

***Gemella* Empyema Cured without Antibiotics: A Case Report**

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Abstract

Introduction: *Gemella* are gram-positive bacteria that are commensals of the upper respiratory tract in humans and infrequently known to cause infections. **Clinical Picture:** We report a case of thoracic empyema due to *Gemella morbillorum* in an elderly Chinese male who had been having symptoms for 3 months and no response to multiple courses of antibiotics. **Intervention:** The collection was drained with ultrasound guidance. **Outcome:** Drainage of the empyema produced rapid resolution of symptoms and no antibiotics were started. **Conclusions:** *Gemella* is a very rare cause of empyema which usually responds well to treatment.

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Key words: Colonial morphology, Commensals, Suppurative foci, Thoracic, Viridans streptococci

Introduction

Gemella are gram-positive anaerobic bacteria that rarely produce serious human infections. We describe a case of thoracic empyema that occurred in an elderly Chinese male which, to our knowledge, is the first reported case out of Southeast Asia.

Case Report

A 70-year-old Chinese male was seen in the pulmonary clinic in February 2001 with a 2-month history of cough with whitish sputum, intermittent fever and pleuritic type of chest pain in the left infrascapular region. There was a history of blood streaking of the sputum on a few occasions. He had a past medical history of non-insulin dependent diabetes mellitus, hypertension and osteoarthritis. There was no history of weight loss, night sweats or exposure to tuberculosis. He had seen a general practitioner and had received a few courses of antibiotics (including amoxycillin-clavulanic acid) with little relief of symptoms. He had been a mild smoker and had stopped smoking 20 years ago. On physical examination, he was afebrile and comfortable. Orodonal hygiene was good. The only significant findings were coarse, inspiratory crepitations over the left infrascapular region. Chest radiography revealed a patchy infiltrate in the left lower lobe segment. The clinical impression was that of a slowly resolving bacterial

pneumonia with pleurisy. He was sent home with a course of oral clarithromycin and a follow-up appointment was made 3 weeks later. At this appointment, he reported to have persistent symptoms of chest pain and dry cough. The sputum testing for acid fast bacilli (AFB) stain was negative for 3 specimens. The specimen collected for gram stain turned out to be an oropharyngeal sample. The chest radiograph done on the second visit showed a left infiltrate with an effusion (Fig. 1). He was admitted to the hospital and a computed tomography (CT) scan of the thorax was done which revealed a loculated fluid collection at the paravertebral region adjacent to the left lower lobe (Fig. 2). There was associated pleural thickening and atelectasis of the adjacent lung. Blood tests were significant for an elevated white blood cell count of 11,000/mm³ and an erythrocyte sedimentation rate of 102 mm/hour. We performed a CT-guided aspiration which revealed a few mL of frank pus. Gram stain of the fluid showed gram-positive cocci and the culture grew *Gemella morbillorum*, which was sensitive to ampicillin, penicillin G and vancomycin. However, since the patient's symptoms had completely disappeared after the drainage, we decided not to start him on any antibiotics and observed him for any further signs of sepsis. The blood cultures were negative. The patient remained asymptomatic and was discharged 3 days after drainage. He was seen in the outpatient clinic

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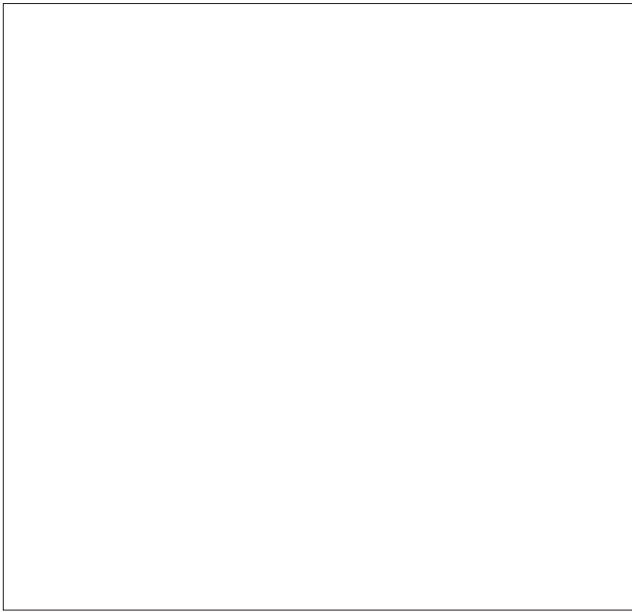


Fig. 1. Chest radiograph (March 2001) showing a left basal infiltrate with effusion.

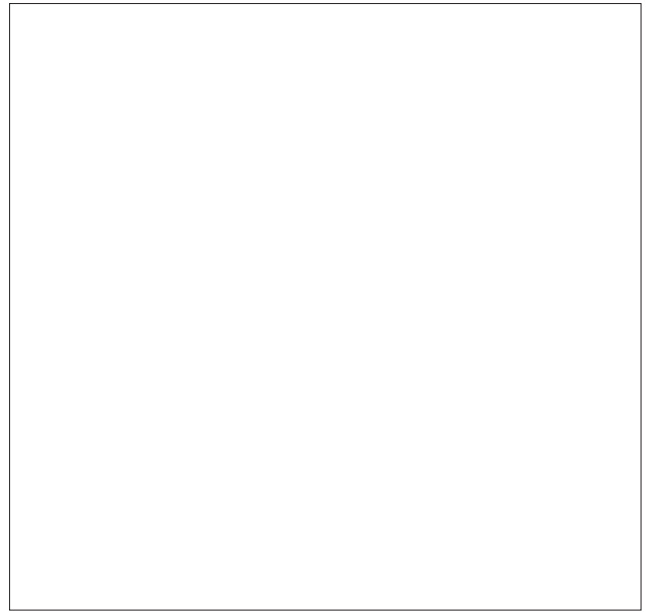


Fig. 3. Chest radiograph (August 2001) showing a mild scarring at the left base.

