

Purulent Hydroaeric Pleural Effusion Due to Infection with *Gemella morbillorum*: A Case Report

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Received 15 September 2014; revised 10 October 2014; accepted 4 November 2014

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Abstract

Gemella morbillorum (*G. morbillorum*) is an opportunistic bacterium, which can sometimes cause severe infections especially in immunocompromised subjects. Respiratory infections due to this germ are rare, but are described. We reported a new observation of 34-year-old female patient, admitted for unusual location and clinical presentation of respiratory infection with *G. morbillorum*; she was presented a left pleuritic pain, a productive cough associated with purulent and foul sputum and dyspnea with onset one month earlier. The clinical examination was objectified a polypnea at 32 cycles/minutes, intercostal indrawing and mixed pleural effusion syndrome. She had also many dental caries and bad oral health status. Chest radiography showed an air-fluid image in the left chest and the thoracocentesis had revealed purulent fluid. The culture of this fluid had isolated a *G. morbillorum*. The diagnosis of mixed pleural effusion due to *G. morbillorum* in an immunosuppressed diabetic patient was made. The patient was put on antibiotics, thoracic drainage and Chest physiotherapy with good improvement.

Keywords

Gemella morbillorum, Gemella Species, Respiratory Infection, Hydroaeric Pleural Effusion

1. Introduction

G. morbillorum is a bacterium belonging to the family of the Gemella species. These microorganisms are gram positive cocci and facultative anaerobes which—like other human commensal bacteria—are opportunistic

pathogens and may cause serious local and systemic infection, mainly in immunodepressed patients [1]. It can cause endocarditis [2], septic arthritis [3], and meningitis [4]. It is an infrequently isolated organism and a rare cause of pulmonary and pleural infection. But, some cases of lung abscesses [5], necrotising pneumonia [6] [7] and pleural empyemas [8] have been reported in the literature. The prognosis of this infection will depend on the location, but also on the field of patient. So, some locations, such as cerebral localization are worse prognosis reports to others [9]. The pleura and lung manifestations of this infection have rarely been described. We present a new observation of purulent hydroaeric pleural effusion caused by this microorganism.

2. Case Report

A 34-year-old woman, non-smoker, diabetic type I, never treated for tuberculosis (TB) and without TB recent contagion. She was admitted for left-sided pleuritic pain following a cooling episode, a productive cough associated with purulent and foul sputum, a dyspnea on the slightest exertion, in a context of preservation of the general state, with onset one month earlier. The patient was treated in a local hospital, with probabilistic antibiotics amoxicillin-clavulanic acid for 15 days but without improvement and she was then transferred to our hospital. On admission, her body temperature was 37.2°C. Of note in her clinical examination was a polypnea at 32 cycles/minutes, intercostal indrawing, symptoms of left mixed pleural effusion. She had also many dental caries and bad oral health status. A chest X-ray showed dense opacity, with water tonality which sits at the left lower lobe with air-fluid level (**Figure 1**). C-reactive protein (CRP) was 382 mg/l without high total leukocytes count. A lymphopenia at 600 elements/mm³ was noted. The search for *Mycobacterium tuberculosis* (BK) on direct microscopic examination and the HIV serology were negatives. Diagnostic thoracentesis was performed. Purulent, greenish, putrid fluid was obtained. Culture of this fluid revealed the growth of *G moribillorum* with reduced susceptibility to penicillin but susceptible to cephalosporins. Chest computerized tomography (CT) shows abundant mixed left pleural effusion with ipsilateral lung collapsed (**Figure 2**). The bronchoscopy had objectified a diffuse inflammatory bronchial mucosa with release of purulent secretions. The treatment commenced with a chest drain (total volume 2300 ml), and ceftriaxone at dose of 2000 mg every 24 hours intravenously with relay by oral treatment 4 days later, as well as gentamicin (160 mg every 24 hours, intravenously) for 5 days, oral metronidazole (500 mg every 8 hours) and chest physiotherapy was then added, with good clinical outcome; decreased chest pain, disappearance and clarification of purulent sputum. The CRP had decreased to 28 mg/l,



Figure 1. Face chest radiography showing dense pleural opacity, with water tonality witch sits at the left lower lobe with air-fluid level.



Figure 2. Transversal scannographic section objectifying a hydroaeric image with ipsilateral lung collapsed.

and lymphopénia increased to 1600 elements/mm³. Radiologically, an improvement also was noted, with disappearance of the air-fluid level and top ventilation of the lung parenchyma.

3. Discussion

G. morbillorum, isolated in 1917 from blood of patients with measles [9], was transferred from the genus *Streptococcus* to the genus *Gemella* (also including *Gemella haemolysans* and several recently described organisms). It is an aerobic or aerotolerant Gram-positive coccus usually found in pairs, which explains the name of this genus. Underlying conditions (e.g. immunocompromission, cancer, heart disease, sinusitis or poor dental condition, as well as previous invasive medical procedures) are frequently, but not necessarily [10], associated with human infections caused by *G. morbillorum*, and some reported cases in previously healthy people suggest that its pathogenicity should not be underestimated [10] [11]. Although it is generally susceptible to penicillin and other antibiotics, resistance to penicillin, has been reported [11], as the case of our patient. Due to their opportunistic nature, these species are capable of causing certain infections, the most common of which are septicaemia [12], infections of the nervous system [4], arthritis [3], liver abscesses [13], and endocarditis [2]. Many cases of respiratory tract infections have been described such as necrotizing pneumonia [6] [7] [9] lung abscesses [5] and even colonization of the tuberculous cavity. However, the appearance of pleural involvement is considered exceptional [1]. In a revue of medical litterature, we identified 15 cases of pleural empyema caused by *Gemella* species [1] [6] [14]-[18], published mostly by spanish teams. Thus, García-Lechutz *et al.* [18] had described 4 cases of pleural empyema caused by *Gemella* species over a period of 4 years. Also, 4 other cases have been published over a period of 7 years by the pulmonology department of the university hospital of valencia, a case has been published separately by Signes-Costa [6] and 3 other cases have been reported after by Senent [1], but to the best of our knowledge, the purulent hydro-aeric pleural effusion caused by this germ has never been reported.

Among the underlying conditions presented by patients with this type of infection intravenous drug addiction [8] [18], cardiovascular disease, alcohol abuse [18] and diabetes [18] are notable, as was the case in our patient from this study, infected by *G. morbillorum* and diabetes. Predisposing factors include poor mouth hygiene and prior dental procedures, which due to the disruption in the mucosa, could facilitate hematogenous dissemination, as well as microaspiration of oropharyngeal secretions that would facilitate bronchogenic dissemination [1], which we believe could have occurred in this patient given the past medical history of poor oral health status. Penicillin or ampicillin are the drugs of choice for treating infections of *Gemella* species. However, occasional resistance to penicillin has been reported in rare cases, such as our patient, who was put under cephalosporin. Moreover, there is insufficient information on the duration of treatment and so it is recommended to prolong treatment for at least 4 weeks [6]. The management of these patients is based on drainage of the empyema with therapeutic thoracocentesis or chest drain. In our patient, we performed chest drain and antibiotic treatment was continued for 4 weeks with a satisfactory clinical and radiologic outcome.

4. Conclusion

In the case of patient with pleural involvement, we must consider the possibility of infection caused by *Gemella* species, especially in immunodepressed patients or those having predisposing factors like poor dental health.

Conflicts of Interests

I declare that I have no conflict of interests here.

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