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LEMIERRE'S SYNDROME: METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA) FINDS A NEW HOME

Thomas P. Bentley, MD* and Daniel F. Brennan, MD*†‡

*Department of Emergency Medicine, Emergency Medicine Residency Program, Orlando Regional Medical Center, Orlando, Florida, †Department of Emergency Medicine, University of Florida College of Medicine, Gainesville, Florida, and ‡Department of Clinical Sciences, Florida State University College of Medicine, Orlando Campus, Tallahassee, Florida

Reprint Address: Daniel F. Brennan, MD, Department of Emergency Medicine, Orlando Regional Medical Center, 1414 S. Kuhl Avenue, Orlando, FL 32806-2093

□ **Abstract—Lemierre's syndrome is septic thrombophlebitis of the internal jugular vein, arising as a complication of an oropharyngeal infection. This thrombophlebitis frequently results in septic emboli to organs such as the lungs. The causative agent in most previously described cases is *Fusobacterium necrophorum*, an anaerobic Gram-negative organism. We present the case of an 8-year-old previously healthy girl who came to the Emergency Department with a 5-day history of left-sided neck pain and was subsequently diagnosed with methicillin-resistant *Staphylococcus aureus* (MRSA) Lemierre's syndrome. MRSA has not previously been described in Lemierre's syndrome in the Emergency Medicine literature. The clinical presentation, findings, and management of the syndrome are discussed. Regardless of etiology, once the diagnosis of Lemierre's syndrome is made, long-term broad-spectrum intravenous therapy will be necessary.**

□ **Keywords—Lemierre's syndrome; septic thrombophlebitis; methicillin-resistant *Staphylococcus aureus*; septic emboli**

INTRODUCTION

Oropharyngeal infection, coupled with the finding of internal jugular vein thrombosis, should raise the clinical suspicion of Lemierre's syndrome. Lemierre, in 1936, first described the above findings as post-anginal septicemia (1). Rapidly progressing septic emboli and sepsis were common sequelae in the pre-antibiotic era, with death 1 to 2 weeks after onset of symptoms. The long-term incidence of Lemierre's syndrome has declined greatly with the common use of penicillin to treat pharyngeal infections, although over the past decade incidence seems to be increasing (2–4).

The most commonly described etiologic agent of Lemierre's syndrome is the anaerobic Gram-negative organism *Fusobacterium necrophorum*, found in approximately 81.7% of cases recently reviewed (5).

CASE REPORT

An 8-year-old previously healthy girl presented to the Emergency Department with a 5-day history of left-sided neck pain. The child's neck pain began after playing in a swimming pool. The following day the patient began having subjective fevers and was taken to an outside facility for treatment. She was diagnosed with torticollis and placed on ibuprofen. Severe neck pain continued, and after 3 more days of fever and discomfort, the parents sought further medical attention. There was no antecedent complaint of sore throat.

On initial physical examination, the girl was febrile with an oral temperature of 40°C (104°F). Other vital signs

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revealed blood pressure was 100/60 mm Hg, pulse 140 beats/min, and respirations 42 breaths/min. Her oxygen saturation on room air was 93%. The patient appeared sleepy but was arousable. There was mild erythema of the oropharynx, with thick, white exudates present. She had mild swelling and tenderness of the left lateral neck, with resistance to flexion and rotation. The chest examination revealed decreased breath sounds bilaterally, with crackles heard throughout all fields. The remainder of the physical examination was unremarkable.

Initial laboratory studies included a white blood cell count of 17,700 cells/mm^3, with a differential of 12% neutrophils, 57% bands; hemoglobin of 10.8 g/dL; hematocrit 31.9%; and platelet count of 185,000/mm^3. Electrolytes, renal function, and bicarbonate were within normal limits; glucose was 293 mg/dL. Lumbar puncture revealed cerebrospinal fluid (CSF) protein of 86 mg/dL, glucose 63 mg/dL, red blood cells 39/mm^3, and white blood cells 745/mm^3, with a differential of 73% neutrophils, 21% monocytes, and 6% lymphocytes. Initial CSF Gram's stain was negative for organisms, and cultures yielded no growth.

Initial radiological findings (Figure 1) showed extensive pulmonary nodular infiltrates suspicious for septic emboli. A computed tomography (CT) scan of the neck showed partial thrombosis of the left internal jugular vein (Figure 1C). An ultrasound of the neck demonstrated no spontaneous or phasic flow in the left internal jugular vein.

