

## Case Report

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# Lemierre's Syndrome

Abduallah Mawkili

An den Vossbergen 49 A 26133 Oldenburg Deutschland, Germany

### \*Corresponding author

Abduallah Mawkili, An den Vossbergen 49 A 26133 Oldenburg Deutschland, Germany, E-mail: mawkili@hotmail.com

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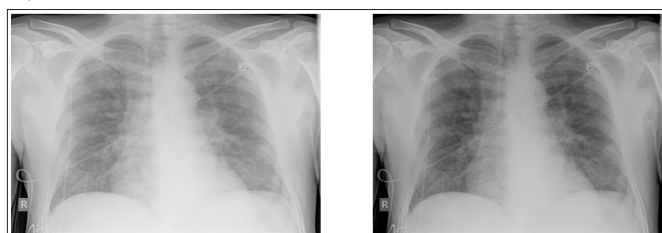
### Introduction

*Fusobacterium necrophorum* is a non-spore forming anaerobic gram-negative bacillus and has traditionally been associated with Lemierre's syndrome, an infectious thrombophlebitis of the internal jugular vein. *Fusobacterium necrophorum* is commonly associated with pharyngitis, tonsillitis and peritonsillar abscesses similar to that of group A streptococcus, and is accounted for up to 10% of cases of pharyngitis in adolescents and young adults [1]. Lemierre disease, which was first described in 1936, is a clinical syndrome characterized by tonsillitis or peritonsillar abscess as an initial presentation which then progresses to septic thrombophlebitis of the internal jugular vein, bacteraemia, septic emboli, metastatic infections such as pulmonary abscess and even death [2,3]. While pharyngitis or tonsillitis are accounted for majority of cases of Lemierre's syndrome, pneumonia or chest empyema is the most common metastatic site of this infection [3].

### Case presentation

A 52-year-old male who presented to Emergency department with a 5 days history of neck pain, fatigue, productive cough and fever. He had developed pharyngitis 2 weeks prior to his current presentation. His physical exam revealed a blood pressure of 100/65 mmHg, tachycardia with a heart rate at 122 beats per minute, tachypnea with a respiratory rate of 25 breaths per minute, temperature 40.1 °C, oxyhemoglobin saturation of 96% on 2 liters per minutes supplemental oxygen via nasal cannula. His chest auscultation reveals diminished breath sounds bilaterally over the lung bases.

A complete blood count showed leukocytosis with WBC of  $15.8 \times 10^3$ , CRP 10.4 mg/dl (Norm <1.0 mg/dl). Two blood culture samples were collected from two different sites. A chest x-ray demonstrated bilateral patchy pulmonary infiltrate (Figure. 1.1, 1.2)

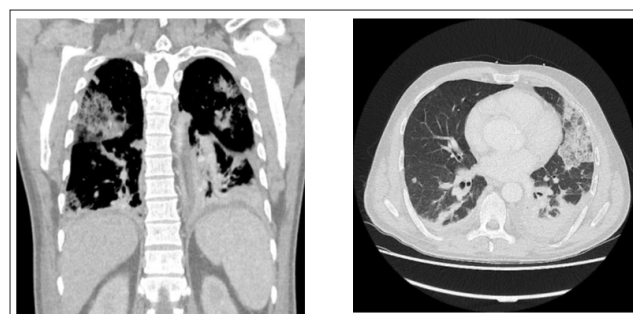


**Figure 1**

**Figure 2**

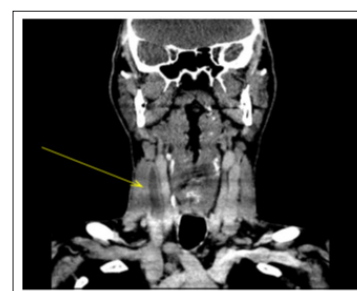
CT-Thorax with contrast showed partly streaky and frosted-glass-like, partly consolidating, bipulmonary densities predominantly

in the basolateral part of the right upper lobe and in the left lower lobe (Figure: 2.1, 2.2), CT Neck, Figure: 3



**Figure 2.1**

**Figure 2.2**



**Figure 3**

The patient's respiratory status deteriorated with worsening tachypnea and increasing oxygen requirements. He was placed on (15 L per minutes supplemental oxygen via nonrebreather), and admitted to the intensive care unit. He was started empirically on meropenem 1 g intravenously every 8 hours and clarithromycin 500 mg orally every 12 hours. Two days later, blood cultures returned back positive for *Fusobacterium necrophorum*, the most common pathogen for Lemierre's syndrome.

Subsequently, doppler ultrasound examination of internal jugular veins was performed which demonstrated a thrombosis of the right internal jugular vein.

Operative thrombectomy and ligation of the right internal jugular vein are performed. The tissue pathology showed thrombosed vein with suppurative thrombophlebitis. Antibiotic therapy was then narrowed down to Ampicillin/Sulbactam 3g i.v. + Metronidazole

500mg 1-1-1 i.v. for total of two weeks followed by additional two weeks of oral amoxicillin 875 mg every 12 hours. A follow up 2 weeks later, showed complete resolution of cough and shortness of breath. The patient received anticoagulation initially with low molecular weight heparin then rivaroxaban.

### Discussion

*Fusobacterium necrophorum*, a member of normal flora of oropharyngeal cavity in humans and animals, is an obligate anaerobe that can result in a potentially devastating suppurative infection [4]. It has been commonly associated with Lemierre's disease, a syndrome characterized by tonsillitis followed by suppurative thrombophlebitis of the internal jugular vein[5,6]. *Fusobacterium* is typically penicillin sensitive, but treatment failure with penicillin and beta lactamase production by *Fusobacterium* had been reported. Empiric therapy of head and neck thrombophlebitis typically includes a beta lactam with beta lactamase inhibitor such as ampicillin-salbactam, piperacillin-tazobactam, ticarcillin-clavulanate or monotherapy with a carbapenem [7]. The duration of antibiotic therapy is unclear. Typically, a patient with superficial thrombophlebitis receives two weeks of intravenous antibiotics followed by an additional course of oral antibiotics [8,9].

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