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Clinical Record

Lemierre's – the sinister sore throat

L M Brown, B Wallwork

Abstract
Lemierre's syndrome is a rare and sometimes life threatening condition that requires prompt management. A case is reported of a previously healthy young male with Lemierre's syndrome. He developed internal jugular vein and cavernous sinus thrombosis, metastatic abscesses in the temporal lobe and lungs, temporal lobe venous infarction and severe thrombocytopaenia. Discussed are aspects of clinical presentation, diagnosis and management issues.

Key words: Pharyngitis; Fusobacterium Infections; Cavernous Sinus Thrombosis; Thrombophlebitis

Introduction

A sore throat is a common minor ailment most will face during their lifetime, rarely however, this complaint can be a manifestation of a life threatening disorder. Lemierre's syndrome was first described by Lemierre in 1936 and further described as an acute anaerobic septicaemia following oropharyngeal infection complicated by internal jugular vein thrombosis and metastatic deposits to various body parts, especially the lungs.[1–5] The septicaemic disease is caused by *Fusobacterium necrophorum*, an anaerobic bacterium.

Lemierre's syndrome is predominately caused by oropharyngeal infection, but can also occur from other body sites including the dentition, sinuses and ears.[6] The mortality rate of Lemierre's syndrome has been quoted at 6.4 per cent to 17 per cent.[2,7]

We encountered a case of Lemierre's syndrome in a 24-year-old healthy male that had a remarkably good outcome. His case was complicated by internal jugular vein and cavernous sinus thrombosis, metastatic abscess in the temporal lobe and lungs and temporal lobe venous infarction. Cavernous sinus thrombosis with *F. necrophorum* Lemierre's has been mentioned in the literature rarely.[6,8,9] Cavernous sinus thrombosis alone has a mortality rate of 20–30 per cent.[10]

Case report

A 24-year-old man presented with a one week history of increasing sore throat, fever, headache, odynophagia and left submandibular swelling. On examination the patient was febrile and dehydrated with a swelling in the left soft palate, tonsil and upper lateral pharyngeal wall. There was also left V_1 and V_2 paraesthesia. A provisional diagnosis of left peritonsillar abscess was made for which he received intravenous clindamycin and dexamethasone.

Initial blood investigations revealed a neutrophilia, thrombocytopaenia and prolonged clotting. The morning after presentation he was started on intravenous vancomycin, metronidazole and ciprofloxacin. His thrombocytopaenia was thought to be secondary to sepsis.

Over the next day the patient remained febrile and his left V_1 and V_2 paraesthesia progressed. He then developed decreased visual acuity in the left eye, with no diplopia or palsy of extraocular movements. The diagnosis was revised to possible cavernous sinus thrombosis secondary to Lemierre's syndrome and internal jugular vein thrombophlebitis.

A computed tomography (CT) examination was performed demonstrating an extensive inflammatory process involving most of the masticator space with extension into the parapharyngeal space. There was partial thrombosis of the left jugular vein with a left cavernous sinus thrombosis. The CT also revealed a 2.5 cm × 2.5 cm abscess cavity with a central necrotic area in the upper lobe of the right lung (Figure 1).

Magnetic resonance imaging (MRI) further defined the left parapharyngeal and masticator space abscess that was multi-loculated and some 3 cms in diameter. There was associated thrombophlebitis of the left retromandibular vein, left cavernous sinus, left inferior and superior petrosal sinuses and left internal jugular vein. A haemorrhagic venous infarct in the left temporal lobe was also identified. The internal carotid artery showed a reduced luminal diameter below the skull base and was irregularly narrowed in the cavernous sinus.

The patient underwent left tonsillectomy and drainage of the parapharyngeal space abscess. Approximately 50 ml of purulent matter was drained. Prior to this procedure the patient received four units of platelets due to his thrombocytopaenia. Anticoagulation post-operatively was with clexane.

Blood cultures isolated *Fusobacterium necrophorum*. No bacteria were isolated from the pus drained during surgery and histology of the tonsils revealed an inflammatory process.

Over the next week with intravenous antibiotic therapy the patient became afebrile and his vision improved. He continued to complain of severe headaches and some short-term memory loss. Repeat MRI one week following admission demonstrated improvement in the infratemporal fossa. However, there was a temporal lobe abscess with the

From the Department of ENT Surgery, Princess Alexandra Hospital, Brisbane, Australia.
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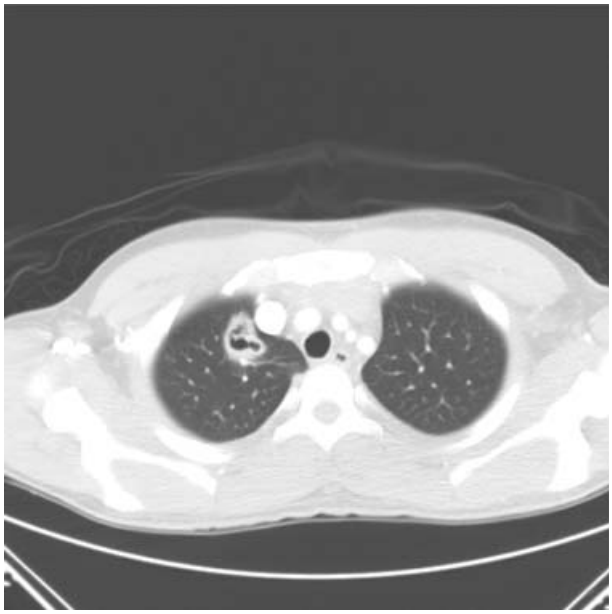

