The First Crimean-Congo Hemorrhagic Fever Case in the Winter Season from Turkey

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Abstract
Turkey is one of the countries in which Crimean-Congo hemorrhagic fever is frequently seen and most of the cases are reported between April and August. We describe the first case of Crimean-Congo hemorrhagic fever in the winter season, when Hyalomma tick activity is absent, from Turkey.

Introduction

Crimean-Congo hemorrhagic fever (CCHF), caused by Nairovirus of the Bunyaviridae family, is a vector-borne disease with a high mortality rate (2.8–30%) [1]. The virus is transmitted to humans via ixodid (especially the Hyalomma species) tick exposure or by direct contact with blood or tissues of infected humans or viremic livestock. Numerous wild and domestic animals, such as cattle, goats, sheep and hares, serve as amplifying hosts for the virus in nature [2]. Although Hyalomma marginatum marginatum is the main vector in Southeastern Europe, ticks like Dermacentor marginatus and Rhipicephalus rossicus may play a role in the enzootic cycle of the infection [3].

The first CCHF cases detected in Turkey occurred in 2002 and since then outbreaks have been seen in Central, Northern and Eastern Anatolia, and the Eastern Black Sea region [4–7]. As of the end of 2008, 2,508 patients with confirmed CCHF had been recorded by the Turkish Ministry of Health [8]. The diagnosis of these cases was established by detection of the virus with polymerase chain reaction or anti-CCHFV immunoglobulin M antibody positivity using ELISA. In Turkey, CCHF is encountered during spring and summer, when H. marginatum ticks are active, and reaches peak levels in June and July [7, 8]. To date, no cases have been reported in Turkey during winter. We describe the first such case.

Case Description

A 60-year-old man living in the central district of Trabzon province was admitted to our hospital’s emergency department on December 14, 2008, with the following symptoms: chills, fever, myalgia, anorexia, nausea, vomiting and headache. According to his medical history, a tick was observed on his neck 6 h after he had been slaughtering cattle in an area reserved for this process during the Feast of the Sacrifice (an Islamic festival). He removed
the tick from his neck himself. On December 10, the patient visited the city hospital with chills, fever and myalgia and received ambulatory care (antipyretics). Fever and myalgia continued, and 3 days later he visited the city hospital again, where laboratory tests were repeated. The laboratory results revealed thrombocytopenia and leucopenia, and the patient was transferred to our hospital.

During admission to the infectious diseases clinic, he was conscious and demonstrated a moderate overall health status, an oral body temperature of 36.3°, pulse rate of 76 beats/min and blood pressure of 110/80 mm Hg. He had no pathology other than hyperemia and a maculopapular rash on the anterior chest. Laboratory tests revealed that leucopenia was 1,400/mm³ and thrombocytopenia was 63,000/mm³. While his hematocrit and hemoglobin values were normal, at 39.8 and 13.7%, respectively, alanine aminotransferase was 183 U/l, aspartate aminotransferase at 345 U/l, lactate dehydrogenase at 1,279 U/l, creatine phosphokinase at 301 U/l, prothrombin time 15.2 s, active partial thromboplastin time 39.4 s and international normalized ratio 1.23 were all elevated.

Ultrasonography showed right renal parenchymal disease. Laboratory results revealed thrombocytopenia, 1 g/kg intravenous immunoglobulin was administered on the following day (December 16, 2008) for 2 days. The patient exhibited no high temperature after the 4th day of hospitalization and was discharged on the 9th day (December 23, 2008).

Clinical Course

On the first day of hospitalization (December 15, 2008), gingival hemorrhage developed and the temperature rose to 39°. The platelet count decreased to 21,000/mm³. The gingival hemorrhage continued despite infusion of fresh platelets, and macroscopic hæmaturia developed. Considering the possibility of refractory thrombocytopenia, 1 g/kg intravenous immunoglobulin was commenced, to be administered on the following day (December 16, 2008) for 2 days. The patient exhibited no high temperature after the 4th day of hospitalization and was discharged on the 9th day (December 23, 2008).

Discussion

In the Balkan, Crimean and Anatolian peninsulas as well as in the Southern Federal Districts of Russia, CCHF cases are seen during the spring-summer season, and are strictly associated with the presence and activity period of H. marginatum ticks [9]. Few cases have been reported during the winter season in the former USSR [3].

At the time of the presentation of the patient, the temperature was about 13–14°, and the humidity rate was about 85%, which is favorable for the activity of Ixodes and Dermacentor but not Hyalomma spp. [10, 11]. However, there was no laboratory-confirmed verification that in this area of Turkey ticks such as Dermacentor spp. are positive for CCHF viruses.

There are some other possibilities, such as transmission from skin or meat from sheep during slaughter or subsequent procedures or from other infectious patients who came in contact with our subject. Another possibility is ticks such as H. marginatum, which do not leave the animal, having attached themselves to it, and being able to survive for extended periods of time by making use of the animal’s blood and body heat. A tick able to pass from animals to humans in cold seasons may thus be able to transmit CCHF. This last possibility more easily explains how our subject came to contract the disease.

In conclusion, ticks which live on animals and are active during the cooler months of the year are able to play a role in the spread of CCHF. We think that, due to global warming, all clinicians should be aware of the occurrence of the disease in all seasons in the Northern hemisphere.

References