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A rare agent of empyema: *Gemella morbillorum*

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Abstract

Gemella morbillorum is a pathogen that rarely causes pleural infections. This case report presents an 80-year-old male patient diagnosed with empyema, in whom *Gemella morbillorum* was identified in the pleural fluid culture. This case highlights the importance of considering rare pathogens in pleural infections and how pleural fluid cultures can aid in accurate diagnosis and treatment.

Keywords: empyema, *Gemella morbillorum*, thoracentesis

Introduction

Gemella morbillorum is a rare pathogen associated with pleural infections such as empyema. While it is typically found in the human flora, including the oral cavity and gastrointestinal tract, it is infrequently isolated and has been linked to infections in immunocompromised patients, such as soft tissue abscesses, meningitis, and endocarditis [1]. This case highlights the clinical importance of considering rare pathogens like *Gemella morbillorum* in pleural infections.

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Informed Consent
The authors stated that the written consent was obtained from the patient presented with images in the study.

Conflict of Interest
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Case presentation

An 80-year-old male patient with known COPD presented to the emergency department

with fever, cough, and sputum for 10 days. Accompanying marked pleuritic chest pain and dyspnea were present. The patient provided informed consent for the case report, in accordance with ethical guidelines. There was no known history of tuberculosis, concomitant disease, or continuously taken medication. Physical examination found a body temperature of 36.8 °C, a pulse rate of 102/min, blood pressure of 124/76 mmHg, and oxygen saturation of 93% in room air. On auscultation, decreased respiratory sounds were heard on the left, and percussion was dull. Systemic examination revealed no additional pathological findings. Laboratory findings included WBC of 20810/mm³ (lymphocyte 9.3%, PNL 81.5%) and a C-reactive protein value of 242 (normal: 0–5).

In the chest radiograph of the patient, homogenous density increase was present in all zones in the left lung (Figure 1). Four days prior, non-contrast thorax computed tomography performed at an external center showed bronchiectatic areas and pneumonic consolidations in the left lower lobe. The left lower lobe bronchus was observed to be totally occluded, with air images and pleural fluid with high density present in the parenchyma in the left lower lobe (Figure 2). Due to the symptoms and laboratory findings, the patient was admitted to the chest diseases service for further examination, with a prediagnosis of empyema.

Levofloxacin 1x750 mg and metronidazole 3x500 mg were started intravenously (IV). Fiberoptic bronchoscopy was performed after obtaining consent from the patient. On bronchoscopy, the left lower lobe bronchial mouth was found to be narrowed all around in the left bronchial system. Mucosa was fragile and diffuse purulent secretions were present. Biopsy and lavage samples were obtained from the left lower lobe bronchus and sent to microbiology and pathology. The biopsy specimen was reported as “Reactive bronchial epithelium, no evidence of malignancy”.

Thoracentesis was performed, and the pleural fluid sample revealed an LDH level of 2505 U/L, glucose of <2 mg/dL, and pH of 6.6. Tube thoracostomy via thoracic surgery was planned, in which 1300 cc pus-like fluid was drained. Pleural fluid samples were sent to microbiology, biochemistry, and pathology. The pathology result was reported as “Benign cytology.” The pleural fluid samples were cultured in aerobic and anaerobic cultures. The mycobacteria culture was negative. Gemella morbillorum was grown in aerobic and anaerobic cultures. The patient was referred to the infectious diseases department, and the culture result was taken to indicate a causative agent. Antibiotherapy was thus changed to ceftriaxone 1x2 gr IV and metronidazole 3x500 mg IV.

During follow-up, yellow crusty lesions were observed, especially in the areas where the nasal cannula was in contact with the patient, and the patient was referred to the dermatology department. HSV infection was considered, and valacyclovir 2x1 g tablets were added to the treatment.

After 21 days of IV antibiotherapy was completed, pleural fluid decreased radiologically, the patient’s general condition improved, and infection parameters decreased. It was arranged for oral antibiotherapy to be taken at home, and the patient was referred to the outpatient clinic. Oral antibiotics for home use were prescribed, and the patient was discharged for outpatient follow-up.

Figure 1: Homogenous density increase in all zones in the left lung

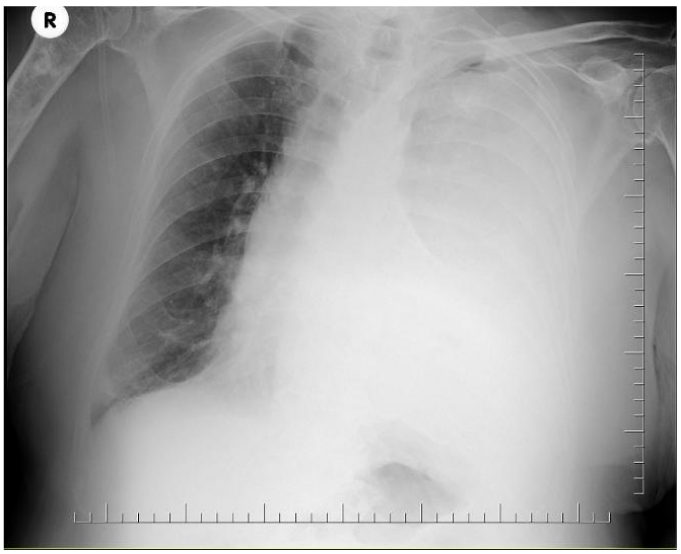

Figure 2: Total occlusion of the left lower lobe bronchus and dense pleural fluid in the left hemithorax on thorax CT

Discussion

Most Gemella infections reported to date include cases of endocarditis [2]. Lung abscess and/or thoracic empyema with Gemella morbillorum are rare. Pulmonary infections associated with Gemella morbillorum are usually associated with conditions that facilitate aspiration, such as laryngectomy. Other cases suggest bacteremia following poor oral care or previous dental surgery [3].

In our case, the patient had no history of dental surgery or laryngectomy but had poor oral hygiene.

Empyema is defined as the collection of pus in the pleural space and occurs as a result of complicated parapneumonic effusions. In patients with empyema, hospitalization is prolonged and mortality is increased [4]. Empyema is more common in the elderly and in men, but it can occur at any age. The risk of empyema increases in the presence of underlying chronic diseases such as COPD, bronchiectasis, malignancy, and diabetes mellitus [5]. In our case, the patient had COPD and bronchiectasis, which may have been contributing factors to the development of empyema.

Conclusion

In conclusion, although Gemella morbillorum is a bacterium found in the oral flora, it can cause serious infections in the presence of predisposing factors. Although rare, it may play a role in the etiology of empyema and lung abscess. It is important to cultivate aerobic and anaerobic cultures and antibiograms of samples taken from pleural fluid. However, the absence of long-term follow-up and further pathogen studies limits the generalizability of these findings.

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