A Case of Fatal Gastrointestinal Anthrax in North Eastern Iran

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Background. Bacillus species are aerobic or facultative anaerobic, gram-positive, or gram-variable spore-forming rods. They are ubiquitous in the environment and are found in water, dirt, air, stools, and plant surfaces.

Anthrax is caused by Bacillus anthracis. It occurs when Bacillus anthracis' endospores enter the body either through breaks in the skin, ingestion, or inhalation. Anthrax characterization is based upon its original mode of transmission: cutaneous, gastrointestinal, and inhalational [1]. The incubation period for the gastrointestinal form is usually 2 to 5 days but may be as short as 15 hours. The gastrointestinal (GI) anthrax develops after eating contaminated meat. Because anthrax is more common in the developing world where reporting is not common, the true incidence of GI anthrax is unknown. There are some reports of gastrointestinal anthrax in different cities of Iran. GI anthrax has been reported in Mazandaran, Shiraz, Kermanshah, Rasht, and Mashhad [2–6]. All of these cases were related to sheep and goat meat.

We present an interesting case of septicemic anthrax, in a patient with history of eating goat meat and severe gastrointestinal disorders, in Bojnurd, Iran.

1. Introduction

Bacillus species are aerobic or facultative anaerobic, gram-positive, or gram-variable spore-forming rods. They are ubiquitous in the environment and are found in water, dirt, air, stools, and plant surfaces.

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2. Case Presentation

Bacillus anthracis was isolated from a blood culture of a 34-year-old man who had a history of severe abdominal pain, bloody diarrhea, nausea, vomiting, fever, sweating, and lethargy within 4 to 5 days after eating the meat of domestic goat. He had evidence of severe infection and septic shock and did not respond to treatments and subsequently expired.
In our study we present gastrointestinal and septicemic anthrax in young male who had eaten infected goat meat. Usually, the gastrointestinal (GI) anthrax develops after eating contaminated meat. When spores germinate in the intestinal tract, they cause ulcerative lesions. These lesions can occur anywhere and may, in severe cases, result in hemorrhage, obstruction, or perforation [7, 8]. Because of the propensity of *B. anthracis* infection of the gastrointestinal tract to progress to sepsis or death, both types of gastrointestinal anthrax should be treated aggressively as a systemic illness. Anthrax can be successfully treated if the disease is promptly recognized and appropriate therapy is initiated early (surgery and antibiotic therapy). Penicillin G (24,000,000 IU/day, IV) is the best choice for therapy.

The diagnosis of GI anthrax requires a high index of suspicion which may be diagnosed on the basis of epidemiology or microbiologic, pathologic, or serologic testing. Laboratory diagnosis may be obtained from stool, blood or peritoneal cultures, tissue samples, or serologic evidence of infection [2].

We presume that the source of *B. anthracis* in bloodstream of our patient was perforation in gastrointestinal tract. This is the fourth *B. anthracis* case in the last three months in our laboratory (Emam Reza Hospital, Bojnurd, North Khorasan, Iran), although it should be noted that the other cases of anthrax had not been found in the patient’s family. Three previous cases were cutaneous anthrax. Totally, because of conventional dairy boom in rural areas of North Khorasan the relatively high prevalence of zoonotic infections such as anthrax is presumable and medical staff should be aware of that fact.

**Conflict of Interests**

The authors declare that there is no conflict of interests regarding the publication of this paper.

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