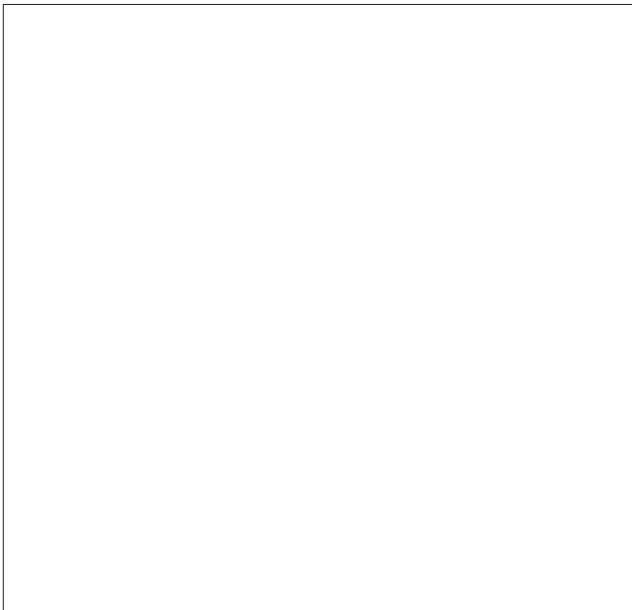


Fig. 2. CT thorax (March 2001)—loculated collection at the paravertebral region of the left lower lobe with adjacent atelectasis.

twice after discharge (at 2 weeks and 6 months) and he reported no further complaints. The chest radiograph at 6 months showed mild scarring at the left lung base (Fig. 3).

Discussion

Gemella are gram-positive anaerobic cocci which resemble viridans streptococci in colonial morphology. Members of the genus (*G.mobillorum*, *G.haemolysans*) are commensals of the human upper respiratory tract. Once

thought to be non-pathogenic, they are now known infrequently to cause serious infections, such as bacteraemia, endocarditis, arthritis, meningitis, lung abscess and empyema, which may result in septic shock.¹

The spectrum of disease and antibiotic susceptibility are similar to viridans streptococci. Like the former, they are considered to be organisms of low virulence. Endocarditis seems to be the most frequently reported infection. In most cases of endocarditis, the patients had underlying heart and dental disease, pointing to the mouth as the most likely portal of entry into the blood stream.

In our search of the medical literature, we came across 6 case reports describing pleuro-pulmonary infections by *Gemella*. All these cases were empyemas with or without concomitant pulmonary involvement.²⁻⁷

Only 2 of the 6 cases were in English.^{2,3} The first case was an 80-year-old male with a history of hypertension, ischaemic heart disease and cerebrovascular accidents in the past who presented with fever, cough and shortness of breath. The chest radiograph showed a pleural effusion, which was purulent on drainage and grew *Gemella morbillorum* on culture. Although the patient was started on appropriate antibiotics (based on the sensitivity report) and the fever settled, he died of a massive brainstem infarct 2 days later. An autopsy revealed a co-existent lung abscess on the side of the empyema.

The second case was of a 71-year-old woman with a medical history of chronic obstructive pulmonary disease and surgical treatment for laryngeal cancer, who had complaints of fever, chest pain and dyspnoea. A pleural

effusion was diagnosed and thoracocentesis was performed. The culture grew *Gemella haemolysans*, which was sensitive to all antibiotics except lincomycin. However, the patient did not respond to tube thoracostomy and parenteral amoxicillin-clavulanic acid and eventually underwent a right thoracotomy with pleural decortication and wedge resection of the right middle and lower lobes. Although the effusion disappeared after surgery, the patient remained febrile and died suddenly 6 days later. The authors opine that persistent false routes created by the laryngeal surgery 12 years previously could have been a contributing factor for *Gemella* infection in this case. This theory could find support from a case of *Gemella* pneumonia and empyema in a laryngectomised patient reported from Spain.⁴

A clinical drawback about *Gemella* infections is that the initial colonial morphology can lead to a presumptive identification of the organism as a viridans streptococci. Until recently, *G. morbillorum* used to be known as *Streptococcus morbillorum*.⁸ Biochemically, it is a weak sucrose fermenter but is non-reactive in most fermentation tests, for which the majority of viridans streptococci are positive.

The appropriate antibiotic regimen has not been well established yet. Most isolates appear sensitive to penicillin, although resistance has been reported.⁹ In these cases, vancomycin or combination therapy with a beta-lactam plus an aminoglycoside should be considered. The removal of any suppurative focus remains an essential part of treatment. Prognosis is generally good with early and adequate therapy. Our patient, who did not respond to a course of amoxicillin-clavulanic acid early in his treatment history (although the isolate was sensitive), had a dramatic response to drainage alone. After the drainage, we had made a clinical judgment not to administer antibiotics, which was proven to be an appropriate step.

Conclusion

Gemella are commensals of the upper respiratory tract that can rarely cause thoracic infections. The pleural space appears to be a favoured site of involvement. Although deaths have been reported, most patients appear to respond well to early therapy with appropriate antibiotics and drainage of suppurative foci. Our case is quite unique in the fact that cure was effected without the use of antibiotics. To our knowledge, this is the first reported case of *Gemella* empyema in Southeast Asia.

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