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A rare case report of Melioidosis in Bicol Region, Philippines

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Abstract

Melioidosis is an infectious disease caused by *Burkholderia pseudomallei* which is commonly found in southeast Asia, including the Philippines. This disease mainly affects susceptible individuals who are directly in contact with contaminated wet soils. Immunocompromised individuals such as those suffering from diabetes mellitus and those who are excessive alcoholic drinker are at risk of developing the disease. These risks were all present in the patient in this case. The patient is a 36-year-old male who worked as a fisherman. He was known as a heavy smoker and an excessive alcoholic drinker. He was admitted in the hospital due to difficulty of breathing. He was given Ceftazidime, the drug of choice for melioidosis, but eventually succumbed to death after 11 days of hospitalization. This disease is known to have high mortality.

Keywords

Melioidosis; Whitmore's disease; Burkholderia pseudomallei; Philippines

Introduction

In 1912, melioidosis was first discovered and described by Dr. Whitmore and his assistant, Dr. Krishnaswami, who were both working in Myanmar [1,2]. This infectious disease is caused by Gram-negative bacteria, *Burkholderia pseudomallei,* which is commonly found in the layer of soil directly influenced by root secretions and soil microorganisms and surface groundwater of many tropical and subtropical regions [3,4]. The disease spreads throughout endemic areas during the rainy season, but outbreaks are also documented in dry areas due to contaminated water and soil [5].

Although the global incidence of melioidosis is unknown, the majority of infection is likely to occur in tropical countries since most of them do not have resources to adequately diagnose cases [1,6]. Due to its endemicity in southeast Asia, it is considered as a potential emerging infectious disease in many tropical

developing countries [3], which includes the Philippines with sporadic cases. Its first documented case in the Philippines occurred in 1948 in an American soldier who presented with weight loss and symptoms of pneumonia [7]. Other southeast Asian countries followed like Vietnam, Indonesia, and Thailand. However, in contrast with the neighboring countries, the Philippines has few known studies and epidemiology of the disease probably due to underreported cases [7]. In the worldwide epidemiology of melioidosis, the cases in the Philippines were classified as sporadic [5].

Melioidosis can infect humans and a wide range of animals [4]. It mainly affects susceptible individuals who are directly in contact with contaminated wet soils. Immunocompromised individuals such as those suffering from diabetes mellitus, renal disease, and excessive alcohol consumption are at risk of developing the disease [5,8]. The bacteria caused by this infectious disease is also responsible for fibrosis and chronic lung diseases [9,10]. Although this infection is mainly transmitted by inhalation, it may also occasionally be acquired via hospital-acquired infections, laboratory accidents, vertical transmission during birth, and coitus [11]. Another risk factor includes male sex [8], as cases in southeast Asia demonstrate male predominance.

The disease is commonly presented with symptoms including pneumonia, bacteremia, and septic shock. Other manifestations include fever, skin and soft tissue infection, bone and joint infection, genitourinary infection excluding prostate, neurological infection, hepatomegaly, splenomegaly, prostate abscess, parotid abscess, mycotic pseudoaneurysm, and pericardial effusion [6,12]. Written consent to publish this case report has been obtained from the relative of the patient.

Case Presentation

This is a case of a 36-year-old male who worked as a fisherman. He was known as a heavy smoker and an excessive alcoholic drinker. He was admitted in the hospital due to difficulty of breathing.

One week prior to consultation, the patient had a non-radiating abdominal pain on the epigastric area which was associated with abdominal bloating, headache, episodes of vomiting, and loose bowel movement. Two days prior to consultation, the patient still experienced the same symptoms which prompted him to consult in a local hospital. He was then diagnosed of having urinary tract infection. Few hours prior to admission, his symptoms persisted, prompting consultation at Bicol Medical Center.

On his first day of admission, the patient had difficulty of breathing and epigastric pain. X-ray was done but the findings were unremarkable, which is showed in Figure 1. He then had black tarry stools on the second day and developed fever the next day.

