CASE REPORT

Doctor, I have a sore throat

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SUMMARY

Lemierre's syndrome is a rare yet potentially fatal cause of sore throat. Recently published literature suggests an increase in the incidence of this 'forgotten disease', highlighting Lemierre's syndrome as a clinically important differential diagnosis of sore throat. We present a case report of an 85-year-old man who developed a sore throat, which illustrates the re-emergence of Lemierre's syndrome. Reducing the morbidity and mortality from this disease requires a high index of clinical suspicion to ensure prompt diagnosis and initiation of appropriate multidisciplinary management.

BACKGROUND

'Sore throat' is one of the most common symptoms seen by physicians, accounting for up to 10% of presenting complaints in A&E and primary care. A recent study estimated the incidence of acute sore throat to be 33%/person/year for children aged 5–12 years, and 14%/person/year for adults.¹ The aetiology is usually viral, with a self-limiting course. However, investigations can be used to determine the causative organism.

Lemierre's syndrome is characterised by acute oropharyngeal infection with secondary internal jugular vein thrombophlebitis and septic pulmonary emboli. The predominant causative pathogen is *Fusobacterium necrophorum*, a Gram-negative anaerobic bacillus, which is a normal part of oropharyngeal flora.

It can be a potentially fatal complication of oropharyngeal infections, with an incidence of 1 case/million/year.²

In the preantibiotic era, this syndrome was common, and associated with a poor prognosis. However, since the widespread use of penicillin, Lemierre's syndrome has become the 'forgotten disease'.³

CASE PRESENTATION

An 85-year-old Caucasian man was admitted for an elective Hartmann's procedure for underlying rectosigmoid neoplasm. The upper rectum and entire sigmoid colon was resected, leaving a low rectal stump and end colostomy.

He had initially presented to his general practitioner with a change in bowel habit and intermittent bleeding per rectum.

His medical history included hypertension, transient ischaemic attack and active glaucoma. He was generally fit and well, lived at home with his wife and remained independent.

An uneventful low Hartmann's resection was performed. However, postoperatively, he developed

nausea and bilious vomiting which was associated with no stoma output.

Blood tests at the time showed haemoglobin 9.2×10^9 , white cell count (WCC) 6.5×10^9 , Na 134, K 3.7, urea 4, C reactive protein (CRP) 155 and albumin 19. He was managed for postoperative ileus with 'drip-and-suck' therapy, using a nasogastric tube and intravenous fluids.

On day 3 postprocedure, it was noted that the patient had a hoarse voice, and complained of a sore throat. No neck swelling was present on examination. The likely cause was deemed to be either trauma secondary to recent intubation or viral infection, both of which should be managed conservatively and observed.

In light of the patient's persistent postoperative ileus and catabolic state, the dietetic team considered it appropriate to start a total parenteral nutrition (TPN) regimen. Day 4 postsurgery, the patient underwent uncomplicated insertion of a central line.

However, during routine preprocedure ultrasound scan, a thrombus was visualised in the right internal jugular vein. The central line was therefore inserted into the left side.

Seven days postsurgery, the patient developed a temperature of 38.2°C , and sinus tachycardia with a heart rate of 110 bpm. His blood pressure remained stable at 120/70 mm Hg, respiratory rate 26/min and SpO_2 95% on 2 litres oxygen via nasal cannulae. Routine blood tests and blood cultures were taken as part of a septic screen.

Clinical examination revealed bibasal crepitations, right greater than left. Blood tests at the time revealed a WCC 12.1×10^9 and CRP 271. Chest x-ray showed right-sided basal consolidation. At this time, the patient still had no stoma output, therefore CT of abdomen/pelvis was performed; this remained in keeping with the ileus, with no sign of fluid collection.

Drawing together the patient's symptoms of a persistent sore throat, isolation of *F necrophorum* from blood cultures and radiological evidence of a jugular venous thrombus appeared to build an unusual case. Advice was sought from a consultant microbiologist who recommended a CT of the chest to investigate for radiological evidence suggestive of Lemierre's disease.