FIG. 1
Lung abscess

corresponding venous infarction still present (Figure 2). The cavernous sinus remained thrombosed. The temporal lobe abscess was treated conservatively with intravenous antibiotics.

The patient was discharged from hospital after approximately four weeks of intravenous antibiotics. He was discharged on oral metronidazole and moxifloxacin. At that stage his headaches had almost completely resolved and his visual acuity had returned to normal.

Discussion

Lemierre's syndrome has been described as an illness with significant mortality and morbidity. Lemierre's syndrome coupled with cavernous sinus thrombosis has an even worse prognosis. This case is an example of how early diagnosis and treatment can lead to a positive outcome.

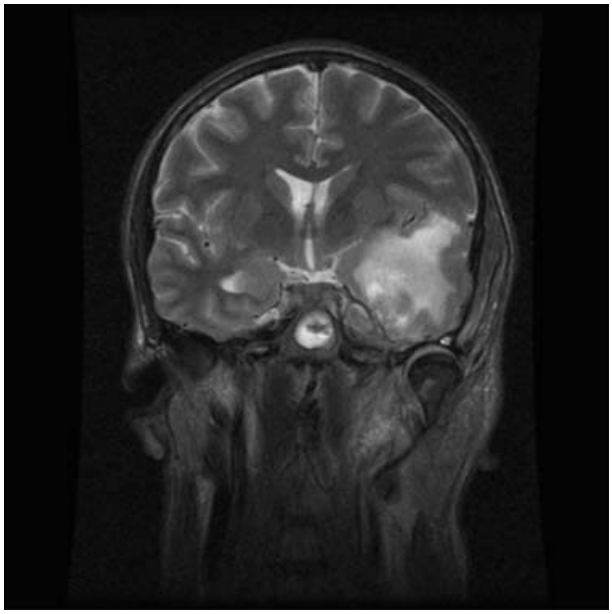

FIG. 2
Temporal lobe abscess

Early diagnosis is based on a clinician's knowledge of the symptomatology, early imaging and blood cultures. The diagnosis of Lemierre's disease is made by culture of *F. necrophorum* in 70 per cent of cases.[2] Blood cultures were initially taken in the hospital emergency department and were positive for *F. necrophorum*. Clinical 'red flags' in this case were persistent V_1 and V_2 paraesthesia and visual changes which suggested cavernous sinus involvement. This diagnosis was confirmed by early imaging with MRI and CT.

Treatment of *F. necrophorum* is with broad spectrum antibiotics and debridement of the primary infection. Optimal antibiotic therapy has not been established but throughout the literature a common theme emerges that anaerobic and beta-lactam cover is appropriate. The difficulty with this case was our patient had a penicillin and cephalosporin allergy. Therefore he was treated with intravenous metronidazole and vancomycin for several weeks.

- **Lemierre's disease starts as a simple sore throat**
- **The condition can become a life threatening condition if not diagnosed early**
- **This paper describes a case involving cavenous sinus thrombosis, lung and brain abscesses and brain venous infarction**

Anticoagulation for cavernous sinus thrombosis is controversial.[11] There are no randomised control trials in the literature that examine the benefits and risks of anticoagulation in cavernous sinus thrombosis due to the rarity of the condition. Retrospective reviews have indicated that anticoagulation may be beneficial. Thrombocytopaenia is a known consequence of Lemierre's syndrome (up to 23 per cent of cases) and is probably associated with severe sepsis. The patient was not anticoagulated initially due to risk of bleeding with severe thrombocytopaenia. This also posed a serious risk during debridement and four units of platelets were delivered just prior to surgery with no adverse affects. As the thrombocytopaenia resolved post-operatively, clexane was commenced for anticoagulation. This was stopped after a repeat MRI identified a temporal lobe abscess which was thought to present a significant risk of intracranial haemorrhage.

This case highlights that prompt diagnosis, imaging and treatment will lead to a good outcome for patients with severe complications of Lemierre's syndrome. Initial knowledge of the disease pathophysiology is essential and blood cultures are the gold standard for diagnosis. The most effective treatment is drainage of the primary infection and then adjuvant intravenous antibiotics.

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Address for correspondence:
Dr Lochlin Brown,
34 Mackay Tce,
Bardon,
Brisbane, Queensland,
Australia 4065.

E-mail: lochlin_brown@health.qld.gov.au

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