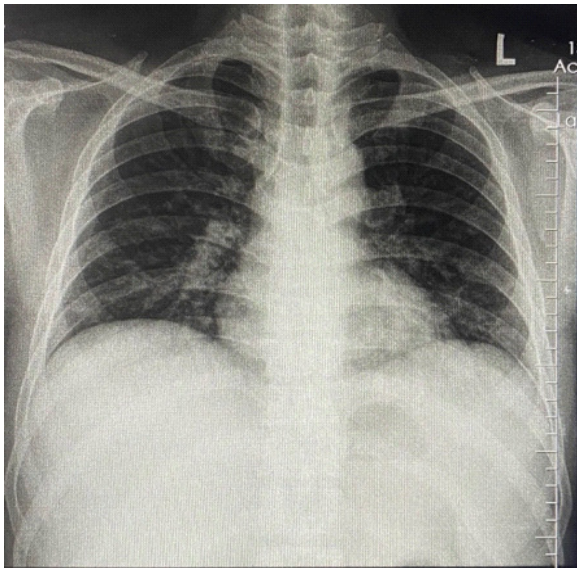

Figure 1: Radiograph of patient in day 1.

On his fourth day, the patient was already confused and irritable. He still experienced fever and epigastric pain, with a sudden onset of jaundice. Abdominal ultrasound was done and the findings were hepatomegaly with diffused parenchymal changes, and splenomegaly. Thickened gallbladder was also correlated with acalculous cholecystitis. The patient was then seen by a hepatobiliary tract surgeon. Blood culture was also done.

On the fifth day, the patient also had decreased urine output. He was then seen by a surgeon for intrajugular catheter insertion, and a gastrologist. X-ray was done which showed interval of development of interstitio-alveolar densities seen in both lungs for which pulmonary congestion is considered, as seen in Figure 2.

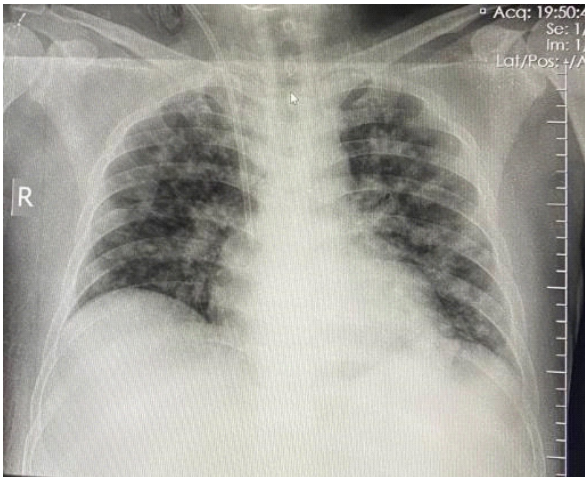

Figure 2: Radiograph of patient in day 5

On the sixth day, the patient had hematochezia and melena. He was started with Meropenem 500 mg via intravenous route which was administered once a day. The patient was seen by a nephrologist for hemodialysis.

On the seventh day, the patient was still confused with icteric sclerae. Melena and icteric sclerae continued on the next day, but jaundice was lessened. Meropenem 500 mg via intravenous route was dis-

continued. He was then started with new drugs, Cefepime 1g via intravenous route every 24 hours and Metronidazole 500 mg per vial both through intravenous route every 8 hours. On the following day, melena and jaundice were already lessened.

On the tenth day, the patient had high grade fever. The result of his blood gram stain and culture stain which was extracted on his fourth day turned out to be Burkholderia pseudomallei after 50 hours inoculation which was sensitive to Ceftazidime, Trimethoprim, Sulfamethoxazole, and Meropenem, as evidenced in Figure 3. Hence, Ceftazidime 500 mg every 48 hours was given based on creatinine clearance.

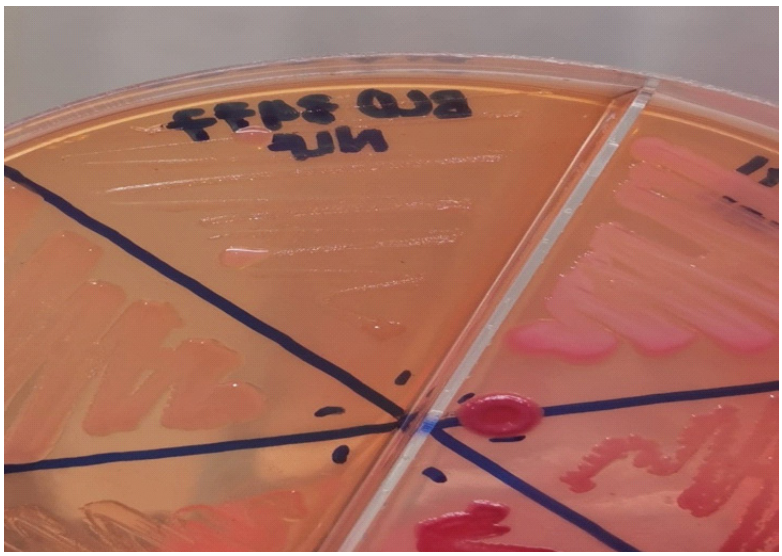

Figure 3: Blood GSCS of the patient.

