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Case Report

Lemierre's syndrome: A rare cause of septic emboli in a young adult ☆

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ABSTRACT

Lemierre's syndrome is a deadly disease that is often over-looked due to its rarity. In this report, a 21-year-old Caucasian woman, with no past medical history, presented to a walk-in in clinic and twice to an emergency department between January 30th, 2020 and February 5th, 2020 for progression of fevers, sore throat, neck, and pleuritic chest pain. The patient was sent home her first 2 visits with an incorrect diagnosis. Despite having a presentation consistent with Lemierre's syndrome, on her third visit, she underwent an extensive work-up investigating other etiologies prior to receiving a correct diagnosis and adequate treatment. This case demonstrates how a thorough history and physical exam can aid Radiologists in expediting the diagnostic process for a potentially fatal disease. Although rare, a history of pharyngitis and neck pain in a septic patient should help Radiologists to exclude more common etiologies which, through their investigations, prolong life-saving treatment.

Introduction

Lemierre's syndrome occurs when a preceding pharyngitis allows gram negative anaerobes to invade the parapharyngeal space and seed the internal jugular vein. The resulting septic thrombus then serves as a source of bacterial emboli that usually manifest in the lungs. Victims will present febrile, in respiratory distress with neck and pleuritic chest pain [1]. Credit for the characterization of this disease is given to French Bacteriologist, André Lemierre, who published a case series consisting of 20 patients, reporting a 90% mortality back in 1936 [2]. Despite impressive advancements in medicinal sciences, the syndrome still boasts a mortality rate that approaches 15% [3]. Interestingly, Lemierre's syndrome tends to occur in healthy, younger individuals between the ages of 15 and 30 years and has a prevalence of 3-4 cases per million individuals [4]. Although rare, the high mortality coupled to an otherwise healthy patient population has prompted interest to better understand this disease.

Case report

A 21-year-old Caucasian woman with no past medical history consulted a walk-in clinic on January 30th, 2020 with sore throat, weakness, and malaise. She tested positive for flu and

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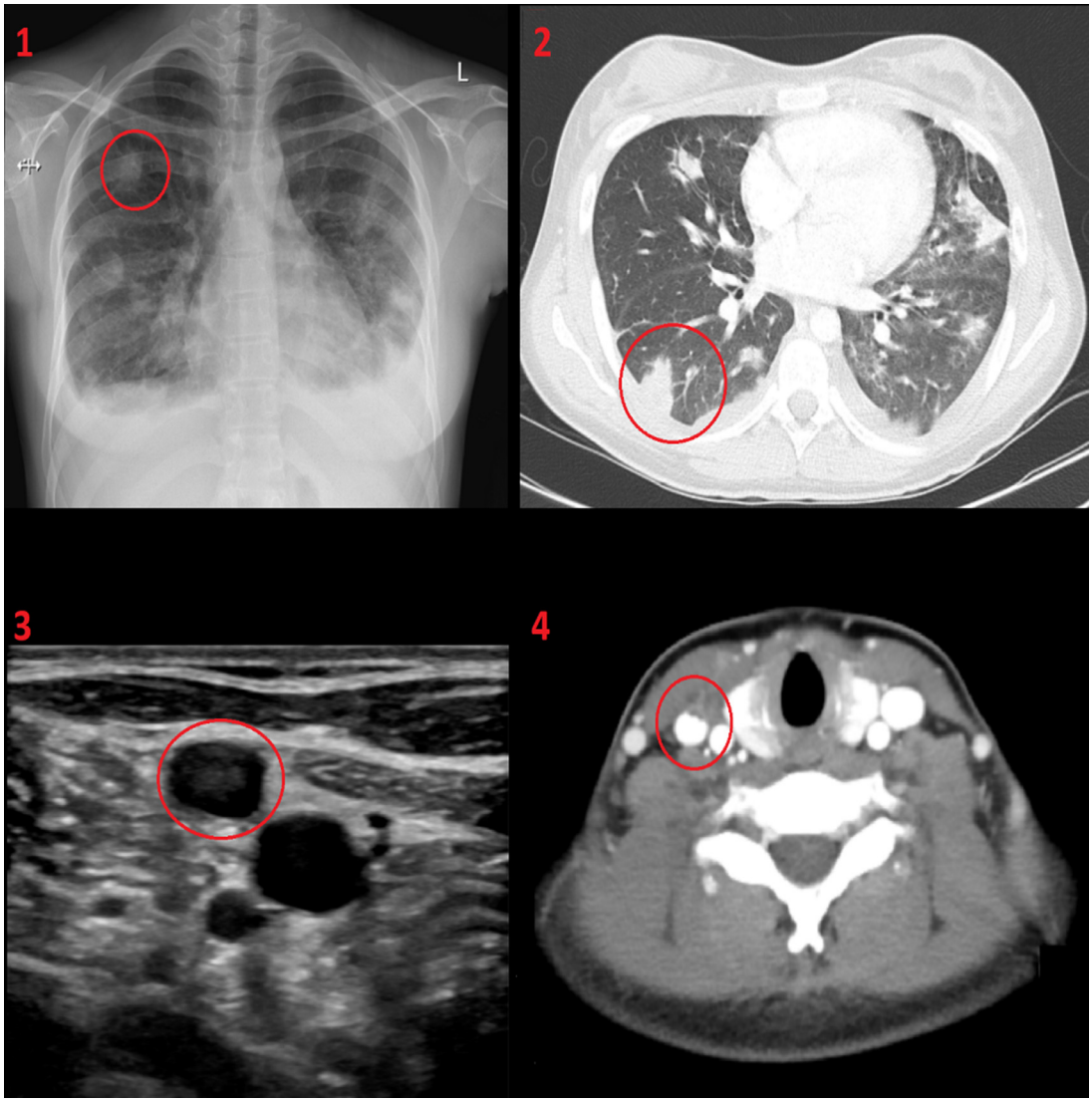

