

Case Report

Secondary Syphilis with Pleural Effusion: Case Report and Literature Review

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Here we present a case of a 38-year-old Indian man with a history of extramarital relationships who presented with pleurisy, skin rash, and radiological findings of pleural effusion. After thorough investigation of the etiology of his acute illness, he was found to be positive for syphilis. Review of literature revealed a small number of case reports of pleural effusion as a manifestation of secondary syphilis. The review of criteria proposed in the literature was utilized to diagnose this patient as a case of pulmonary syphilis.

1. Introduction

Syphilis is a sexually transmitted illness caused by the organism *Treponema pallidum*. The infection itself is acquired mainly via sexual contact with clinical manifestations such as a chancre or skin rash. However, although less common, the infection can also be contracted by nonsexual contact, organ transplantation, blood transfusion, or in utero infection [1]. With the introduction of penicillin therapy to counter syphilis infection, the number of cases in the developed countries such as United States has decreased by 95% since 1943 [1].

The natural course of syphilis begins with an inoculation period of 21 days on average, rarely exceeding 6 weeks. Syphilis can present itself in three different stages, specifically primary, secondary, and tertiary syphilis, with each stage characterized by unique clinical manifestations.

Although uncommon, report of pulmonary illness in patients with proven syphilis exists in the literature. Only a handful of cases report such involvement, with variable presentations reported. Pulmonary syphilis occurred mainly in congenital and tertiary syphilis in the preantibiotic era, but, since 1967, it has been occurring mainly during secondary syphilis [2]. David and his coworkers [2] cited

Coleman et al. [3] regarding the fact that lung involvement in patients with syphilis during the preantibiotic area ranged from 1% to 12.5%.

Here we present a case of a patient with suspected pulmonary syphilis, with significant pleural effusion and clinical and diagnostic evidence of syphilis infection. Our case is consistent with the fact that most infections are now related to cases resembling secondary syphilis. We chose to incorporate the diagnostic criteria for pulmonary syphilis proposed by Coleman et al which was presented by David et al. [2].

2. Case Report

A 38 year-old Indian man presented with a past medical history significant for recurrent low-grade fevers and a new diagnosis of Diabetes Mellitus being treated with metformin. He complained of pain in the right chest and right upper abdomen for 10 days associated with dyspnea. His pain was sharp in nature and tearing in quality. He described it as a localized type of pain that was nonradiating, which began intermittently and progressed to severe constant pain until his presentation. He graded his pain as 7/10 in severity. The pain was aggravated by movement and deep inspiration and was alleviated by over-the-counter analgesics. He reports no



FIGURE 1: Patchy hyperpigmentations on the patient's shin.

history of similar episodes/symptoms prior to the 10 days before admission. Five days prior to admission his pain worsened and he sought medical attention at a primary health care clinic in Doha, Qatar, where he was given intramuscular analgesics, which reduced the pain over the next 2 days. Afterwards, he began to suffer from the pain described above and presented to the Hamad General Hospital Accidents and Emergency (A/E) Department. The patient remained in the A/E department for one day awaiting an available bed after which he was admitted to the medical ward with the preliminary diagnosis of community-acquired pneumonia. The patient had no history of cough or hemoptysis, no history diarrhea or constipation, no hematochezia, no melena, no hematemesis or dysphagia or vomiting. He had no hematuria, no dysuria or any change in urine color or frequency. He had no history of contact with sick people, no history of recent travel, and no history suggestive of asbestos exposure. On questioning, the patient reported a history of extramarital sexual relationships in the past.

On physical examination the patient's vitals on admission were a temperature of 37.2 degrees Celsius, a heart rate of 110 beats per minute, a blood pressure of 130/80 mmHg, and a respiratory rate of 40 breaths per minute. General and systemic examinations were significant for a patchy, macular hyperpigmented rash on the dorsum and pedal areas of his foot and on his shins bilaterally (Figure 1) and both decreased breath sounds and vocal fremitus in the right lower chest region.

A complete blood cell count revealed a white blood cell count of $12.3 \times 10^3/\mu\text{L}$, Hemoglobin of 15 g/dL, and platelet count of $219 \times 10^3/\mu\text{L}$. Kidney function tests were notable for a blood urea nitrogen of 4.3 mmol/L and a creatinine level of $69 \mu\text{mol/L}$. Chest X-ray revealed patchy infiltrates on the right lower zone and obliteration of the right costophrenic angle suggesting pleural effusion (Figure 2). Pleural fluid aspiration was pale yellow with a white blood cell count of $1260/\mu\text{L}$ with a differential of 87% neutrophils and 13% lymphocytes, a red blood cell count of $1590/\mu\text{L}$, and a pH of 7.237. A rare giant cell was noted on microscopic examination of the fluid. Pleural fluid culture was negative for growth. Pleural biopsy examination was consistent with empyema and negative for granulomas. Quantiferon test on pleural biopsy was negative. CT scan of chest of chest showed

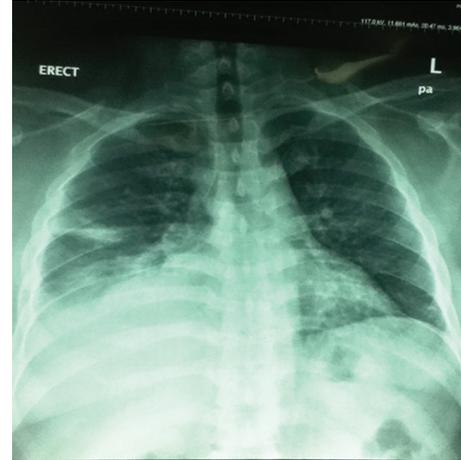


FIGURE 2: Chest X-ray on admission showed infiltrates and pleural effusion on the right lower zone.



FIGURE 3: Chest CT showing the encysted pleural effusion.

multiple areas of encysted pleural effusion on the right lung (Figure 3). Transesophageal echocardiography showed no thrombi or intracardiac masses and ruled out endocarditis.

Serologic testing was also performed and was positive for *Treponema pallidum* antibody, and RPR was reactive 1:1. Inno-lia syphilis confirmatory test was also positive. HIV testing was yielded a negative result. Blood, urine, and sputum cultures were all negative. Sputum for acid fast bacilli was also negative. Respiratory panel which includes respiratory syncytial virus PCR, Influenza-A PCR, Influenza-B PCR, Parainfluenza-1 PCR, Parainfluenza 2 PCR, Parainfluenza-3 PCR, Parainfluenza-4 PCR, Coronavirus-NL63 PCR, Coronavirus-COC43, Coronavirus-229E PCR, Rhinovirus PCR, Enterovirus PCR, Coronavirus HKU, Human Metapneumovirus PCR, Boca Virus, Parechovirus, Adenovirus PCR, Pandemic Influenza-A H1N1, and *Mycoplasma pneumoniae* is all negative.

The patient was initially diagnosed with community acquired pneumonia complicated by parapneumonic effusion and was given Piperacillin/tazobactam for a week. The patient had repeated fever spikes and thus was switched to meropenem to assess response to another antibiotic. He responded well to Meropenem, and his fever spikes resided

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