INVESTIGATIONS

Blood cultures: *F necrophorum* isolated.

Ultrasound scan of neck: echogenic thrombus visualised in right internal jugular vein (figure 1).

CXR: right-sided basal consolidation (figure 2).

Contrast-enhanced CT of the chest: patchy consolidation, bilateral pleural effusion and microemboli visualised on right side (figure 3).

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Figure 1 Ultrasound scan of the neck showing an echogenic thrombus in the right internal jugular vein.

DIFFERENTIAL DIAGNOSIS

- ▶ Iatrogenic injury due to intubation
- ▶ Acute bacterial pneumonia including atypical organisms
- ▶ Oral candidiasis
- ▶ Non-specific upper respiratory tract infection

TREATMENT

F necrophorum is generally highly susceptible to β -lactam antibiotics, metronidazole and clindamycin. The patient was treated with intravenous piperacillin-tazobactam and metronidazole. He was maintained on low-molecular-weight heparin throughout his inpatient stay.

OUTCOME AND FOLLOW-UP

Clinical, haematological and radiological evidence was amalgamated to diagnose Lemierre's disease. Prompt diagnosis and initiation of antibiotic treatment may have been responsible for preventing septicaemia. The patient made a full recovery, and his voice gradually returned to normal.

He progressed with multidisciplinary rehabilitation by physiotherapy, occupational therapy and dietician teams, before successful discharge home.

DISCUSSION

In 1936, Andre Lemierre published a case series of 20 patients with *Fusobacterium* sepsis complicating pharyngitis, which became known as Lemierre's syndrome.⁴

Figure 2 Chest X-ray showing right-sided basal consolidation.

Figure 3 Contrast-enhanced CT of the chest showing patchy consolidation, bilateral pleural effusions and microemboli on the right side.

It is not known why *F necrophorum* becomes pathogenic in certain individuals, although immunosuppression following another insult may contribute to its invasion.

With increasing use of penicillin in the 1960s and 1970s, the condition was only rarely reported and became the 'forgotten disease'.³

Thirty-six cases of Lemierre's syndrome were found in the literature between 1974 and 1989.⁵

However, in the last 10 years, more than 80 cases have been published. This apparent increased incidence may be due to less-frequent prescription of penicillin for upper respiratory tract infections, improved techniques for identification of *Fusobacterium* bacteria or increased resistance of this pathogen to certain antibiotics.^{6 7}

In our case, we hypothesise that the patient's overall immuno-compromised state due to surgery and the underlying neoplasm, together with his catabolic nutritional state, were contributing factors to developing Lemierre's syndrome.

Learning points

- ▶ The clinical dilemma is clear: blanket treatment using antibiotics for all cases of sore throat would unnecessarily treat viral infections, contribute to antibiotic resistance and have a risk of side effects.
- ▶ However, antibiotics are necessary to treat this particular bacterial disease and prevent associated complications.
- ▶ Recently, the published literature suggests an increased incidence of Lemierre's syndrome. This may be due to improved diagnosis, or a true resurgence resulting from antibiotic resistance or decreased antibiotic prescriptions for sore throat.
- ▶ Lemierre's syndrome is an uncommon, yet potentially fatal bacterial cause of sore throat. Many clinicians are unaware of the 'forgotten disease', leading to delayed diagnosis and treatment.⁸
- ▶ Differential diagnosis of sore throat should include Lemierre's syndrome. This disease is characterised by oropharyngeal infection, isolation of anaerobic pathogens, predominantly *F necrophorum*, and radiological evidence of internal jugular vein thrombosis or septic emboli.⁹
- ▶ Broad-spectrum antibiotics are required to treat Lemierre's syndrome and prevent recognised complications including potentially fatal septicaemia.
- ▶ A high index of clinical suspicion and multidisciplinary management are necessary to reduce morbidity and mortality from Lemierre's syndrome.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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