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Letter to the Editor

Pulmonary empyema caused by co-infections of *Mycoplasma pneumoniae* and *Fusobacterium necrophorum*: A rare case of Lemierre syndrome



Dear Editor,

Lemierre syndrome, also known as post-anginal septicemia or necrobacillosis,¹ It is characterized by bacteremia, internal jugular vein (IJT) thrombosis, and metastatic septic emboli secondary to acute pharyngeal infections. The disease is easily forgotten by modern physicians. The causative agents of Lemierre syndrome include anaerobic bacteria, *Streptococcus*, *Staphylococcus*, and *Klebsiella pneumoniae*.² Here, we reported a rare case of Lemierre syndrome in a patient with acute pharyngitis, who was complicated by bilateral otitis media and pulmonary empyema caused by co-infections of *Mycoplasma pneumoniae* and *Fusobacterium necrophorum*. The patient was proved by imaged study and successfully treated by chest tube drainage and antibiotic combination therapy.

A 19-year-old male patient was admitted to our hospital with a 3-day history of fever, sore throat and dyspnea. On admission, consciousness was clear and his temperature was 39.2 °C. Physical examination showed redness, swelling of pharyngeal mucosa. White blood cell count (WBC) was 32020/mm³ with 89% neutrophils. Serum level of C-reactive protein was 36.2 mg/dL, GOT 65 U/L, GPT 123 U/L, LDH 423 U/L. The rapid test of influenza A & B showed negative finding. Initially, he received amoxicillin/clavulanate 1000 mg/200 mg intravenously q 6 h as empiric therapy. But on the admission Day 2, the fever persisted and bilateral ear canal had purulent discharge. On the admission Day 3, the chest X-ray and CT scan showed infiltration of right lower lobe of lung with pleural effusion (Fig. 1A and B) and left internal jugular vein thrombosis (Fig. 1C). The patient received thoracocentesis and the pleural fluid analysis showed exudate and turbid color, which revealed WBC count 760/mm³ with 97% neutrophils, LDH 2107 U/L, total protein 5.4 g/dL (serum 6.4 g/dL), glucose 10 mg/dL (serum

97 mg/dL). The serologic test showed the titer of mycoplasma IgM was 6.5 (positive) and IgG 1280 (positive) initially, then IgG decreased to 1:320 at the convalescent stage. On the admission Day 6, the blood, pleural effusion and middle ear pus culture all showed *F. necrophorum*. He received chest tube drainage and antibiotics treatment with levofloxacin 750 mg intravenous (IV) drip every 24 h and IV metronidazole (500 mg every 6 h) combination therapy for 10 days, then de-escalation to oral levofloxacin and metronidazole (same dosage as IV therapy) for a complete course of 21 days. The patient recovered well except bilateral eardrum perforation.

The pathogenesis of Lemierre syndrome is the causative bacteria invade the pharyngeal mucosa, which is weakened by a preceding viral or bacterial pharyngitis, to the lateral pharyngeal space and result in subsequent internal jugular vein septic thrombophlebitis and complicating metastatic infections.^{1–3} *F. necrophorum* is the pathogen most commonly implicated in Lemierre syndrome, followed by *F. nucleatum*.^{3–6} Pneumonia or pleural empyema is the most common metastatic infection in Lemierre syndrome.³ Septic syndrome co-occurred by ear, neck and pulmonary empyema was rare emerging medical conditions. The course is usually rapid and irreversible, therefore timely diagnosis and promptly antibiotic therapy is important.

To our knowledge, this patient is the first case report of Lemierre syndrome complicated by bilateral otitis media, pneumonia and pulmonary empyema caused by co-infections of *F. necrophorum* and *M. pneumoniae*. He was successfully treated by pleural drainage, levofloxacin and metronidazole antibiotic combination therapy. A high index of suspicion is required for the differential diagnosis of acute pharyngitis with persisted neck pain and septic syndrome.

