



Tehran University of Medical
Sciences Publication
<http://tums.ac.ir>

Iranian J Parasitol

Open access Journal at
<http://ijpa.tums.ac.ir>



Iranian Society of Parasitology
<http://isp.tums.ac.ir>

Case Report

Co-infection of Malaria and Crimean-Congo Hemorrhagic Fever

**B Sharifi-Mood¹, M Metanat¹, F Rakhshani², A Shakeri³*

¹*Research Center for Infectious Diseases & Tropical Medicine, Zahedan University of Medical Sciences, Zahedan, Iran*

²*Department of Health, Zahedan University of Medical Sciences, Zahedan, Iran*

³*Department of Anesthesiology, Zahedan University of Medical Sciences, Zahedan, Iran*

(Received 15 Feb 2011; accepted 18 July 2011)

ABSTRACT

Southeast of Iran is an endemic area for Malaria and Crimean-Congo hemorrhagic fever (CCHF). In 1999, we faced with an outbreak of CCHF in Sistan and Baluchistan Province, in the border of Pakistan and Afghanistan. The most cases of Malaria in Iran are also reported from this area. This article presents a 17-year-old woman who admitted to our hospital because of acute fever, headache, epistaxis, hemorrhagic lesions on the skin and vaginal bleeding. Finally, she was recognized as a case that was co-infected with CCHF and malaria.

Keywords: Coinfection, Crimean-Congo Hemorrhagic Fever, Malaria, Iran

Case report

A 17-year-old woman from Zahedan (South-eastern Iran) referred to our hospital with a history of acute fever, headache, myalgia, and mild epistaxis from 36 hours ago. During the first day of illness, she had received acetaminophen and non-steroidal anti-inflammatory drugs. Twelve hours later, she noticed hemorrhage into the skin more on the chest and her abdomen. Therefore,

she was admitted to infectious ward. She did not have any abdominal pain, vomiting, cough, and flu like syndrome. She denied any contact with animals and she did not have any history of recent travel and trauma. On physical examination, she looked pale. There were small hemorrhages under the skin especially on the chest and abdomen. Spleen was palpable. The findings of the re-

*Corresponding Author: Tel: +98/541 / 3236969, Fax: +98/541/ 3212975; E-mail: batoolsharifi@yahoo.com

remainder of the physical examinations were normal. The patient's hemoglobin level was 9.1g/dL, and her platelet count was 18,000 platelets/mm³. Erythrocyte sedimentation rate was 25 mm per h. SGOT and SGPT were more than five upper normal limits. Prothrombin time (PT) was 17. Other laboratory values, including the results of urinalysis, and biochemical tests were within normal limits. Urine and blood cultures were negative. Diagnostic tests for hepatitis B and C viruses were negative. Radiography of chest was normal. On 3th day of hospitalization, blood smear revealed *Plasmodium falciparum* and so, she had the symptoms of severe malaria, and she received intravenous quinine. Because, at this time, we faced with many patients with CCHF, we sent a blood sample to Reference Laboratory, Tehran, Iran for evaluation of CCHF. She treated by oral ribavirin and received platelet and fresh frozen plasma. She had also received ceftriaxone and amikacin from the first day of admission. Unfortunately, on 4th day of admission, she deteriorated and sent to ICU. On the same day, she died due to massive gastrointestinal (GI) and vaginal hemorrhage. Three weeks later, we received a positive test (RT-PCR and IgM-ELISA) for CCHF.

Discussion

Malaria is an infectious disease which caused by a parasite called *Plasmodium* (1). It is mainly widespread in tropical and subtropical areas like as many countries in Africa, Asia, South, and Central America (2). Transmission occurs through the bite of infected mosquitoes. In human body parasite multiply in the liver and then release and infects red blood cells. Malaria could be a life-threatening disease by disrupting the blood supply to the vital organs, if it is diagnosed late and not treated soon (1,2). Symptoms of malaria include fever, shivering, headache,

myalgia and sometimes-abdominal pain, vomiting, cough, flu like syndrome or anemia due to hemolysis (1).

Similarly, these symptoms can be observed in CCHF. CCHF is a viral hemorrhagic fever and caused by infection with a tick-borne virus (*Nairovirus*) in the family of Bunyaviridae (3). CCHF is found throughout the Central Asia, Southern Europe, Africa, and In the Middle East (4-6). Ticks; especially those of the genus, *Hyalomma*, are both a reservoir and a vector for the CCHF virus. Animals, such as sheep, cattle, goat, camel, and sometimes hare serve as important hosts for the virus (1, 5, 6). Transmission to humans occurs through contact with infected animal blood or tick bite. Nosocomial infection has also reported in hospitals due to unsuitable sterilization of medical equipment (8). CCHF infection was rarely reported in Iran before 1999. Since spring 1999 epidemic of this infection has been occurred in some regions of Iran especially in Sistan and Baluchistan, Southeast of Iran (1, 3, 7). The disease usually occurs in young or middle age men. Symptoms are acute fever, headache, myalgia, vomiting, abdominal pain, or flu like syndrome. Hemorrhagic manifestations can occur in this disease due to thrombocytopenia or DIC the same as can be observed in malaria (1). Therefore, in endemic area, these both diseases can mistake together and could be together as co-infection. In our knowledge, our patient is the first case of co-infection malaria and CCHF in this region. We recommend every physician should be aware of co-infection malaria and CCHF in area where two both infections are endemic.

Acknowledgements

The authors declare that there is no conflict of interests.

References

1. Mandell G, Bennet J, Dolin R. *Plasmodium* species (malaria). In: Principles and Practice of Infectious Diseases. Vol 2. 6th ed. Elsevier; 2005: Chapter 272.
2. Sharifi-Mood B, Metanat M. Severe thrombocytopenia due to *Plasmodium Vivax*. 2009, 18th National congress of infectious diseases and tropical medicine. Iran, Tehran. P3
3. Mardani M, Keshtkar-Jahromi M. Crimean-Congo hemorrhagic fever. Arch Iranian Med. 2007;10(2): 204 – 214.
4. Chapman LE, Wilson ML, Hall DB, et al. Risk factors for Crimean-Congo hemorrhagic fever in rural northern Senegal. J Infect Dis. 1991; 164:686-92.
5. Sharifi-Mood B, Alavi-Naini R, Metanat M. Ten years after the beginning of the Crimean-Congo Haemorrhagic Fever outbreak in Iran: A promising report. IJCID. 2009; 4(3):189-19.
6. Sharifi-Mood B, Alavi-Naini R, Metanat M, Rakhshani F. Ribavirin ; an effective drug for treatment of patients with CCHF, a seven years experiences. Pak J Biol Sci. 2006; 9: 1598 – 1600.
7. Metanat M, Sharifi-Mood B , Salehi M, Alavi-Naini R. Clinical outcomes in CCHF : A 5 years experiences in the treatment of patients with oral Ribavirin. Inter J Virol. 2006; 2(1):21-24.
8. van Eeden PJ, Joubert JR, van de Wal BW, King JB, de Kock A, Groenewald JH. A nosocomial outbreak of Crimean-Congo haemorrhagic fever at Tygerberg Hospital. Part I. Clinical features. S Afr Med J. 1985;68:711-7.