Clinical Encounter

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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 Ventilatory care was withdrawn on the 5th post-operative day after no signs of improvement and re-bleeding.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

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.

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