Lemierre's syndrome: A re-emerging infection

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ABSTRACT

Lemierre's syndrome (LS) or suppurative thrombophlebitis of the jugular vein most often arises as a complication of head and neck infections. LS was more common before the antimicrobial era but the incidence decreased during the 1960s with increased use of penicillin for bacterial throat infections. However, the incidence is now increasing. Though the protean manifestations make recognition difficult, a recent history of sore throat and septic emboli in the lungs should prompt consideration of LS.

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Case

A 20 year-old male presented with fever, neck pain and headache. One week prior, he had a sore throat and was prescribed amoxicillin, which was stopped when the throat culture was negative. His sore throat improved but he developed a severe headache with radiation to the left posterior neck. He went to an emergency room where his temperature was 101 °F, and his oxygen saturation was 93 % on room air. Physical examination was unremarkable on admission. His white blood cell was 23.6 × 10^3 /μL, basic metabolic panel, brain computed tomography (CT), and cerebrospinal fluid were unremarkable. Chest CT revealed multifocal nodular lung lesions (Fig. 1-A). He was started on ceftriaxone and doxycycline for presumed lung infection. Two days later, he could not move his neck due to pain and left neck swelling and tenderness was observed. Two sets of blood cultures grew Fusobacterium necrophorum and a neck CT demonstrated oclusive thrombophlebitis of a branch of the left internal jugular vein (Fig. 2-A and B). He was diagnosed with Lemierre’s syndrome (LS); antibacterial treatment was changed to ertapenem. Six days later he developed chest pain, and a repeat chest CT showed a worsening loculated right pleural fluid collection (Fig. 1-B). The patient underwent thoracoscopic decortication with chest tube placement. He completed 2 weeks of intravenous ertapenem, followed by 4 weeks of oral amoxicillin/clavulanate.

Discussion

The differential diagnosis for sore throat or neck swelling is very broad. Infectious etiologies include Epstein-Barr virus, cytomegalovirus, acute human immunodeficiency virus, peritonsillar abscess, retropharyngeal abscess, submandibular space infections (Ludwig’s angina), and acute suppurative parotitis. Non-infectious etiologies include malignancy, sarcoidosis and Sjögren’s syndrome. LS or suppurative thrombophlebitis of the jugular vein most often arises as a complication of head and neck infections and is often complicated by distant septic emboli [1]. LS usually affects healthy adolescents and young adults. F. necrophorum is the most common etiologic agent [1]. These anaerobic gram-negative rods can be commensal oral flora [1]. LS was more common before the antimicrobial era but the incidence decreased during the 1960s with increased use of penicillin for bacterial throat infections. However, the incidence is increasing [2,3]. Most patients with LS have sore throat (97 %) and pulmonary involvement (85 %), including empyema (25 %), and many have neck pain (64 %) [4]. Diagnostic testing should include blood cultures and CT scan or ultrasound of the neck to visualize the jugular vein. Antimicrobial therapy should cover oral anaerobes; commonly used agents include ampicillin/subactam, piperacillin/tazobactam, clindamycin, and carbapenems. Therapy should be based on antimicrobial susceptibility results because some F. necrophorum are resistant to some agents [1,5]. The optimal treatment duration has not been defined but patients are usually treated for 4–6 weeks. Use of anticoagulation to prevent thrombus embolization is controversial and generally not recommended [1]. The mortality rate is 5 % [4]. Delays in antimicrobial therapy may be associated with higher risk of death. Thus, providers should know the typical presentations and the appropriate diagnostic tests.
**Fig. 1.** -A: Chest CT demonstrated multifocal scattered nodular lesions and small bilateral pleural effusions. -B: Chest CT revealed a large loculated right pleural fluid collection along the posterior and lateral right chest wall, concerning for empyema.

**Fig. 2.** -A: CT Larynx/soft tissue neck with contrast revealed occlusive thrombophlebitis of a branch of the left internal jugular vein at its origin, likely the facial vein. (axial view). -B (coronal view).
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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

TK wrote the first draft of the manuscript and LH critically reviewed and revised the manuscript. All authors read and approved the final paper.

Declaration of Competing Interest

None.

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