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CLINICAL COMMUNICATIONS TO THE EDITOR

Lemierre's Syndrome: More Judicious Antibiotic Prescribing Habits May Lead to the Clinical Reappearance of This Often Forgotten Disease

To the Editor:

In 1936, Dr Andre Lemierre first described a subgroup of otherwise young, healthy patients characterized by pharyngotonsillitis or peritonsillar abscess that was commonly followed by swelling and tenderness of the lateral neck and anterior cervical triangle. This swelling resulted from septic thrombophlebitis of the corresponding ipsilateral internal jugular vein. These patients exhibited signs of bacteremia within 1 week of initial nonspecific upper respiratory tract infection. Lemierre stated "the syndrome is so characteristic that it permits a diagnosis before bacteriological examination has provided conclusive proof."[1] Today, Lemierre's syndrome is characterized by a primary oropharyngeal infection with evidence of septic thrombophlebitis exhibited by positive blood cultures, clinical or radiographic confirmation of internal jugular vein thrombosis, and at least one metastatic focus.[2] The incidence of Lemierre's syndrome is nearly one in a million.[3] The syndrome was rarely reported during the 1960s and 1970s, when penicillin was frequently used to treat pharyngeal infections. Today, antibiotic-resistant organisms are a large clinical concern, thus governing more prudent and judicious prescribing of antibiotics. Subsequent reemergence of this forgotten disease may become much more common in the clinical setting. It is imperative to accurately diagnose and treat appropriately during the initial clinical presentation to avoid untoward morbidity and mortality. We present a case of Lemierre's syndrome initially diagnosed as a viral upper respiratory tract infection.

CASE REPORT

An 18-year-old previously healthy male presented to the emergency department with a chief complaint of sore throat, fever, right-sided neck pain, and nonproductive cough. Physical examination revealed posterior pharyngeal hyperemia and minimal erythema over the right anterior cervical triangle. The patient was diagnosed with a viral upper respiratory tract infection and treated supportively. Twenty-four hours after the initial presentation, the patient returned to the emergency department with additional complaints of dyspnea and blood-tinged sputum production. Radiographic evaluation, blood cultures, and routine blood chemistries were obtained. The workup revealed a right lower lobe infiltrate with a large parapneumonic effusion and compressive atelectasis (Figure 1). The patient was admitted with a diagnosis of community-acquired pneumonia and started on appropriate antibiotic coverage. Over the next 24 hours, the patient experienced ongoing fever and worsening dyspnea and hypoxia. Computed tomography (CT) scan of the chest was obtained and revealed a large right pleural effusion with areas of parenchymal opacity and associated bullae formation suggestive of pulmonary abscesses located in the medial aspect of the right upper lobe and the superior segment of the left lower lobe (Figures 2,3). Interim blood cultures grew fusobacterium varium. The patient then underwent diagnostic and therapeutic thoracentesis for presumed complicated parapneumonic effusion versus empyema. Pleural fluid cultures identified fusobacterium varium. The patient ultimately required open thoracotomy and surgical evacuation of the exudative effusion.

ETIOLOGY AND PATHOGENESIS

Fusobacterium species are normal flora in the gastrointestinal tract. The exact mechanism of invasion and penetration of the pharyngeal mucosa has not been determined. Current hypotheses include the help of an underlying synergistic infectious process, either viral or bacterial, with a concomitant decline in host resistance.[4] Epstein-Barr virus often coexists in these patients and likely leads to a decrease in host immune defenses.[5] Once invasion of the internal jugular vein is achieved, the resultant bacteremia triggers platelet aggregation and thrombus formation.[6] Thrombus formation and rapid bacterial growth result in a nidus for metastatic septic emboli.

DIAGNOSIS

The primary clinical features of Lemierre's syndrome are: primary infection of the oropharynx, bacteremia, radiographic or clinical evidence of internal jugular vein thrombosis, and one or more septic metastatic foci. Diagnosis is made by accurate history and physical examination. Suspect the syndrome in young, otherwise healthy patients who

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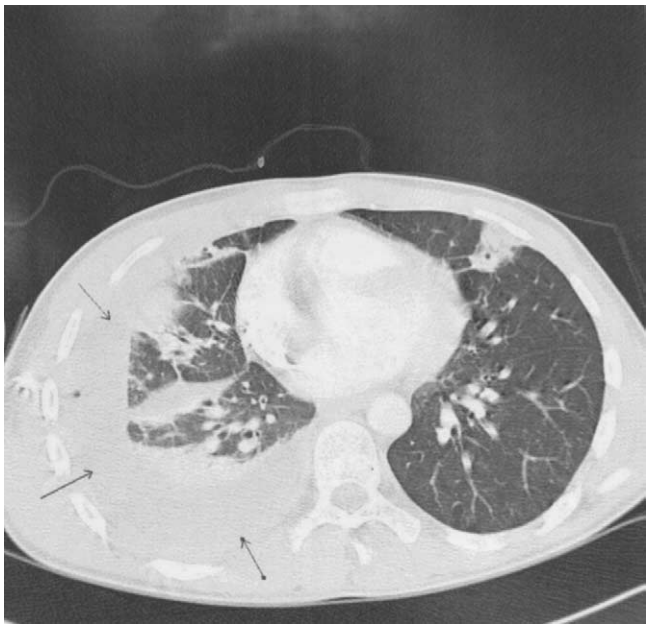

Figure 1 Right lower lobe infiltrate with large parapneumonic effusion and compressive atelectasis (arrows).

