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A patient with fever and chills, eye swelling and thrombocytopenia

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ABSTRACT

The patient was a 44-year-old man who was referred to our hospital for fever and chills, thrombocytopenia, and the possibility of Crimean-Congo hemorrhagic fever. He was admitted with complaints of left eye swelling and purulent discharge of the eye, fever, and chills and with the initial diagnosis of endophthalmitis. Due to pulmonary involvement in radiography and liver involvement as an abscess in ultrasound, empirical antibiotic treatment was followed by special treatment based on vitreous culture and blood culture.

Keywords: radiography, Crimean-Congo, hemorrhagic, eye swelling, fever and chills, thrombocytopenia

Introduction

The patient was a 44-year-old man who referred to the ophthalmologic center with fever and chills for about 7 days, swelling, redness, blurred vision, and decreased vision and discharge from his left eye. Along with fever, he developed urticaria lesions on the body, which were pruritus and mainly on the trunk. He did not complain of nausea and headache. He was consulted at the center due to thrombocytopenia and with the possibility of Crimean-Congo hemorrhagic fever (CCHF), but because of discontinuity of thrombocytopenia, lack of contact history and laboratory criteria of the Crimean Congo, he was returned to the ophthalmologic center again to rule out ophthalmic emergencies. Due to continued fever, worsening of swelling, loss of vision, and hypopyon of the left eye with a primary diagnosis of endophthalmitis, the patient was referred to our center after left eye drainage and intravitreal injection.

There was no important medical history, including diabetes and immunodeficiency. At the time of admission, the patient was alert and ill with mild fever. Blood pressure, respiratory rate, and pulse rate were normal. In head and neck checkup, there was noticeable periorbital swelling of the left eyelid with erythema, proptosis, and chemosis of the left eye. Ophthalmologic examination showed decreased visual acuity in both eyes, hypopyon, and restriction of extraocular muscle movement, causing a frozen eye in the left eye.

In skin examination, he had mild maculopapular lesions on the trunk and back and with less intensity on his extremities without palm and sole involvement. He had no lymphadenopathy, pulmonary, and cardiovascular findings. Abdominal and neurological examinations were normal. Laboratory findings showed Leukocytosis (WBC= 25700) with polymorphonuclear preference, hemoglobin of 15 g/dL, platelet count of 230000/microliter, ESR of 14 mm/hr and CRP of 235. Serum creatinine and electrolytes were normal. A round lung opacity was seen in the radiography of the left and right middle zone of the lung. (Figure 1).

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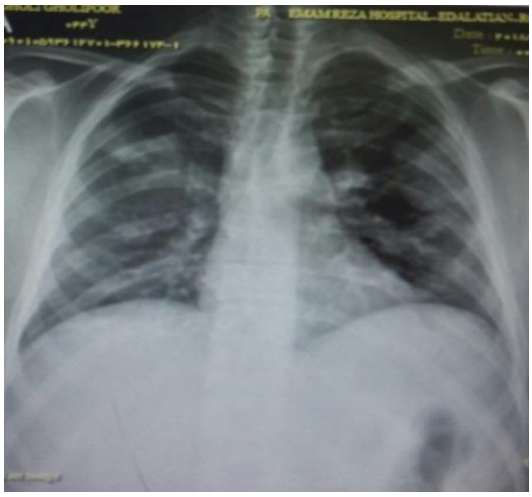

Figure 1: Lung radiography of the patient with round pneumonia

Candida and gram-negative bacilli were reported in the right eye vitreous and eye secretions smear. Naegleria was reported, which was reviewed and confirmed by a parasitologist. Due to pulmonary involvement as well as endophthalmitis, *Klebsiella* was suspected as a key pathogen that was responsible for the infection and abdominal ultrasound was requested to rule out the concurrent occurrence of a liver abscess. In abdominal ultrasound, the hypo-echo area with an indefinite range of 40 x 40 mm with internal echoes was reported in the right lobe of the liver. Transthoracic echocardiography did not indicate endocarditis. Based on all of the above findings, the patient was managed with an initial diagnosis of endogenous endophthalmitis and underwent intravenous injection as well as systemic antibiotic and antifungal therapy. An ENT consultation was requested on suspicion of Mucormycosis, according to the ophthalmologist consultant. There was no indication of Mucormycosis in sinus endoscopy. In MRI, liquid collection in the lateral wall of the left globe and extra and intra-quanal space, as well as a brain abscess were reported. (Figure 2)

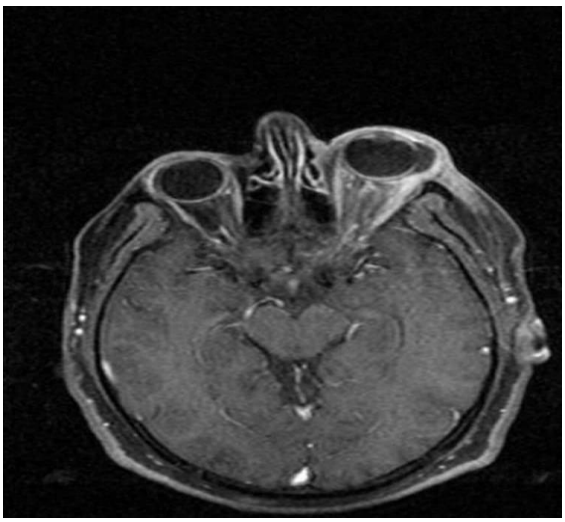

Figure 2: Endogenous complicated endophthalmitis; T1FS with contrast MR image shows orbital and preorbital cellulitis with abscess formation touch the lateral side of the left globe.

