

Crimean-Congo Hemorrhagic Fever: Report of Three Cases from Iran

Mehdi Jamshidi¹, Nima Daneshi¹, Mohammad Taher Parad¹, Ali Jamshidi^{2*}, Ali Asghar Valipour², Abolhasan Difrakhsh³ and Kaivan Kajkolahi³

¹Department of Epidemiology, Shiraz University of Medical Sciences, Shiraz, Iran

²Abadan School of Medical Sciences, Abadan, Iran

³Behbahan School of Medical Sciences, Behbahan, Iran

*Corresponding author: Ali Jamshidi, Abadan School of Medical Sciences, Abadan, Iran, Tel: 98-936-4723252; Fax: 98-615-3265361; E-mail: jamshidiali91@yahoo.com

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Abstract

Introduction: Crimean-Congo Haemorrhagic Fever (CCHF) is a viral haemorrhagic fever caused by RNA virus (Nairovirus -family: Bunyaviridae). CCHF can cause severe infection in humans with a fatality rate of up to 25%-30%. Typically signs are headache, agitation, high fever, mood instability, muscular pain, thrombocytopenia, leukopenia, leukocytosis, nosebleeds and black stools with 1-7 days' incubation period.

Case Presentation: This study report Three human Crimean-Congo fever cases in Behbahan city in Khuzestan province of Iran MAY 2016.

Conclusions: The main reasons for the transfer of CCHF in this cases, contact with contaminated meat, non-compliance with the rules relating to the slaughter, animal slaughter outside the slaughterhouse, the lack of sufficient monitoring of herds, lack of inspection of livestock and Insufficient education and awareness of the dangers diseases are zoonotic. Public education, respect for individual health issues and prevention against vector-borne diseases, can help to eliminate diseases such as CCHF.

Keywords: Crimean-Congo; Haemorrhagic fever(CCHF); Bunyaviridae; Iran

Introduction

Crimean-Congo Haemorrhagic Fever (CCHF) is a viral haemorrhagic fever caused by RNA virus (Nairovirus-family: *Bunyaviridae*). CCHF can cause severe infection in humans with a fatality rate of up to 25%-30% [1]. CCHF is a zoonosis (by wild and domestic animals) and widespread tick-borne(genus *Hyalomma*-family: *Ixodidae*). Due to vertical or transovarian transmission of hereditary has been preserve in the life cycle ticks, which helps keep to the viral reservoir in arthropod [2]. CCHF can cause severe infection in humans with a fatality rate of up to 25%-30%. Typically signs are vomiting, headache, agitation, high fever, mood instability, muscular pain, thrombocytopenia, leukopenia, leukocytosis, mood instability, mental confusion, throat petechiae, nosebleeds and black stools with 1-7 days' incubation period [1,3-5]. Infection has been reported in endemic areas such as Asia, Africa and Eastern Europe. Recently, cases of human infection with CCHF have increased, and have been reported from endemic countries: Senegal, Kenya, Mauritania, South Africa, Kosovo, Albania, Bulgaria, Greece, Georgia, Russia, Tajikistan, Turkey, Pakistan, Afghanistan and Iran [2,4,6-12]. Probably, genus *Hyalomma* tick plays as vector role in transmitting the virus from domestic and wild animals to humans [3]. The first report for the presence of an anti-CCHF antibody among domestic and/or wild animals in Iran was in 1970. Meanwhile, several CCHF viral infections

were detected in different regions of Iran as seropositive animals or human patients were recognized. The initial report of a clinical CCHF infection in Iran occurred in 1999. However, it has been repeatedly reported from various districts [4]. At the present time, 23 of 30 provinces of Iran, CCHF have been reported that in the Sistan-Baluchestan, Isfahan, Fars, and Khuzestan are the most heavily-infected areas [5]. This study report Three human Crimean-Congo fever cases in Behbahan city in Khuzestan province of Iran MAY 2016 (Figure 1).

Case Presentation

During MAY 2016, Three patients were admitted to Razi, Shahidzadeh and Mostafa Khomeini Hospitals in Behbahan and Ahwaz, the cases have been reported in the following:

Case 1

A 18-year-old young man was admitted to the Razi Hospital in Ahwaz with clinical symptoms including: Sudden onset of symptoms, fever, nausea and vomiting, hemoptysis, Vomiting blood, Headache, Diarrhea and Leukopenia. He was Slaughterhouse workers and 4 days after the indication of symptoms was referred to the hospital. After a presumptive diagnosis of disease, drug Ribavirin was administered to them for 10 days. Clinical and demographic patient data, recorded in the Khuzestan province center of zoonotic diseases. Hematology tests of all three listed in Table 1.



