Has Lemierre's syndrome become a bacteriological diagnosis?

Introduction

Sore throats are common. Lemierre's syndrome, a severe illness caused by the anaerobic bacterium *Fusobacterium necrophorum* which typically manifests as a sore throat leading to bacteraemia and septic abscesses, is thankfully rare in the antibiotic era (Riordan, 2007). However, the Chief Medical Officer highlighted an increase in the incidence of Lemierre's syndrome and the need for increased awareness of the condition (Donaldson, 2001). This case report serves as a timely reminder.

Discussion

In 1936, André Lemierre described a series of cases of anaerobic sepsis caused by *F. necrophorum* in young, previously healthy adults following an initial infection of the nasopharynx, mouth, jaw or ear (Lemierre, 1936). He noted that septic thrombophlebitis of the internal jugular vein manifesting as swelling and tenderness along the sternomastoid muscle heralded progression of the initially localized infection to distant sites such as lung, liver and bones and the formation of necrotic abscesses. The patients' condition deteriorated rapidly and the untreated infection lead to death within 15 days. Lemierre noted that the clinical features of this syndrome were characteristic and allowed diagnosis before bacteriological proof. This was confirmed by a review of over 200 published cases (Riordan, 2007). However, in this case and many other reports (Moore-Gillon et al, 1984) Lemierre's syndrome was only diagnosed after identification of *F. necrophorum* from culture. There is therefore a need for increased awareness of Lemierre's syndrome to enable early diagnosis and treatment.

Successful management of Lemierre's syndrome depends on combination regimens including both penicillin and metronidazole or clindamycin, as well as drainage of metastatic abscesses (Riordan et al, 2007). No generalized recommendations on the duration of antibiotic treatment have been made, but many patients require therapy for a minimum of 4 weeks.

With the advent of antibiotics, Lemierre's syndrome became an uncommon disease (Jones et al, 2001). However, since the 1990s, there has been a substantial increase in the number of cases in the UK (Brazier, 2006), which may be the result of the restricted use of antibiotics for sore throats.

The National Institute for Health and Clinical Excellence (2008) guidelines for the management of upper respiratory tract infections advocate careful assessment of patients with sore throats followed by either no, delayed or immediate antibiotic therapy depending on the clinical condition of the patient. Delayed antibiotic treatment and follow up is recommended for patients with sore throats whose symptoms do not settle according to the natural expected history of the disease. Patients who are systemically unwell, have evidence of complications such as mastoiditis, peritonsillar abscess or pneumonia, suffer from serious heart, liver, renal or lung disease, or are taking immunosuppression should be given immediate antibiotics and investigated further. Judicious use of antibiotics is necessary in selected cases of sore throat in adults to reduce the risk of serious complications. BJHM

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Brazier JS (2006) Human infections with *Fusobacterium necrophorum*. *Anaerobe* **12**: 165–72

Donaldson L (2001) Unusual disease diagnosis: Lemierre's disease. *CMO's Update* 29: 6 (www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/CMOupdate/DH_4003620 accessed 22 February 2010)

Jones JW, Riordan T, Morgan MS (2001) Investigation of postanginal sepsis and Lemierre's syndrome in the South West Peninsula. *Commun Dis Public Health* **4**: 278–82

Lemierre A (1936) Septicaemias and anaerobic organisms. *Lancet* **i**: 701–3

Moore-Gillon J, Lee TH, Eykyn SJ, Phillips I (1984) Necrobacillosis: a forgotten disease. *Br Med J* **288**: 1526–7

National Institute for Health and Clinical Excellence (2008) *Respiratory tract infections.* www.nice.org.uk/guidance/index.jsp?action=byID&o=11816 (accessed 12 February 2010)

Riordan T (2007) Human infections with *Fusobacterium necrophorum* (necrobacillosis), with a focus on Lemierre's syndrome. *Clin Microbiol Rev* **20**: 622–59

Case Report

A 35-year old woman presented to her GP with a 2-day history of sore throat, myalgia and fever. A provisional diagnosis of acute viral pharyngitis was made and conservative treatment with analgesia recommended. However, her symptoms increased in severity with the addition of severe pain in the left thigh and hip necessitating hospital admission 5 days later.

On examination, she was tachycardic, tachypnoeic and hypotensive with basal crepitations in the right lung and reduced mobility of the left hip. She had a neutrophil leucocytosis ($33x10^3$/litre) and a high C-reactive protein level of 230 g/litre. The chest X-ray showed consolidation of the right middle lobe with multiple nodular infiltrates throughout both lung fields. Aspiration of the hip joint showed numerous white cells but the culture was sterile. Severe community-acquired pneumonia and infective arthritis of the hip were suspected and she was treated with benzylpenicillin, clarithromycin and flucloxacillin, but 36 hours following admission, her condition deteriorated because of the sepsis and she was transferred to the intensive care unit for ventilatory and inotropic support.

Culture of the blood taken on admission yielded an anaerobic gram-negative rod which was subsequently identified as *Fusobacterium necrophorum* by the reference laboratory. As it was sensitive to penicillin, metronidazole and clindamycin, the antibiotic treatment was changed to high doses of all three. The pneumonia resolved, inflammatory markers returned to normal and the mobility of her left hip improved; 14 days after admission, she was well enough to be discharged home with oral amoxicillin and metronidazole for a further 4 weeks and appropriate outpatient follow-up.