On the eleventh day, the patient had still fever and jaundice. Another x-ray was done and the interval regression of the hazy opacities in both lungs were shown in Figure 4. After 11 days of admission, the patient succumbed to death due to sepsis.

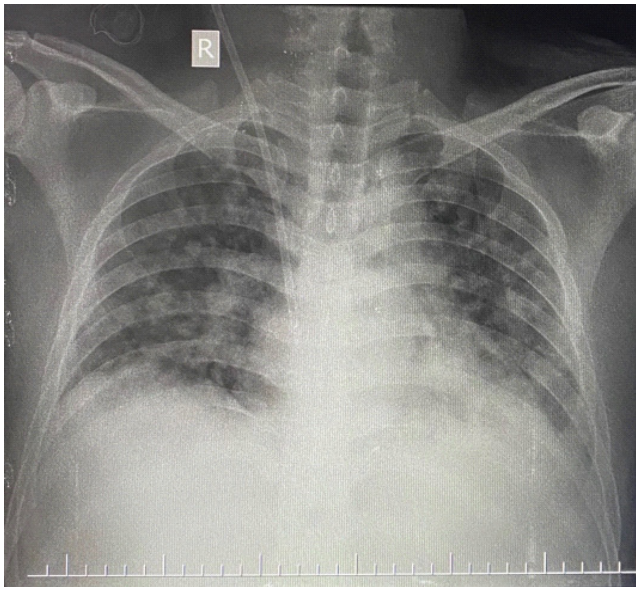

Figure 4: Radiograph of patient in Day 11.

Discussion

Burkholderia pseudomallei, which is the cause of melioidosis [6], was detected in the gram stain and culture stain of the patient. As evidenced by literatures, this gram-stain bacterium is endemic in southeast Asia [5], including the Philippines with sporadic cases [7], where the patient lived. Since he was a fisherman, he possibly had regular contact with contaminated soil and water [13]. The infection may have resulted from percutaneous inoculation by means of penetrating an open wound [4], which was present in the right foot of the patient. This wound was reported to be non-healing due to his comorbidity of diabetes mellitus, which is a major risk factor for the infectious disease [13].

The patient also reported that he was an excessive alcoholic drinker which is a common risk factor for patients with melioidosis [5,8]. Other risk factors presented in the patient were age and sex. Although the patient's age is 36 years old, it can also be a possible risk factor for his condition since incidence peaks start at 40 years of age [13], which is near the patient's age. In addition, his male sex is also a risk factor since most cases are reported to be male patients [8].

Upon admission, the patient complained difficulty of breathing which is one of the warning signs of melioidosis [12]. Other manifestations followed which include fever and jaundice which are both symptoms of the disease [14]. As indicated in his ultrasound, the patient also had hepatomegaly and splenomegaly which are commonly present in cases of melioidosis [12]. Renal impairment, another symptom of melioidosis [8], also manifested during his hospitalization due to decreased urine output. He was then treated with hemodialysis.

Upon receiving the results of his blood culture on the tenth day of hospitalization, his medications shifted to Ceftazidime, the drug of choice for melioidosis [15]. Unfortunately, the patient succumbed to death after 11 days of hospitalization. The patient's condition is known to have high mortality [14].

Conclusion

This case probably missed due to lack of clinical awareness and delayed microbiological diagnosis. A high index of suspicion is needed for diagnosing melioidosis due to its varied clinical presentations. In addition, the case highlights the need for improved laboratory services in patient care management. Unfortunately, the patient succumbed to death as this disease is known to have high mortality.

Authors' contributions: Both authors developed and designed the study. JMG collected the exact data from the patient, as well as the paraclinical findings. ICNR wrote the manuscript. Both authors approved the manuscript for publication.

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