

Lemierre's syndrome in association with a cholesteatoma

Introduction

This article presents a case of Lemierre's syndrome, an important and serious infection that affects young healthy adults. The case highlights many factors that cause diagnostic delay in cases of Lemierre's syndrome, namely presentation following otitis media, association with a cholesteatoma, a normal ultrasound scan of the internal jugular vein and isolation of organisms other than *Fusobacterium necrophorum*.

Lemierre's syndrome complicating otitis media, mastoiditis or cholesteatoma is the second most common presentation of Lemierre's syndrome and accounts for between 15% (Lemierre, 1936) and 29% (Eykin, 1989) of cases.

Discussion

Lemierre's syndrome or post-anginal sepsis is a distinctive syndrome of septicaemia and septic thrombophlebitis of the internal jugular vein that classically occurs several days after a sore throat in a previously healthy young adult. Although tonsillitis is the commonest site of primary infection, Lemierre's syndrome can also complicate other conditions, such as otitis media, mastoiditis, dental infections and sinusitis. Swelling and tenderness along the sternocleidomastoid muscle accompanied by high fevers, rigors and later metastatic embolic abscesses, most frequently to the lungs and pleura, are the typical presenting features (Figure 1). The condition is sufficiently

characteristic to be identified clinically (Lemierre, 1936). However, its' relatively

Figure 1. Computed tomography of the thorax. Multiple pulmonary nodules, some of which have cavitated (arrow).

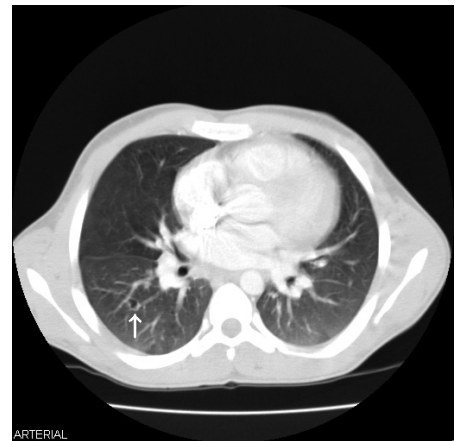


Figure 2. Magnetic resonance scan of the brain: proton density. Loss of the normal signal flow void within the right sigmoid sinus and internal jugular vein (arrow) as a result of the presence of thrombus.



Case Report

A 17-year-old man presented with headache, sore throat and dizziness. He had been feverish and suffering from rigors. He had suffered from recurrent ear infections for 2 years and 2 weeks before admission he had received a course of amoxicillin for an ear infection.

On examination he was flushed, pyrexial, tachycardic (130 bpm) and hypotensive (90/41 mmHg). The skin over the lateral border of his right sternocleidomastoid muscle was erythematous and tender. He had marked erythema of his throat and a macular blanching erythematous rash on his wrists, arms and knees. There was no neck stiffness or photophobia. Examination of the ears on admission did not detect any abnormality. Blood tests revealed neutrophilia, thrombocytopenia and a raised C-reactive protein level of 206.3 iu. Lumbar puncture was unremarkable. Monospot test was negative.

He was treated with intravenous benzylpenicillin 1.2 g four times per day and cefotaxime 2 g three times per day. Four days after admission two blood cultures grew a non-haemolytic streptococcus, later identified as *Enterococcus avium*. Antibiotics were changed to amoxicillin, gentamicin and metronidazole. An ultrasound scan of the neck showed lymphadenopathy along the right anterior lymphatic chain and a patent right internal jugular vein. Transthoracic echocardiogram was unremarkable.

The patient remained unwell. His pyrexia persisted, his haemoglobin dropped to 7.1 g/dl and his albumin to 23 g/litre. Computed tomography (CT) scan of the mastoids revealed fluid in the right middle ear, which continued into the mastoid antrum and was associated with sclerosis of the right mastoid air cells. A third blood culture grew gram-negative bacilli. Co-amoxiclav was started and the fever settled. *Escherichia coli* sensitive to amoxicillin was isolated.

A CT scan of the thorax showed small bilateral pulmonary nodules, some of which contained small cavities, suggesting pulmonary abscesses (Figure 1). An ultrasound scan of his neck was repeated on day thirteen of his admission and revealed thrombosis of the right internal jugular vein. This was confirmed with magnetic resonance imaging, which also demonstrated extension of the clot into the sigmoid and transverse sinuses (Figure 2). The patient was anticoagulated for 6 months.

In total, the patient received 2 weeks of intravenous amoxicillin, gentamicin and metronidazole and 6 weeks of co-amoxiclav and metronidazole. Review in ear, nose and throat outpatient clinic revealed a cholesteatoma that required excision. No other source of sepsis was identified despite extensive investigation.

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low incidence means that the diagnosis is often overlooked and appropriate management delayed, with potentially serious consequences.

