

## CASE REPORT

### BIOWARFARE AND RHEUMATOLOGY

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#### 1.1 CHIEF COMPLAINT

A 23 years old single policeman was presented to emergency department of Yangon General Hospital on 8.1.2020 with the chief complaint of puffiness of face followed by bilateral leg swelling accompanied by reduced urine output for 10 days. Preceding history of low grade intermittent fever with dry cough was noted 3 months ago. He had sharpstabbing anterior chest pain but did not notice palpitation, orthopnoea or paroxysmal nocturnal dyspnea.

#### 1.2 BACKGROUND

In 2016, he was admitted to Yangon General Hospital for prolonged fever with arthralgia and cervical lymphadenopathy. Acute phase reactants such as ESR and CRP were high but complete blood count showed mild hypochromic microcytic anemia with normal WBC and platelet. After exclusion of the infective cause like tuberculosis and lymphoproliferative disorder, his auto-immune profile revealed positive ANA (1/800) with positive dsDNA and nucleosome. He was given antimalarial with low dose methylprednisolone for active systemic lupus erythematosus. His renal profile was normal. His follow-up visits were missed due to his work schedule but he took medications off and on. In early October 2019, he consulted with Rheumatologist at out-patient clinic due to recurrence of arthralgia with low grade fever and dry cough. ESR was 25 and complete blood count was within normal limit. Urinalysis turned out to be normal. So he was continued on antimalarial and low dose oral steroid with short course of acetaminophen till he showed up at YGH emergency department.

He is a non-smoker, non-drinker and lives with his parents. He has no pets or animals at home. No recent travel locally or internationally was noted nor contact history of tuberculosis.

#### 1.3 INVESTIGATIONS

His ECG showed low voltage QRS complex with regular rhythm. Chest radiograph at emergency revealed huge cardiomegaly and referred to cardiologist for emergency echocardiogram which showed massive pericardial effusion. Urgent pericardiocentesis was done and drainage tube was inserted for 3 days. Total of approximately 1700 ml straw color pericardial fluid was drained. Routine examination of pericardial fluid showed very high protein (4502 mg/dl) and high white cell contents (7500 cells/Cumm, 90% of which were polymorphonuclear lymphocytes).

Complement C3 and C4 were lower limit of normal. Baseline investigations showed mild leukocytosis with raised ESR (50) and CRP (148). All the other tests were within normal range.

#### 1.4 CULTURE AND SENSITIVITY

Pericardial fluid was also sent for cytology which was negative for malignancy and for culture and sensitivity which resulted in a few growths of highly pathogenic *Burkholderia mallei*, sensitive to most of cephalosporins and carpepenem antibiotics. Because of the presence of low grade fever for 3 months, gene expert test for mycobacterium tuberculosis and Interferon-gamma release assay were tested but negative.

## 1.5 DIAGNOSIS

His final diagnosis was bacterial pericardial effusion due to *Burkholderia mallei* with underlying systemic lupus erythematosus (mild disease with no major organ involvement).

## 1.6 MANAGEMENT

He was given IV ceftazidime 2 G 6 hourly for 14 days. Oral doxycycline 100 mg BD will be given for 3 months for maintenance treatment. His temperature responded well to treatment and touched to normal after 1 week. Other symptoms such as oedema and dyspnea were subsided.

## 1.7 DISCUSSION

Infection with *Burkholderia mallei* is known as “Glanders”, well known since the ages of Hippocrates and Aristotle. Primarily, it is a zoonotic disease affecting mainly horses, mules and donkeys. Human infection occurs when there is occupational exposure or ingestion of infected meat or via inhalation of respiratory droplets.

It is one of the bioweapon used in World War I. However, it can't survive outside of its host.

This made it less favorable than *Burkholderia pseudomallei* which cause melioidosis and can survive in the environment. It can cause various clinical manifestations from localized infection with ulceration to systemic infection and pulmonary manifestation. Diagnosis is by culture and sensitivity of the organism.

Management includes the eradication of the bacteria with the appropriate antibiotic and adequate duration.

Of note, antibiotics that are active for glanders should be given intensively and these includes carbapenems, cephalosporins (ceftazidime and cefepime), macrolides (azithromycin, clarithromycin), doxycycline, TMP/SMX and gentamicin. Intravenous antibiotics should be given for the total duration of 10-14 days and oral eradication therapy should be followed for 3 months.

## REFERENCE

1. Glanders and Melioidosis Fact Sheet (2011) Johns Hopkins Bloomberg School of Public Health (centerforhealthsecurity.org)



Figure.1 Chest Radiograph at emergency department

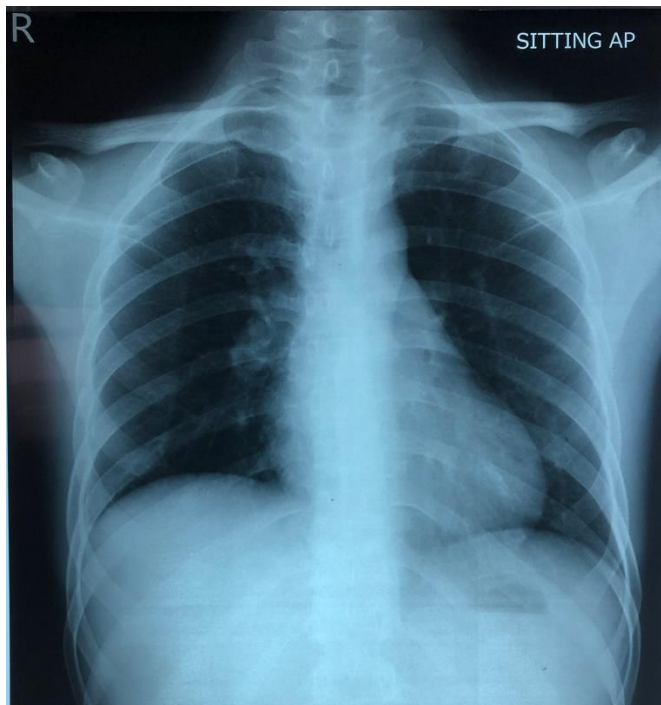


Figure.2 Recheck Chest Radiograph after antibiotic at Rheumatology department