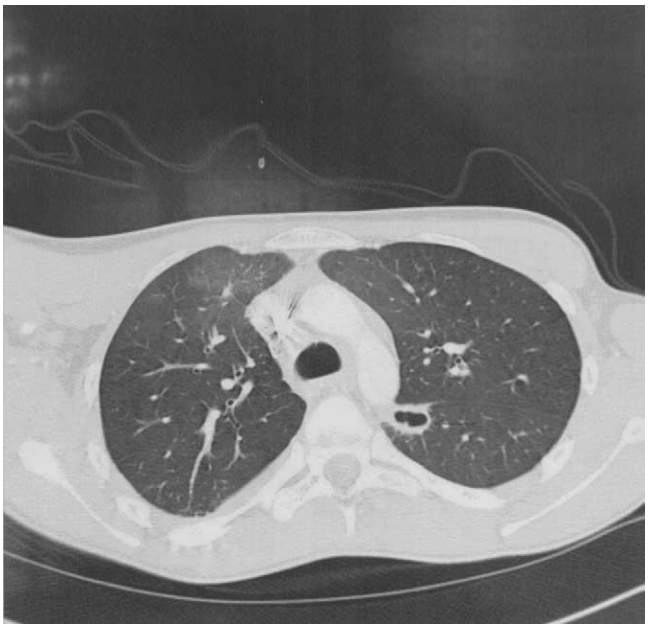

Figure 3 Pulmonary abscess located in the superior segment of the left lower lobe.

have an underlying oropharyngeal infection and follow an unexpected clinical course requiring hospitalization for sepsis and worsening pulmonary symptoms in the setting of a recent pharyngeal or upper respiratory tract infection. The initial symptoms of Lemierre's syndrome are nonspecific and include fever, sore throat, lateral neck tenderness, arthralgia, and pulmonary symptomatology. The patient's lateral neck swelling and tenderness, which represents thrombophlebitis of the internal jugular or surrounding veins, is often mistaken for cervical lymphadenopathy. Emboli from these veins metastasize to the pulmonary vasculature in up to 85% of patients, resulting in complicated pleural effusions, pulmonary abscesses, and empyema.[3] Other manifestations include localized arthralgias and diffuse abdominal pain, which may represent septic embolic seeding of joint spaces and abdominal microabscesses.[7] Abnormal coagulation studies and liver function tests in the setting of hepatic seeding and abscess formation may also be seen.[3] Imaging of the internal jugular and associated veins may be accomplished by using ultrasound, CT scan, or magnetic resonance imaging (MRI) to establish the presence of thrombophlebitis.[8] When the diagnosis of Lemierre's syndrome is suspected, CT scan of the chest should be obtained to ascertain pulmonary involvement in the form of septic pulmonary infarcts (Figures 2,3).

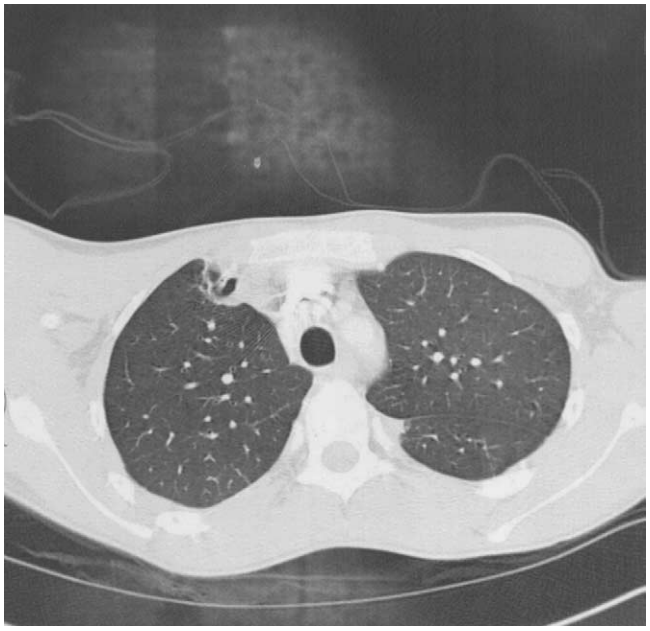

Figure 2 Pulmonary abscess located in the medial aspect of the right upper lobe.

TREATMENT

Recommended treatment of fusobacterium species in Lemierre's syndrome is combination therapy with parenteral high dose penicillin and metronidazole. Intravenous clindamycin may be substituted in pencillin-allergic patients.[9] Pulmonary abscesses and empyema must be addressed with definitive surgical drainage and evacuation. The role of anticoagulant therapy is controversial and it is not presently recommended as standard of care.[10]

CONCLUSION

Lemierre's syndrome is a complication of pharyngeal infections in which fusobacterium species cause a suppurative thrombophlebitis involving the internal jugular and surrounding veins, leading to metastatic septic embolization, bacteremia, and significant morbidity and mortality. Suspect

Lemierre's syndrome in previously healthy patients with a recent history of primary oropharyngeal infection who fail to respond appropriately to conservative management and quickly go on to develop bacteremia and worsening pulmonary symptoms. Diagnosis is clinical, and early suspicion is crucial so that appropriate evaluation and antibiotic therapy can be instituted. More prudent and judicious antibiotic-prescribing habits in the setting of upper respiratory tract symptoms attributed to viral etiologies may lead to a clinical reappearance of this often forgotten disease.

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