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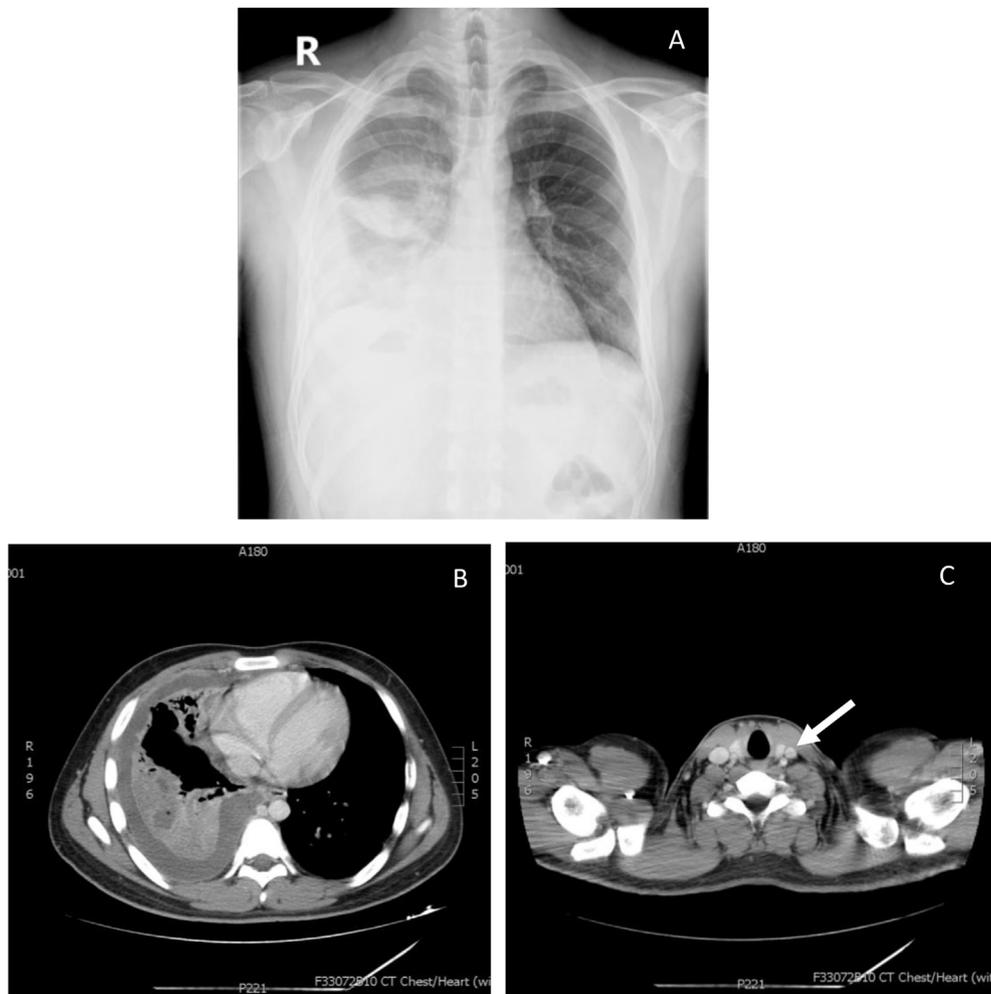


Figure 1. The chest x-ray and CT scan revealed infiltration, consolidation and pleural effusion of right lower lobe of lung (Fig. 1A and B). Fig. 1C showed left internal jugular vein thrombosis (white arrow site).

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Fu-Lun Chen
Shio-Shin Jean
Tsong-Yih Ou

Division of Infectious Diseases, Department of Internal
Medicine, Wan Fang Medical Center, Taipei Medical
University, Taipei, Taiwan

Department of Internal Medicine, School of Medicine,
College of Medicine, Taipei Medical University, Taipei,
Taiwan

Fang-Lan Yu
Division of Bacteriology, Department of Laboratory, Wan
Fang Medical Center, Taipei Medical University, Taipei,
Taiwan

Department of Internal Medicine, School of Medicine,
College of Medicine, Taipei Medical University, Taipei,
Taiwan

Wen-Sen Lee*

*Division of Infectious Disease, Department of Internal
Medicine, Wan Fang Medical Center, Taipei Medical
University, Taipei, Taiwan*

*Department of Internal Medicine, School of Medicine,
College of Medicine, Taipei Medical University, Taipei,
Taiwan*

*Corresponding author. No 111, Section 3, Hsing Long Road,
Taipei 116, Taiwan.
E-mail address: 89425@wanfang.gov.tw

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