

## Hoarse cry with fatal outcome

D E Phillips, D Childs, S Walsh

**Acute onset dysphonia in children indicates a foreign body in the airways until proved otherwise. Radiology and examination under anaesthesia may be the only way to clarify the situation**

Foreign bodies in the larynx are rarely seen as they either are coughed out or cause immediate fatal airway obstruction. Foreign bodies that lodge between the vocal cords are usually flat and slender.<sup>1</sup> If a child arrives alive at hospital with a foreign body lodged in the larynx it usually means that there is an adequate airway for induction of a general anaesthetic and removal of the foreign body by direct laryngoscopy. We report on a child presenting with acute progressive hoarseness, which had fatal consequences.

### Case report

A 9 month old boy was playing with a 14 year old sibling when a shelf holding food and glass fell to the floor. The child was seen taking something into his mouth. The parents arrived later and found that he had a hoarse cry. He was taken to the local accident and emergency department, where chest and neck radiographs showed no abnormality. He was allowed home later but the next day was returned to the same department with increasing hoarseness, dyspnoea, and an audible wheeze. A differential diagnosis of asthma and acute epiglottitis was made, and he was treated with aminophylline, hydrocortisone, chloramphenicol, flucloxacillin, and ampicillin. Four hours later his respiratory distress became worse with mild cyanosis. Intubation was attempted but failed owing to a tracheal obstruction. An emergency vertical tracheostomy was performed, during which he had a cardiorespiratory arrest. He was successfully resuscitated.

He was ventilated and transferred to the regional paediatric intensive care unit, where a repeat anteroposterior neck radiograph showed a radio-opaque foreign body above the tracheostomy tube (figure). Direct laryngoscopy showed an oedematous larynx with a fixed piece of glass visible between the edges of the vocal cords. The original tracheostomy incision was extended cranially and the cricoid split to allow the removal from the subglottis of a firmly wedged, flat, jagged piece of glass measuring 1.5 × 0.75 cm. In view of the previous cardiorespiratory arrest a regimen of

full cerebral resuscitation was started. Serial assessments of his neurological progress suggested that irreversible anoxic cerebral damage had occurred. After 10 days of treatment he died.

### Discussion

The onset of dysphonia, a hoarse voice or cry, reflects changes in the structure or function of the vocal cords and suggests laryngeal inflammation, trauma, tumours, or immobility of the vocal cords.<sup>2</sup> Acute dysphonia in children is a serious symptom, and the possibility of a foreign body near the vocal cords must be excluded. A review of 2000 cases of laryngeal, tracheal, and bronchial foreign bodies reported that just over half of the patients were aged less than 4 while a tenth were aged less than 1 year.<sup>3</sup>

If the dysphonia is later accompanied by stridor, as in this case, additional airway obstruction has developed. The form of stridor may indicate the site of the lesion. Inspiratory stridor with dysphonia suggests a supraglottic problem whereas inspiratory stridor with a slight expiratory component and dysphonia indicates a glottic lesion. Biphasic stridor and dysphonia are associated with a subglottic lesion.

The use of radiographs in searching for a foreign body is helpful but not conclusive as many foreign bodies, including some forms of glass, are not radio-opaque. If a foreign body near the larynx is suspected the radiodensity of the surrounding structures, the position of the larynx relative to age, and the quality of radiographs must be considered. A radio-opaque foreign body in an anteroposterior radiograph of the neck may be easily missed as the foreign body is superimposed over the relatively radiodense cervical vertebrae. A lateral view is more useful as only the cartilages and soft tissues overlap and calcification of the laryngeal cartilages is not seen in the young.

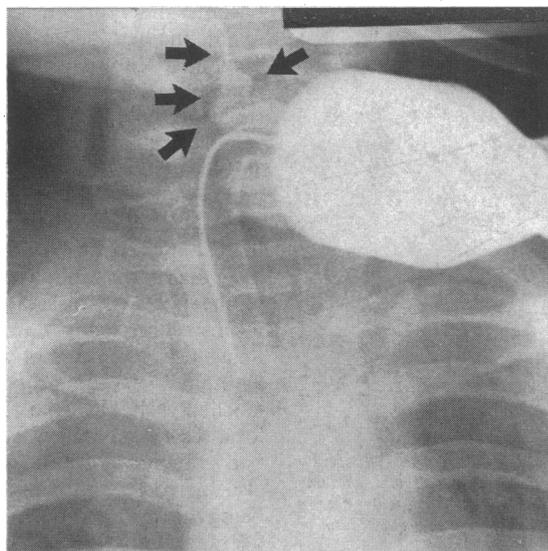
In this case radiographs of the neck and chest were requested on the first visit, and yet the foreign body was seen only in the repeat radiographs. The original anteroposterior radiographs of the neck and postero-anterior radiograph of the chest did not overlap, and possibly the glass lay between the two radiographic fields. Alternatively, it may have moved from a relatively radiodense region in the original radiographs to a less dense site.

The prevalence of laryngeal foreign bodies is low; doctors, however, should be vigilant, and if the diagnosis is suspected the patient should not be sent home. An urgent opinion should be obtained from an otorhinolaryngologist before intubation is attempted.

We thank Mr J H Rogers, Dr E Vivori, Dr R E Thornton, and Dr P Sells for their help in preparing this article, and Mrs B Cowley for typing the manuscript.

- 1 Swischuk LE. *Emergency radiology of the acutely ill or injured child*. 2nd ed. Baltimore: Williams and Wilkins, 1976:140-2.
- 2 Cinnamond MJ. Stridor. In: Kerr AG, ed. *Scott-Brown's Otolaryngology*. 5th ed. Vol 6. Paediatric otolaryngology. London: Butterworths, 1987:420-7.
- 3 Holinger PH, Holinger LD. Use of the open tube bronchoscope in the extraction of foreign bodies. *Chest* 1978;73(suppl):721-4.

(Accepted 18 May 1989)



Anteroposterior radiograph of soft tissue of neck of 9 month old boy showing foreign body (radiodense glass)

Alder Hey Children's Hospital, Liverpool L12 2AP

D E Phillips, FRCS, registrar in otorhinolaryngology  
D Childs, FCANAES, senior registrar in anaesthetics  
S Walsh, MRCPI, registrar in paediatrics

Correspondence to:  
Mr D E Phillips,  
Department of  
Otorhinolaryngology,  
University of Liverpool,  
PO Box 147, Liverpool  
L69 3BX.

Br Med J 1989;299:847