Figs. 1–4 – Fig. 1– AP Chest X-Ray showing multifocal bilateral lung opacities (*top left*).
Fig. 2– CT Chest with Contrast, transverse section, showing multiple peripheral nodular opacifications (*top right*).
Fig. 3– Ultrasound Soft Tissue Neck showing thrombus in right internal jugular vein (*bottom left*).
Fig. 4– CT Neck with Contrast, transverse section, showing thrombus in right internal jugular vein (*bottom right*).

was given a prescription for Tamiflu. On February 1st, the patient began having fevers and pleuritic chest pain. She consulted an emergency department in Baltimore, MD and was placed on azithromycin for a suspected superimposed pneumonia and sent home. By February 5th, the patient returned to the emergency department febrile with 9/10 pleuritic chest pain and hemoptysis. Vitals on admission showed a temperature of 38°C, pulse of 117, respiratory rate of 54, blood pressure of 134/78 mmHg and a pulse oximeter reading of 88% on room air. Physical exam was notable for warm and diaphoretic skin, diffuse inspiratory crackles on auscultation throughout the lung fields, tenderness to palpation along the middle third of the right sternocleidomastoid and an enlarged erythematous right palatine tonsil. Laboratory studies showed a white blood cell count of 19,900 and neutrophil percentage of 79.6. A Chest X-Ray was conducted the day of admission (Fig. 1) that showed multifocal bilateral lung opacities. This was followed up with a CT Chest (Fig. 2) where the report read bilateral peripheral nodular opacifications consistent with septic emboli. The patient was placed on broad spectrum antibiotic coverage with Vancomycin and Zosyn. A transthoracic echocardiogram was done to investigate suspected infective endocarditis but came up negative. On February 7th, blood culture grew the gram-negative anaerobe, porphyromonas asaccharolytica. Native to the oral flora, a head and neck soft tissue ultrasound was ordered (Fig. 3). This study showed a thrombus in the internal jugular vein that was confirmed with a CT of the neck with contrast (Fig. 4). With the bacteria and source identified, the patient had a peripherally inserted central line implemented February 10th and was started on Ertapenem 1 gram every 24

hours and was discharged home. The patient continued on this regimen until March 6th at which time she reported a full recovery.

Discussion

Although a zebra among horses, the importance in prompt recognition of Lemierre's Syndrome cannot be understated. Even with appropriate medicinal intervention, mortality has an upward estimate of 15% [3]. Fortunately, this disease has unique features that should help to delineate its identity from distractors. In review of multiple case reports, the typical presentation includes a previously healthy young adult who presents febrile, in respiratory distress with pleuritic chest pain [4–6]. The unique attributes that should raise high suspicion for Lemierre's syndrome include a preceding or existing pharyngitis, peritonsillar abscess and neck pain or swelling [7–9]. Although this patient had a history and presentation that suggested Lemierre's Syndrome, she was initially sent home with inadequate treatment for an incorrect diagnosis. With her return and progression of symptoms, a workup was done to investigate more typical sources of septic emboli that came back negative. It was not until the results of a blood culture returned that better targeted studies were undertaken. With the internal jugular vein revealed as the source of her emboli, appropriate therapy was initiated. However, this occurred 5 days after her first emergency department visit.

This case demonstrates how a thorough history and physical exam can expedite the diagnostic process for a deadly disease. Although Lemierre's syndrome is rare, a history of pharyngitis and neck pain in a septic patient should help to exclude more common etiologies which, through their investigations, prolong life-saving treatment.

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