

Bilateral thoracic empyema complicating adult epiglottitis

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Abstract

Haemophilus influenzae is a common cause of epiglottitis and meningitis in children and exacerbation of chronic bronchitis in adults. However, the ability of this organism to cause serious infections in adults is less well recognized. We report a case of a 34-year-old previously healthy female who presented with epiglottitis and later developed bilateral empyema; both blood and pleural fluid grew *Haemophilus influenzae*.

Introduction

Acute epiglottitis is a serious disease because of its potential to produce sudden fatal airway obstruction in previously healthy persons. *Haemophilus influenzae* is the overwhelmingly dominant causative agent. This corresponds to the well-known association of this organism and epiglottitis in children. However the frequency of bacteraemia in adults with acute epiglottitis is considerably lower than in children, among whom 65 to 90 per cent have positive blood cultures (Lewis *et al.*, 1978; Wetmore and Handler, 1979). Our case underlines the importance of epiglottitis in adults, which can cause airway obstruction but septicaemia can ensue and give rise to serious systemic complications.

Case report

A 34-year-old, previously healthy, female developed a severe sore throat and dysphagia. She was allergic to penicillin and therefore oral erythromycin was prescribed. She deteriorated and two days later was admitted with a severe sore throat, hoarseness, dysphagia, left pleuritic pain and rigors. She was a lifelong non-smoker.

On examination, she was distressed with a pyrexia of 38°C and pain in the neck. Laryngoscopy showed features of acute epiglottitis. She was started on intravenous erythromycin and gentamicin.

Investigations showed a haemoglobin of 15.7 g/dl, the white cell count was $22.2 \times 10^9/l$ with a neutrophil count of $20 \times 10^9/l$, the platelet count, urea and electrolytes were normal. The prothrombin time was 28 s (12–14) and APTT was normal. The serum fibrinogen was 5.4 g/l (1.5–4.5). The serum alkaline phosphate was 1239 iu/l (110–295), gamma GT 305 iu/l (6–39), AST 43 iu/l (0–32), ALT 112 iu/l (0–25), bilirubin 8 $\mu\text{mol/l}$ (0–17), albumin 28.4 g/l (34–50), total proteins 60.8 g/l (965–85). The throat swab grew a mixed buccal flora. A chest X-ray showed blunting of the left costophrenic angle.

She became dyspnoeic and developed left pleuritic pain. A repeat examination showed signs consistent with bilateral pleural effusions, which were confirmed on X-ray (Fig. 1). A diagnostic pleural tap revealed frank pus. Bilateral chest drains were inserted and 2.7 litres of thick pus were drained on the first day. She was started on intravenous cefotaxime. Later on the pleural cavities were injected with streptokinase and streptodornase to facilitate drainage of the thick pus.

Subsequently, *Haemophilus influenzae* was cultured from blood and pleural fluid, sensitive to ampicillin, erythromycin

and gentamicin. She made a gradual complete recovery and has been followed up for the last two years. The only persistent biochemical abnormality is a low normal serum IgA 0.95 g/l (0.7–4.0), IgG 7.5 g/l (7.0–18.0) and a moderately high serum IgM 5.80 g/l (0.5–2.0).

Discussion

Haemophilus influenzae is a gram-negative bacillus and

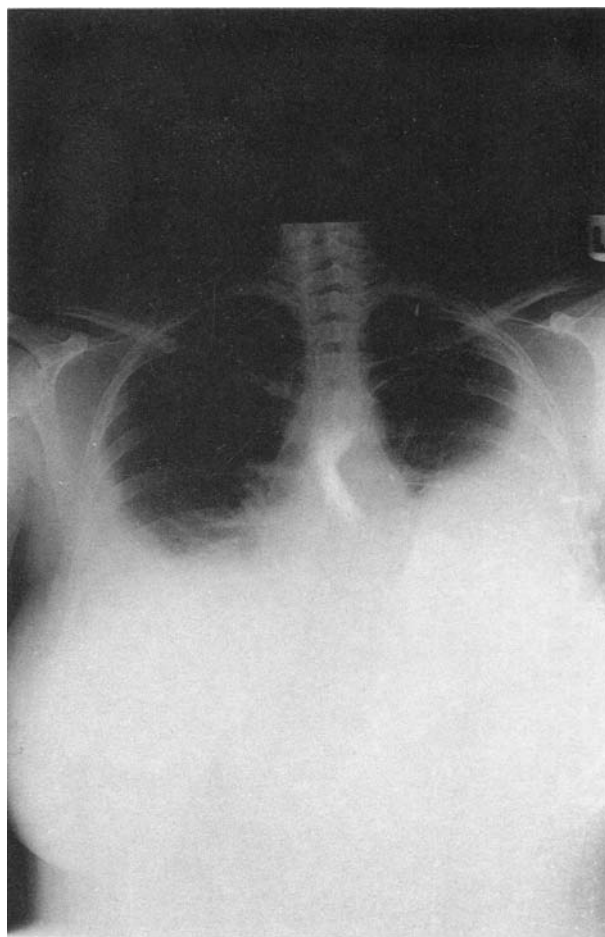


Fig. 1

exists in both capsulated and non-capsulated forms. The non-capsulated strains are commonly recovered from upper respiratory tract of adults and children.

Haemophilus influenzae is a well known cause of epiglottitis and meningitis in children but the ability of this organism to cause serious infections in adults is less well recognized. The risk of acute epiglottitis due to *Haemophilus influenzae* continues through adult life, but complications like empyema, mediastinitis, pericarditis and meningitis are rare in adults. Mayosmith *et al.* (1986) retrospectively studied 56 cases of acute epiglottitis in adults over a ten-year period and found that bacteraemia with *Haemophilus influenzae* in patients with epiglottitis was associated with a high risk of airway obstruction; there were four deaths due to acute airway obstruction without warning.

Throat cultures in contrast to blood cultures, are uninformative in epiglottitis due to *Haemophilus influenzae*, there being very little correlation between throat cultures and blood cultures or clinical outcome (Mayosmith *et al.*, 1986). We do not know the significance of persistently low normal serum IgA and IgG and moderately high IgM levels in our patient. She has been followed up for the last two years without any complaints.

Our case underlines the dangers of acute epiglottitis which can lead to airway obstruction both in children and adults, but septicaemia can ensue and, in turn, give rise to serious complications. In children appropriate antibiotics and airway protection, particularly in the initial hours after presentation have been effective in reducing mortality from acute epiglottitis. A

similar approach coupled with increased awareness of the disease should be effective in reducing morbidity and mortality in adults.

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References

- Lewis, J. K., Gartner, J. C., Galvis, A. G. (1978) A protocol for management of acute epiglottitis: Successful experience with 27 consecutive instances treated by nasotracheal intubation. *Clinical Paediatrics*, **17**: 494–496.
- Mayosmith, F. M., Hirsch, J. P., Wodzinski, F. S., Schiffman, J. F. (1986) Acute epiglottitis in adults. An eight-year experience in the state of Rhode Island. *New England Journal of Medicine*, **314**: 1133–1139.
- Wetmore, R. F., Handler, S. D. (1979) Epiglottitis: Evolution in management during the last decade. *Annals of Otolaryngology and Laryngology*, **88**: 822–826.

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