Figure 1: Behbahan of Iran.

Case 2

A 27-year-aged man with a visit to the Mostafa Khomeini Hospital in Behbahan with clinical symptoms including: Sudden onset of symptoms, fever, hemoptysis, nose and gums bleeding, Myalgia, Headache, Diarrhea and thrombocytopenia. He was Slaughterhouse workers and Three days after the indication of symptoms was referred to the hospital. After a presumptive diagnosis of disease, drug Ribavirin was administered to them for 10 days. Clinical and demographic patient data, recorded in the Khuzestan province center of zoonotic diseases.

hemoptysis, thrombocytopenia, increased liver enzymes and total bilirubin. He was Slaughterhouse packing worker and Three days after the indication of symptoms was referred to the hospital. Diagnosis, treatment and record patient information, such as prior patient was performed. Hematology tests of all three listed in Table 1.

According to epidemiological studies, all three cases, simultaneously attempting to slaughter cattle in the village of Salar Abad (One of the villages around the Behbahan city) outside the slaughterhouse, and then to confirm the integrity of the cows, the meat is transported to the slaughterhouse.

Case 3

A 34-year-old man was admitted to the Shahidzadeh Hospital in Behbahan with clinical signs such as: high fever (38–39°C),

	WBC (μL)	Hb (mg/dl)	PT (× 1000 μL)	PTT	INR	ALT(mg/dl)	AST (mg/dl)
Case 1	5300	15	12	34	1	287	130
Case 2	2800	12.3	12	36	1	311	432
Case 3	3500	15.8	12	41	1	401	738

Table 1: Hematology test of three cases, when admitted to Hospitals.

After clinical trials in hospitals as well as serologic tests at the Pasteur Institute of Iran, a final Diagnosis was announced CCHF.

Conclusions

CCHF is a viral haemorrhagic fever caused by Nairovirus and Ticks vectors in human and animals. Although most cases of the CCHF disease can be seen in domestic and wild animals, but for some reason,

sometimes sporadic and outbreaks infection occurred in humans. Outbreaks of CCHF, found a threat and fulmination to public health because of its epidemic possible, high case mortality, potential for originating in a hospital outbreaks, and also problems in treatment and prevention of this infection [13]. The geographical distribution of the Nairovirus, like that of its tick vector, is cosmopolitan; Of course, Except The 50 degrees north latitude, which the *Hyalomma* tick vectors are not found. The CCHF is endemic in many countries of

Middle East and sometimes, cases of human infection to form of sporadic and outbreaks occurs in some countries of the region as Pakistan, Iraq, Afghanistan and Islamic Republic of Iran [1-6,8,11,12,14]. livestock workers, Animal herders, slaughter houses, international travelers (with contact to livestock in endemic area) and healthcare workers in endemic areas (by contact with infectious blood) in Iran are at risk of CCHF. Khuzestan one of the most infected provinces with 7 cases in 2003 [15], of which 5 cases led to death [14]. Since 1999-2015, 42 probable CCHF cases were reported from Khuzestan province, that in each of the rural and urban areas respectively reported to 35.7% and 64.3% [5]. Behbahan city is located in Khuzestan Province at high-risk area and this was an important factor for becoming infected these people. All three cases were infected with the disease, caused by carelessness and lack of care for the slaughter of cattle was infected. Infected cattle outside slaughterhouses were killed and then were transported to the slaughterhouse. The main reasons for the transfer of CCHF in this cases, contact with contaminated meat, non-compliance with the rules relating to the slaughter, animal slaughter outside the slaughterhouse, the lack of sufficient monitoring of herds, lack of inspection of livestock and Insufficient education and awareness of the dangers diseases are zoonotic. Although the necessary care of the Behbahan Health Center and zoonotic disease prevention department of the Ministry of Health to control the disease is always in progress but we hoped that the veterinary organization and health center in the Khuzestan province and Behbahan city, have more control over cattle and slaughterhouses in the region. Public education, respect for individual health issues and prevention against vector-borne diseases, can help to eliminate diseases such as CCHF.

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Authors' Contribution

Final revision and Corresponding Author: Ali Jamshidi, Analysis and data collection: Mehdi Jamshidi, Nima Daneshi, Mohammad Taher Parad, Abolhasan Difrakhsh, Kaivan Kajkolahi, Ali Asghar Valipour.

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