



## A RARE CASE OF CRIMEAN-CONGO HEMORRAGIC FEVER

## General Medicine

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## ABSTRACT

Crimean-Congo hemorrhagic (CCHF) fever is a viral hemorrhagic fever caused by the Nairovirus of Bunyaviridae family. The course of illness is often acute and rapidly progressive with symptoms such as fever, Headache, Bodyache, Back ache. As the disease progresses large areas of bruising, uncontrolled bleeding nose and injection sites can occur. In the worst case scenarios complications such as disseminated intravascular coagulation, Shock and Acute respiratory distress syndrome can occur. The fatality of CCHF ranges from 9-40%. The long term effects of CCHF are yet to be studied. The majority of deaths have been reported in duration of 5-14 days of illness.

## KEYWORDS

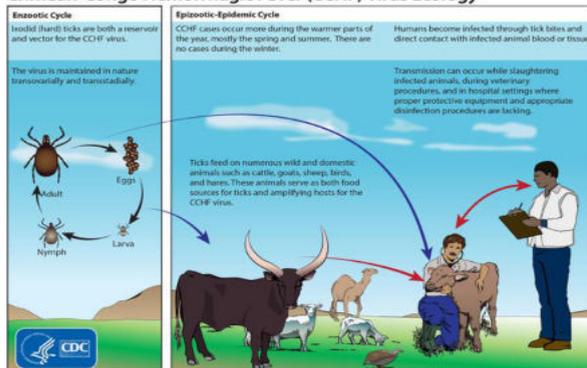
## INTRODUCTION

The disease was first characterized in Crimea in 1944. It was later recognized as the cause of disease in the Congo, hence was given the name as Crimean-Congo Hemorrhagic fever. Ixodid (Hard) tick especially of the genus *Hyalomma* acts as the both vector and reservoir of the virus. Transmission to human occurs through the bite of infected Ticks or contact with blood of Infected animals. Numerous wild and domestic animals such as Cattles, Sheep and Goat serves and amplifying hosts. It can spread from human to human through the infected body fluids and improperly sterilized medical equipment. The duration of incubation period depends on the mode of acquisition of the virus. Following infection by a tick bite, the incubation period is usually 1-3 days, with a maximum of 9 days. The incubation period following contact with infected blood or tissues is usually 5-6 days, with a documented maximum of 13 days.

Onset of symptoms is usually acute, which includes fever, myalgia, body-ache, headache, generalised weakness, photophobia. These can also be accompanied by nausea, vomiting, diarrhoea, abdominal pain, sore throat. After 4 days abdominal pain may be localised to Right Hypochondriac region due to Hepatomegaly.

Clinical signs include Tachycardia, Lymphadenopathy, Petechial rashes on mucosal surfaces such as mouth, throat which may turn into ecchymosis. There is usually evidence of hepatitis. Severe cases may experience Fulminant hepatic failure, Acute kidney injury, Type 1 respiratory failure.

## Crimean-Congo Hemorrhagic Fever (CCHF) Virus Ecology



For the diagnosis of CCHF, there are no rapid diagnostic tests. Diagnosis of suspected CCHF is performed in specially-equipped, high bio-safety level laboratories. IgG and IgM antibodies detection in serum by enzyme-linked immunoassay (the "ELISA" or "EIA" methods) from about day six of illness. IgM remains detectable for up to 4 months, and IgG levels decline but remain detectable for up to 5 years.

Patients with severe disease do not usually develop a measurable antibody response and in these individuals, as well as in patients in the first few days of illness, diagnosis is achieved by virus detection in blood or tissue samples. The virus may be isolated from blood or tissue specimens in the first 5 days of illness, and grown in cell culture. Viral antigens may sometimes be shown in tissue samples using immunofluorescence or EIA. The polymerase chain reaction (PCR) and Real-Time PCR, a molecular method for detecting the viral genome, has been successfully applied in diagnosis with high sensitivity and specificity.

