

Experience in Clinical Assessment of a Suspected Ebola Patient Manifesting with Acute Abdomen

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Ebola virus disease (EVD) is an acute hemorrhagic infectious disease caused by virus species of the genus *E. virus*. Gastrointestinal symptoms such as abdominal pain, vomiting, and diarrhea may occur in EVD. The fatality rate of the disease ranges from 30% to 90%.^[1,2] It has been reported that *E. virus* is transmitted to a human index case via contact with body fluid or discharge from an infected person or animals. On March 21, 2014, EVD outbreak in Guinea was officially notified by WHO.^[3] Until July 2, 2014, the Ministry of Health of Guinea had reported a cumulative total of 412 clinical cases of EVD and 305 deaths in five provinces and the capital Conakry.^[4]

EVD patients always present with abdominal pain resulting from gastrointestinal involvement,^[5] and it is important to differentiate this pain from surgical acute abdomen.

On the morning of March 14, 2014, a 35-year-old man, with 2 days of abdominal pain, fatigue, fever, and hematemesis with a volume about 100 ml, was admitted to emergency reception as "surgical acute abdomen" to the Division of General Surgery, in L'Hôpital de l'Amitié Sino-Guinéenne, Conakry, Guinea. He was previously healthy with no medical history.

The patient was conscious and had black stool with a body temperature of 37.5°C. Physical examination showed a slight upper abdominal tenderness with normal bowel sounds. Sub-conjunctival hemorrhage was presented in his left eye. The vision was normal. Unobstructed nasogastric tube led light brown gastric juice. Further investigations showed hemoglobin level of 6.0 g/L (normal range 131–182 g/L) and mild elevations of alanine aminotransferase (160.7 U/L, normal value 5.0–40.0 U/L) and alkaline phosphatase

(218 U/L, normal value 40.0–150.0 U/L) in liver chemistry tests.

Gastrointestinal bleeding symptoms were relieved by anti-inflammatory treatment, fluid infusion, and administration of Vitamin K1, omeprazole, and mucosal protective agents. However, the patient was still febrile with the highest temperature of 39°C. Conjunctival hemorrhage of the left eye gradually expanded. Bleeding from needle puncture was observed. No other special treatment was taken except for continued administration of Vitamin K1 since there was no accessibility for coagulation test or clotting agents in that hospital. On the morning of the 4th day after admission (March 17), the patient had abrupt restlessness, convulsions, and followed by unconsciousness with enlarged double pupils and absence of light reflex. The left eye conjunctival hemorrhage occupied all the visible range. No abnormality was found in the gastric tube drainage and urine. Computed tomography scan revealed large-area cerebral hemorrhage. The patient died after failed attempts to resuscitate him. Without an autopsy, the corpse was transported to his home by the patient's next of kin in accordance with local customs. The patient's room in ward was disinfected as routine.

Five days after the death of the patient, two doctors and a nurse who had cared for the patient complained with malaise

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and severe fatigue, accompanied by nausea and anorexia. They were mildly febrile with body temperature of about 37.5°C. Self-medication with antibiotics and other drugs did not improve the symptoms.

A week after the death of the patient, Guinean government released the notification of emergence of EVD in Guinea, which is based on the laboratory confirmation of patients with unexplained bleeding from La Guinée forestière between January and February 2014 by Institut Pasteur. Based on symptoms and virus nucleic acid detection in serum samples, several close contacts of the patient, including four participants in the funeral and three health care staff, were diagnosed with Ebola infection.

L'Hôpital de l'Amitié Sino-Guinéenne was newly built, and many clinical divisions were still in construction although it is one of the three largest hospitals in Conakry. Two of our authors (Cao G and Kong Q) had been working in the hospital as medical aid doctors during the Ebola epidemic period. There was no division of digestive internal medicine or infectious diseases. All patients with abdominal pain were admitted to general surgery to determine the acute abdomen. In general, it is difficult to rule out a contagious disease with the absence of appropriate investigation owing to the limitations of the hospital facilities, especially before any information of outbreak is published. Nevertheless, this case provided some experiences on the need and practice of evaluating patients and differentiating a viral hemorrhagic fever from a surgical acute abdomen.

Firstly, abdominal pain in this patient was not as typical as that in acute abdomen. Abdominal tenderness was slight, and bowel sounds were normal. Abdominal pain was mild and did not get worse as the fever increased. Notably, to minimize further spread of infection of hospital areas, it would be important for doctors to evaluate the abdominal pain and to judge the possibility of a contagious disease before making the decision for surgery. Secondly, fatigue is a common symptom of many diseases in the initial stage. While extreme fatigue occurred in this patient

and two infected doctors, this is not common in acute abdomen. Finally, bleeding symptoms that occurred in the early stage of the disease in this patient were very striking. Gastrointestinal bleeding symptoms were eased after receiving the treatment. However, bleeding in the other tissues and organs increased as the disease progressed.

During the hospitalization, five of the seven healthcare personnel in the Division of General Surgery who had cared for the patient had direct and frequent contact with the patient. Three of them were confirmed to be infected with the virus. It is necessary to track and collect the definitive epidemiologic evidence of transmission to the other affected individuals.

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Conflicts of interest

There are no conflicts of interest.

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