The diagnosis, as in this case, is made by ultrasound, computed tomography or magnetic resonance imaging, confirming septic thrombophlebitis of the internal jugular vein. Ultrasound scanning is cheap and readily available but gives poor views posterior to the mandible (Shaham et al, 2000). A negative scan does not therefore exclude the diagnosis.

The diagnosis of Lemierre's syndrome is frequently only considered after isolation of *Fusobacterium necrophorum*, either from blood cultures or from pus. However, the slow-growing nature of the organism along with difficulties in identification and isolation can lead to an unacceptable delay if the diagnosis is not

made clinically. In one third (Hagelskjaer Kristensen and Prag, 2000) to one half (Roberts, 2000) of cases infections are polymicrobial and other organisms may outgrow *Fusobacterium necrophorum*. It is therefore recommended that blood cultures are reincubated in suspected cases of Lemierre's syndrome if *Fusobacterium* are not isolated. The organisms isolated in this case are unusual and contributed to the diagnostic delay. The authors propose that the infection was polymicrobial and the enterococci and *Escherichia coli* represented the local colonizing flora of the ear.

Most authors recommend either a combination of high dose penicillin with metronidazole or monotherapy with clindamycin for a total of 2–6 weeks (Hagelskjaer Kristensen and Prag, 2000). Treatment will depend, however, on co-pathogens isolat-

ed. Drainage of empyemas and abscesses is frequently required as adjunctive therapy. In cases unresponsive to antibiotics internal jugular vein ligation or excision may be required.

Lemierre's syndrome is an important entity to consider in the context of tonsillitis and middle ear infections that are slow to resolve. **BJHM**

Eykyn SJ (1989) Necrobacillosis. *Scand J Infect Dis* **S62**: 41–6

Hagelskjaer Kristensen L, Prag J (2000) Human necrobacillosis, with emphasis on Lemierre's syndrome. *Clin Infect Dis* **31**: 524–32

Lemierre A (1936) On certain septicaemia's due to anaerobic organisms. *Lancet* **ii**: 701–3

Roberts GL (2000) Fusobacterial infections: an underestimated threat. *Br J Biomed Sci* **57**: 156–62

Shaham D, Sklair-Levy M, Weinberger G, Gomori JM (2000) Lemierre's syndrome presenting as multiple lung abscesses. *J Clin Imaging* **24**: 197–9

IN THE PUBLIC'S VIEW

And then there was MTAS

Sometimes the subject matter for this column is obvious. Sometimes it's more tricky, and I have to watch an obscure cable channel to find material. Not this month. I am overwhelmed with newspaper cuttings.

Leaving aside the most obvious story till last, I thought I might run with the *Observer's* front page 'Doctors admit: NHS treatments must be rationed' (6 May 2007). In 1993 (Goodman, 1993) I complained that a Channel 4 *Dispatches* programme failed to ask the hard questions, and on the programme a current minister of health denied rationing. The *Observer's* accompanying editorial to its article accused our political parties of maintaining the 'fiction that the NHS could please all of the people all of the time, if only resources were managed more efficiently'. The newspaper is quite right, but I still haven't heard the word 'rationing' uttered by a politician. Gordon Brown: the opportunity is yours.

Then there was the same day's *Sunday Times* and Lois Rogers' 'French hospitals are as sick as our own NHS'. Shroud

wavers pick the worst of UK health care and compare it with the best found abroad. The worst of UK health care is presented in the media as the commonplace. But seek and ye shall find. Lois ruptured a Baker's cyst, although the initial diagnosis was a deep venous thrombosis, and received in France the sort of health care that might put off all those patients wanting to nip onto a ferry to get their routine hip replacement done more quickly.

Then the health risks of electromagnetic radiation resurfaced. *Panorama* ('Wi-Fi: a warning signal', BBC1, 21 May 2007) was not quite as bad as its effort in 1994 (Goodman, 1994), but it came close. Many newspapers picked up the story; the *Daily Telegraph* led with it. The *Guardian* put it on page 7, with the more sensible headline, 'Scientists reject *Panorama's* claims on Wi-Fi radiation risks'. This scare had echoes in a brilliant article ('The wrecking of British science', *Guardian*, 22 May 2007) in which Nobel laureate Professor Harry Kroto argued that we need a 'scientifically literate general population, capable of thinking rationally...'

But MTAS (Medical Training Application Service) trumps them all. Body parts are found in a laboratory, and the then Secretary of State Alan Milburn compares it with Belsen, castigates doctors, and demands an enquiry. The Bristol cardiac affair, Shipman, Ledward the fastest gynaecologist in the West: all prompted governments to sort us out so that we did our jobs properly. No one may actually have died – yet: who knows what will happen in August when there may not be enough doctors to staff the wards? – but the appalling incompetence of MTAS demands not just the lame enquiries to see what can be salvaged, but a proper public enquiry to determine what went wrong. **BJHM**

Goodman NW (1994) In the public's view... Media plug power problem. *Br J Hosp Med* **51**: 255

Goodman NW (1993) In the public's view... The rationale behind rationing. *Br J Hosp Med* **49**: 211

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