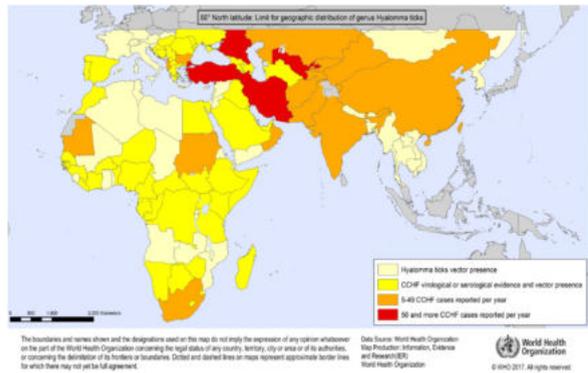
Treatment of CCHF is usually supportive. Intensive monitoring to guide Volume and Blood products replacement is usually required. The anti-viral drug Ribavirin is found to be effective in the treatment of CCHF.

## EPIDEMIOLOGY

India is considered at high risk for CCHF, due to its adjacent borders with affected countries such as China and Pakistan. Because of the long association and trade of animals of India with these adjoining countries across the border, the risk of CCHFV being passed to the India was considered high. The virus was first isolated from ticks in Pakistan in the 1960 and the first reported human case occurred in Rawalpindi in 1976. Until 2011, no cases of CCHF were reported in India. Serological evidence of the presence of CCHF in India was reported by screening for HI antibodies in animal sera from Jammu and Kashmir, the western border districts, southern regions and Maharashtra state. In December 2010, prior to the CCHF outbreak, blood samples were collected by NIV, Pune, to examine livestock from abattoirs in the northern adjoining state of Rajasthan and some more distant areas of Maharashtra and West Bengal for the presence of CCHFV-specific IgG antibodies. Serum samples of buffalo, goat and sheep from Sirohi district, in southern Rajasthan, were found to be positive for IgG antibodies against CCHFV.

The presence of CCHF disease was confirmed for the first time in India during a nosocomial outbreak, in Ahmadabad district, Gujarat state. Samples from three suspected cases, 83 contacts, *Hyalomma* ticks and livestock were screened for CCHFV by real-time RT-PCR; of these, samples from two medical professionals and the husband of an index case were positive for CCHFV. Retrospective screening of suspected human samples revealed that the virus was present in Gujarat state, during the year 2010, earlier than this outbreak. After its confirmation in India, sporadic cases of CCHF were reported in 2011–2012. During the period of 23 June to 25 July 2013, a cluster of suspected VHF cases were reported in Karyana village, Amreli district and, simultaneously, sporadic cases were recorded from Surendra Nagar, Patan district and Kutch district, Gujarat state. Owing to high alertness, a total of 198 human samples were processed by real-time RT-PCR and 19 samples

were found to be positive for CCHFV. Human suspected cases from Amreli, Kutch, Patan, Rajkot and Surendranagar were found to be positive for CCHF viral RNA. IgG antibody positivity was recorded in animals from Karyana, Nilwada and Khambhala village from Amreli district and Kundal village, Ahmadabad district.



**CASE DEFINITION**

**SUSPECTED CASE-** The NDSR defines a suspected CCHF case as a patient with sudden onset of illness with a high-grade fever over 38.5 °C for more than 72 h and less than 10 days, especially in a CCHF endemic area and among those in contact with sheep or other livestock (shepherds, butchers, and animal handlers). Fever is usually associated with headache and muscle pains.

**PROBABLE CASE-** A probable case is defined as a suspected case with an acute history of febrile illness of 10 days or less having any two of the following symptoms: thrombocytopenia less than 50,000 /mm<sup>3</sup>, petechial or purpuric rash, epistaxis, hematemesis, haemoptysis, blood in stools, ecchymosis, gum bleeding, other haemorrhagic symptom and no known predisposing host factors for haemorrhagic manifestations.

**CONFIRMED CASE-** A confirmed case is defined as any suspected case with serological confirmation using enzyme-linked immunosorbent assay (ELISA) to detect IgM against the CCHF virus or detection of viral nucleic acid by real-time reverse transcription-polymerase chain reaction (RT-PCR).

**CASE REPORT**

A 43 year old male, Hindu patient, chronic tobacco chewer, Herdsman by profession ( patient owned around 20-22 cows), coming from low socioeconomic status, residing at Dhrangadhra, Gujarat presented to SVP Hospital at 22/10/19 with chief complaints of fever since 2 days ( On and Off nature, relieved by medication) , generalised headache since 5 days, per rectal bleeding since 5 days, 3 episodes of epistaxis since 6 days. Patient had no complaints of joint pain, rashes, trauma, abdominal pain, burning micturition, haematuria.

