Introduction:
Sore throat is a very common reason for ambulatory medical care visits. Many cases of pharyngitis, and of viral origin and receive within 3-5 days, with no serious clinical sequelae. However, when a patient’s symptoms persist or worsen, a more careful diagnostic and therapeutic approach is needed. Lemierre's syndrome is a rare complication of bacterial pharyngitis caused by the anaerobic bacterium Fusobacterium necrophorum. It occurs primarily in healthy young adults and adolescents. Lemierre's syndrome is characterized by extension of the originally localized oropharyngeal infection to the lateral pharyngeal space and soft tissues of the neck. This extension results in lesions of the internal jugular vein resulting in septic thrombophlebitis. In turn, bacteremia and the release of septic emboli into the systemic circulation occur, resulting in metastatic infections, significant morbidity and potentially death.

Learning Objectives:
To familiar with the differential diagnosis of worsening pharyngitis, and to become aware of the potential for serious complications of persistent or worsening acute pharyngitis including Lemierre’s syndrome.

Case Report
Medical Care Visit # 1: Urgent Care. Day 1.
A 25-year-old woman with a past medical history of myopericarditis, anxiety, ADHD, and major depressive disorder presented to an urgent care center for a 5-day history of sore throat, generalized body aches, and nasal congestion. Rapid strep and flu tests were negative. The patient was diagnosed with laryngitis and was treated with azithromycin for 5 days, a nasal decongestant, and guaifenesin.

Medical Care Visit # 2: ED with Hospital Admission. Day 4.
However, over the next several days her pharyngitis worsened, and she developed dysphagia, odynophagia, trismus, hoarseness of voice, fever, and chills. She then presented to the ED to have a temperature of 103.2, heart rate of 140, blood pressure of 81/49, respiratory rate of 20, and SpO2 of 99% on room air. Physical exam revealed a toxic-appearance, muffled voice, oropharynx with erythema and exudate, and right neck and submandibular region tender to palpation with lymphadenopathy. Labs were notable for WBC 11.8, lactate 2.2, and negative Group A Strep, RPR and mononucleosis tests. Blood cultures were obtained. A CT soft tissue neck revealed extensive soft tissue swelling and induration extending from right oropharynx to larynx. ENT performed a flexible fiberoptic laryngoscopy which showed edema and resultant narrowing at level of hypopharynx without airway compromise. She was started on amoxicillin-clavulanate, IV dexamethasone, and was admitted for further care. Further evaluation revealed Fusobacterium necrophorum and Streptococcus constellatus. A trans-thoracic echocardiogram showed no evidence of endocarditis, and a Panorex x-ray was negative for dental complications. She was discharged home on amoxicillin-clavulanate.

Medical Care Visit # 3: Primary Care Doctor. Day 6.
However, 2 days after hospital discharge, the patient returned to her primary care physician with upper right-sided back pain, extreme fatigue, and cough productive of yellow sputum. She had no pharyngitis, dysphagia, fever, or chills. The patient was diagnosed with muscle spasm and received a prescription for an anti-spasmodic for back pain.

Medical Care Visit # 4: Primary Care Doctor. Day 9.
Three days after seeing her primary care physician for back pain, the patient returned again to her PCP with persistent back pain, fatigue, and productive cough. A CXR was performed and revealed significant right-sided consolidation and pleural effusion. She was diagnosed with pneumonia and referred to the ED for further evaluation.

Discussion
The previously healthy 25 year-old patient in this case report presented with a persistent sore throat. Unfortunately, she had developed a potentially devastating complication of Fusobacterium necrophorum pharyngitis called Lemierre’s syndrome. It is important for clinicians to be aware of the differential diagnosis of worsening pharyngitis and the potential for serious clinical sequelae of sore throat.

The differential diagnosis of worsening pharyngitis includes non-group A Streptococcus, untreated group A streptococci, infectious mononucleosis, acute HIV infection, penicillin abscess, and Lemierre’s syndrome.

Lemierre’s syndrome occurs most frequently in young adults and adolescents. It begins with a sore throat caused by the anaerobic bacterium Fusobacterium necrophorum, which is a part of the normal pharyngeal flora. The initial pharyngitis usually improves after the first 4-5 days. However, pharyngitis then recurs and is accompanied by new symptoms of bacteremia, such as fever, rigors, and night sweats. The oropharyngeal infection then spreads to adjacent neck and pharyngeal tissues. Patients then develop septic internal jugular vein thrombophlebitis, which in turn results in the release of septic emboli into the systemic circulation. Septic emboli cause metastatic infections which occur especially in the lungs, joints, or brain. Patients with Lemierre’s syndrome have an estimated mortality rate of 5-18%, and can have significant short- and long-term morbidity, including osteomyelitis, meningitis, and acute respiratory distress syndrome.

This case illustrates the potential for serious complications of “just a sore throat.” We are wise to remember clinical features that suggest a bacterial rather than viral cause for pharyngitis. Red flags such as persistent pharyngitis, high fever, shaking chills, rigors, night sweats and unilateral neck swelling indicate a much more serious illness, including the potentially fatal Lemierre’s syndrome. The clinician must be aware of the association between a recent pharyngeal infection and potential serious sequelae such as Lemierre’s syndrome.

Selected References