In the first few days of hospitalization, the patient had a fever. The patient was prescribed Ciprofloxacin + Vancomycin which then was changed to Meropenem + Vancomycin due to the history of a suspected drug rash. After about 72 hours, the patient's fever was remitted and leukocytosis also decreased. The patient underwent repeated eye examinations. because of the cessation of fever and the clinical and paraclinical improvement, previous treatment (Amphotericin and antibacterial) was continued. Pulmonary infiltration was also improving and liver mass was reduced on control ultrasound. Under the guidance of the CT scan, the abscess was drained. Eventually, the patient's blood culture was reported as *Klebsiella pneumoniae* which was consistent with the vitreous culture (sensitive to Ceftazidime, Ceftizoxime, Cefepime, and Meropenem). The patient's antibiotic regimen was adjusted based on the antibiogram, and the patient's intravenous treatment was continued.

Discussion:

Klebsiella pneumoniae is a gram-negative bacillus with a global spread that usually causes respiratory and urinary tract infections in the hospital or community setting. It is the second cause of gram-negative bacterial UTI after *E. coli* as well as classic pneumonia, especially in alcohol consumers and diabetic patients. It also causes bacteremia and liver pyogenic abscesses [1]. There are two pathotypes of this bacterium: hypervirulent *K. pneumoniae* and classic *K. pneumoniae*. Diabetes, gastrointestinal disease, and hypermucoviscosity are significant risk factors for hypervirulent *K. pneumoniae* infection [2].

There has been an increase in the incidence of infections caused by hypervirulent strains of *K. pneumoniae*, primarily in Asia and more recently in other countries. The geographical distribution of this syndrome has been reported with a wide range of clinical manifestations. Diabetes, especially with poor blood sugar control, has been identified as one of the strongest risk factors for invasive disease. It is assumed that gastrointestinal colonization with hypervirulent strains leads to spread and proliferation into the liver through the portal venous system [3]. Increased blood pressure and male gender at 41 to 50 years of age are independent risk factors for hypermucoviscosity of *k. pneumoniae* [4]. *Klebsiella pneumoniae* invasive syndrome happens as a rare clinical condition characterized by primary liver abscesses related to bacteremia and metastatic infections including brain abscess, purulent meningitis, endophthalmitis, and necrotizing fasciitis. The origin of the invasive infections of *Klebsiella pneumoniae* remains unknown in some patients. In the community-acquired disease, patients have normal immunity and do not have any underlying intestinal or hepatobiliary disease. The invasive nature of these species is due to specific pathogenic properties such as hypermucoviscosity. These specific species are sensitive to most antibiotics and are therefore relatively easy to treat. Mortality rates range from 4 to 11 percent, reflecting the delay in diagnosis due to a lack of clinical suspicion in western physicians [5]. *Klebsiella pneumoniae* is the most prevalent pathogen leading to endogenous endophthalmitis [6]. Endogenous endophthalmitis is a rare and severe disease with the potentiality of blindness [7]. The

disease occurs when organisms spread through the bloodstream and invade the eye through the blood-brain barrier. Endogenous endophthalmitis is less prevalent than exogenous endophthalmitis [6].

There is a tendency for Pneumonia caused by *K. pneumoniae* (Friedlander's Disease) that occurred in alcoholics, and is characteristic of the involvement of the upper lobes, producing hemoptysis-induced jelly sputum, bulging fissure in radiographs caused by edematous lobar congestion and abscess formation. *Klebsiella* is also the cause of community-acquired liver abscesses and metastatic infections, including endophthalmitis. Also, in some parts of East Asia, such as Japan, endophthalmitis is associated with liver abscesses [8]. Hepatic and endophthalmitis abscess syndrome has been reported in patients with diabetes mellitus in East Asia and Thailand, but is not limited to those areas and is also seen in Western countries and Iran [9]. Transient bacteremia rarely causes endophthalmitis. In 40% of cases, the source is infectious endocarditis and other causes include intraocular abscesses, transient bacteremia in injecting drug abusers, hepatic or gastrointestinal abscesses, urinary tract infections, meningitis, and infectious catheters. The most common germs are *Staphylococcus aureus*, *Streptococcus,* and gram-negative bacilli.

Delay in the diagnosis of endophthalmitis is common, but endophthalmitis should be considered in any patient with acute vitreous and hypopyon. Patients with known endocarditis should be examined after novel vision complaints [10].

This report warns us that after encountering febrile patients, a careful history should be taken, an exact examination should be performed and any new symptoms in the patient should be asked. Even if the patient is discharged, he or she should be told to return as soon as any new problems occur, including coughing, dyspnea, decreased vision, or persistent fever. In a patient who is diagnosed with endogenous endophthalmitis, it is necessary to look for possible foci of infection, such as liver abscesses, endocarditis, urinary tract infections, and so on. Careful follow-up will save the patient from serious complications, such as decreased vision and blindness or death.

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Conflict of interest:

The authors declared that they had no conflict of interest.

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