On general examination , Patients vitals were as follows-  
 Temperature- 99.8 F  
 Pulse-112/min  
 Blood pressure-110/68 mm hg  
 Respiratory rate-24/min  
 Spo2-88% on Room air

On General examination Patient was conscious and oriented to time, place and person. Heart sounds were normal. On auscultation, Respiratory system demonstrated decreased air entry on right infra-mammary and infra-scapular region. No skin lesions were seen.

Patient's blood investigations were as follows-

Date	22/10/19	23/10/19	25/10/19	26/10/19	27/10/19	1/11/19	3/11/19	13/11/19
Hb	7.1	9.3	10.9	11.2	11.2	11.4	11.9	10.8
WBC	2770	2980	3380	4530	5060	4280	5690	6580
APC	14,000	14,000	40,000	59,000	121,000	299,000	402,000	466,000
Urea	38.5		25.7	15	15.7	34.2	34.8	
Creat	0.75		0.53	0.52	0.44	0.52	0.72	0.61
SGOT/	486/19		541/20	423/12	502/28	118/13	78/61	32/21
SGPT	04		47	52	9	2		
ALP	159		387	344	294	227	188	

PT/INR	18.8/1.30		16.9/1.16					16/1.09
APTT	42.6		42.9					22.7
LDH	2756							

Malaria by slide and paracheck-Negative  
 Dengue NS1/IGM-Negative  
 S.Widal-Negative

EDTA CCHF RTPCR-Positive (Confirmed by National Virology Institute, Pune)

S.ANTI CCHF IG M ELISA-Positive (Confirmed by National Virology Institute, Pune)

Urine CCHFV RTPCR-Negative (Confirmed by National Virology Institute, Pune)

The patient was immediately admitted in isolation ward, and was given supportive oxygen therapy and other supportive treatments. Supportive treatments included Anti-biotics, Antipyretics, Hydration , and Multiple blood product transfusions ( 4 UNIT FFP, 4 UNIT PRC, 2 UNIT PCV).

Patient was treated with Cap.Ribavirin 30mg/kg as loading dose, 15mg/kg every 6 hourly for 4 days, 7.5 mg/kg every 6 hourly for 6 days.

Patient gradually improved with the Anti-virals and supportive treatment.

Repeat samples for CCHF were sent on 8/11/19, results of which were as follows-

EDTA CCHF RTPCR-Positive (Confirmed by National Virology Institute, Pune)

S.ANTI CCHF IG M ELISA-Positive (Confirmed by National Virology Institute, Pune)

Urine CCHFV RTPCR-Negative (Confirmed by National Virology Institute, Pune)

The patient was kept admitted in view of positive RTPCR for CCHF for isolation purposes and again repeat samples for CCHF were sent on 15/11/19, results of which were as follows-

EDTA CCHF RTPCR-Negative (Confirmed by National Virology Institute, Pune)

S.ANTI CCHF IG M ELISA-Positive (Confirmed by National Virology Institute, Pune)

S.ANTI CCHF IG G ELISA-Positive (Confirmed by National Virology Institute, Pune)

Urine CCHFV RTPCR-Negative (Confirmed by National Virology Institute, Pune)

The patient was discharged on 15/11/19 from SVPIMSR.

**DISCUSSION**

Infectious diseases still play an important role in shaping morbidity and mortality of patients in developing regions. Health care workers on these areas stands at the cross roads because of non-specific overlapping features of many infectious diseases.

It is worth mentioning that despite many developments in the health care sectors, there are many short-comings. These include a limited space available in hospitals for isolation, limited availability of anti-virals, low awareness about prevention, diagnosis, and cure about CCHF in health care workers, low awareness at community level, lack of specific preventive and control strategies at country level.

**CONCLUSION**

This clinical case illustrated the case of a patient with viral hemorrhagic fever, diagnosed as CCHF in endemic area, and was successfully treated with supportive and anti-viral therapy.

**REFERENCES**

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