

IMAGES FOR SURGEONS

MISSED LARYNGOTRACHEAL RUPTURE LEADING TO DELAYED PRESENTATION

A 16-year-old male presented to a regional emergency department with sharp neck pain with associated dyspnoea and hoarseness of voice after a high tackle to the chest during a rugby league match. He was assessed, a chest X-ray carried out and discharged home with a diagnosis of musculoskeletal injury. He was later recalled when his chest X-ray and lateral airway X-ray were reviewed by a radiologist, and free air in the deep neck spaces was detected (Fig. 1). He was referred to a tertiary hospital for further management. On arrival, he was mildly distressed by persisting neck pain; however, there was no evidence of impending respiratory compromise. On examination, he was exquisitely tender over the thyroid cartilage, with extensive subcutaneous emphysema of the neck.

A 65-year-old woman presented to the emergency department with worsening neck pain, neck swelling and dyspnoea after a laparoscopic cholecystectomy at a regional hospital 3 days before. Postoperatively, she had complained of neck pain to her surgeon; however, after being clinically assessed, she was discharged home on the first postoperative day. The condition of the patient deteriorated further at home, and on presentation to the emergency department, she was distressed, was tachypnoeic and had extensive subcutaneous emphysema of the neck and anterior chest wall.

In both cases, patency and safety of the airway were assessed by flexible nasendoscopy. Computed tomography (CT) scans of the neck and chest were carried out, which revealed extensive subcutaneous emphysema with extension of free air into the deep neck spaces as well as the presence of pneumomediastinum (Fig. 2). Barium swallows were also carried out to exclude oesophageal injury. Both patients were managed conservatively in the high dependency unit with continuous airway monitoring, prophylactic intravenous antibiotics, steroids and antireflux medication. They were kept fasting for the first 24 hours, and after clinical improvement in symptoms, they were commenced on

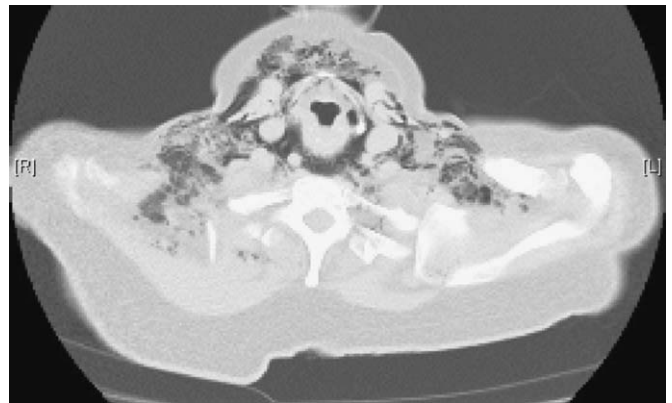


Fig. 2. Computed tomography scan of the neck showing extensive subcutaneous emphysema with free air in the deep neck spaces.

a soft diet. Both patients remained stable and in hospital for at least 4 days, and after discharge from hospital were followed-up in an outpatient clinic until there was resolution of all free air on subsequent CT scans.

Historically, laryngotracheal injury has predominantly been associated with blunt trauma as a result of motor vehicle accidents; although with the advent of safer car design and airbags, this has become less common. Injuries to the tracheobronchial tree are rare and are thought to account for only 1:30 000 emergency department presentations in an American series,¹ with blunt laryngotracheal trauma reportedly carrying a mortality rate of approximately 40%.² Trauma to the chest sustained during sporting matches is a less common cause of tracheal rupture, but iatrogenic tracheal rupture after intubation trauma is increasingly being recognized.²

Patients may present with non-specific symptoms, including hoarseness, pain, dyspnoea or stridor, cough and odynophagia. Clinical examination may reveal tenderness over the larynx and trachea, external signs of trauma, including ecchymosis, or haematoma of the neck; however, the most telling finding is the presence of subcutaneous emphysema of the neck with extension onto the chest. Recognizing the presence of laryngotracheal trauma can be difficult because approximately one-third of patients are thought to be asymptomatic at initial presentation, with symptoms and signs developing over a 24- to 48-hour period.²

Using appropriate patient selection, mild laryngotracheal injuries can be managed conservatively and successfully as illustrated by the cases above. Despite the sometimes mild and non-specific symptoms laryngotracheal injury may present with, knowledge of the mechanism of injury can help determine the underlying pathology. It remains a potentially lethal injury with potential for serious morbidity; therefore, we suggest a low threshold for investigating patients with possible laryngotracheal injury to prevent further missed and misdiagnoses.



Fig. 1. Antero-posterior and lateral X-ray of the neck showing free air extending between the prevertebral and retropharyngeal spaces.

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