Blood cultures were obtained and antibiotic therapy was begun with vancomycin, ceftriaxone, clindamycin, and metronidazole. On the third hospital day, three separate initial blood cultures grew methicillin-resistant *Staphylococcus aureus* (MRSA), sensitive to vancomycin, trimethoprim/sulfamethoxazole, and rifampin. Repeat cultures on hospital days 3, 5, and 6 also grew MRSA. Eventually, rifampin and gentamicin were added to vancomycin for synergy. The antibiotic regimen was continued for 6 weeks from the last positive blood culture, for a total of 51 days of antimicrobial treatment.

The patient was discharged on hospital day 30. A repeat CT scan of the chest taken 3 weeks into the patient's hospitalization showed improving bilateral pleural effusions and infiltrates. On the day of discharge, the patient was asymptomatic with oxygen saturation on room air of 100%. Daily aspirin was initiated to prevent further clot formation.

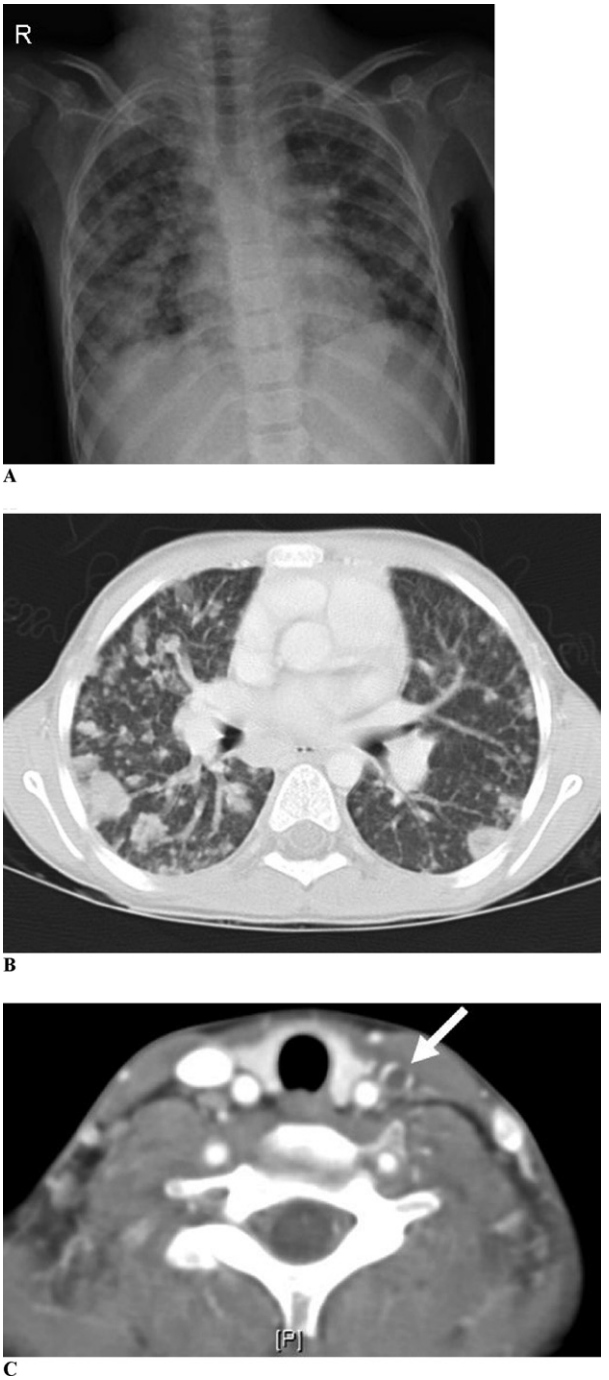

Figure 1. Radiographic findings. (A) Chest radiograph performed in the Emergency Department: bilateral extensive pulmonary infiltrates. (B) Chest computed tomography (CT) scan: Nodular densities, more extensive peripherally and on the right. (C) CT scan of the neck, with contrast: Left internal jugular vein without contrast opacification (arrow).

DISCUSSION

Lemierre's syndrome typically presents in a previously healthy adolescent. The rate of disease is 0.8 per 1,000,000 people per year (4). In the pre-antibiotic era, Lemierre's syndrome was fatal in 90% of the cases documented. With current antimicrobial therapy, mortality has been decreased to 6–7.5% (5–7).