CASE REPORTS

Adult supraglottitis: an important cause of airway obstruction

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Abstract

Supraglottitis in the adult can progress rapidly to complete airway obstruction. Successful management requires a high index of clinical suspicion at initial presentation and anticipation of a fulminant course. All cases should be assessed in a resuscitation area by senior medical staff. (*J Accid Emerg Med* 1998;15:114-115)

Keywords: supraglottitis; upper airway obstruction; airway management

Case report

A 66 year old woman complained of waking with a sore throat, muffled voice, and rapidly progressive dysphagia. She was not in respiratory distress at presentation. However, on examination by the casualty SHO within one hour she was unable to swallow her saliva. She was tachypnoeic and had developed marked stridor. Her arterial oxygen saturation was 96% on air. Her tongue and uvula were swollen, adding to her respiratory distress.

The patient was immediately transferred to the resuscitation room. A lateral neck radiograph showed marked enlargement of the epiglottis and aryepiglottic folds, with near complete upper respiratory tract obstruction (fig 1). There was no foreign body. Her chest x ray was normal. She became increasingly distressed, with striking air hunger and an arterial oxygen saturation of 70% on an F_{iO_2} of 85% oxygen through a face mask. She was given 0.5 mg of adrenaline intramuscularly while preparations were made to secure her airway. Emergency orotracheal intubation was performed with difficulty after anaesthesia had been induced with halothane during spontaneous respiration. Direct visualisation of the larynx at intubation revealed a grossly swollen epiglottis and aryepiglottic folds completely obstructing the glottis. The patient was initially intubated with a 6.0 mm endotracheal tube; this was replaced over a gum elastic bougie by a 7.0 mm tube after she had been reoxygenated, sedated, and paralysed with propofol and atracurium. The patient was transferred to the intensive therapy unit, where she was kept sedated and ventilated and nursed head up. A septic screen including oropharyngeal aspirates and blood cultures was performed. She was started on intravenous cefotaxime and dexamethasone.

Extubation was achieved 29 hours later, after laryngoscopic documentation of decreased supraglottic swelling. Subsequent recovery was uneventful. There was no significant bacterial growth from any culture sites; in particular, *H influenzae* was not isolated. A retrospective diagnosis of viral supraglottitis was made.

Discussion

The incidence of adult and paediatric supraglottitis is approximately equal.¹ Paediatric acute epiglottitis has been well described as a medical emergency. There is a short history of

Figure 1 Lateral neck radiograph. Note the large "thumb print" epiglottitis (arrowed) and the grossly enlarged soft tissue shadowing. The airway is virtually obliterated at the level of C-6 (cricoid ring).

worsening airway obstruction in a sick toxic child, which can rapidly lead to death by asphyxia unless intervention is prompt. Adult cases, however, can be more challenging to diagnose. Adults may not be toxic, and present with varying degrees of airway obstruction. Viral infections are the commonest cause. Bacterial infection with *H influenzae* type b, *Str pneumoniae*, and *Staph aureus*, although common in children, are rare in adults. Other causes include anaphylaxis, a sudden bleed into a laryngeal tumour, foreign bodies, blunt trauma, smoke inhalation, and caustic ingestion.

Documented clinical outcome of adult supraglottitis varies from benign to life threatening. One prospective study concludes that non-*H influenzae* aetiologies of adult supraglottitis follow a less pernicious course²; this is inconsistent with our experience.

When supraglottitis is suspected, prompt action saves lives.³ The diagnosis must therefore be considered in all patients presenting with a sudden onset sore throat and painful dysphagia out of proportion to the extent of oropharyngeal swelling. Stridor is an uncommon initial presentation and the patient may not be toxic.

Regardless of aetiology, the initial management of all suspected cases is similar. Patients require prompt assessment. Heliox, a mixture of helium and oxygen, can temporarily help to maximise the patient's respiratory efforts while help is being summoned, by reducing airflow resistance. Radiography and laboratory investigations are poor predictors of outcome. No attempt to visualise the upper airway should be made until experienced senior anaesthetic and

surgical staff are present. There should be a low threshold for definitively securing the airway. A spontaneously breathing induction with halothane offers the safest mode of anaesthesia; sedation and muscular paralysis in these patients may precipitate complete upper airway obstruction. If orotracheal intubation proves difficult or fails, needle (followed by surgical) cricothyroidotomy should be performed without delay. Adrenaline nebulisers have not been proven to be beneficial.⁴ Steroids are in widespread use to reduce supraglottic oedema, despite the risk of immunosuppression.

This case clearly shows how rapidly severe upper airway obstruction can occur—oro-tracheal intubation was required within four hours of the onset of symptoms. In other patients the course may not be so fulminant. Because of this uncertainty, we feel it is essential that all patients with suspected supraglottitis are monitored in a high dependency area. There should be full facilities to secure the airway definitively if necessary. Once ventilated, these patients must be frequently reassessed by indirect laryngoscopy and extubation must not be attempted until the supraglottic oedema has resolved.

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Breaking the rules! Cardiac injury from remote entry sites

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Abstract

An unusual case of penetrating injury to the heart is reported. This presented late, after an initial silent period. A high index of suspicion must be maintained when chest injuries are managed conservatively. If there is doubt, a subxiphoid pericardial window may allow cardiac injury to be excluded.

(*J Accid Emerg Med* 1998;15:115–116)

Keywords: penetrating injury; heart

The epidemic of urban violence has made thoracic stab injuries a common part of surgical practice in the United Kingdom, with well established guidelines for management.¹ Cardiac injury is particularly likely to occur when

the area between the two midclavicular lines has been breached.

We present a case that fell outside traditional guidelines for serious cardiac injury and provides useful lessons for all surgeons.

Case report

A 25 year old male was stabbed with a kitchen knife, in the left midaxillary line over the sixth intercostal space. He was haemodynamically, radiologically, and electrocardiographically normal when seen five hours later. The next morning, radiography revealed fluid at the left costophrenic angle, and 400 ml of old blood were drained. Echocardiography failed to show cardiac injury or blood in the pericardium. Three hours later, the patient began to complain of severe, acute breathlessness, relieved by a discharge of 700 ml of blood from