ACUTE HEMORRHAGIC ASCITES AND FULMINANT SEPSIS DUE TO ANTHRAX

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Anthrax has been developed as a biologic warfare agent. One millionth of a gram of anthrax spores constitutes a lethal inhalation dose, and a kilogram of it, has the potential to kill hundreds of thousands of people.

Anthrax is a relatively common zoonosis in developing countries. The etiologic agent is *Bacillus anthracis*. Transmission to human is usually by contamination of skin abrasions with the bacilli or spores. The most common presentation is a black necrotic skin wound (95%). Fulminant sepsis, acute abdominal pain, and ascites are among rare forms of the disease, and it is especially very rare if all of them occur in one patient. Extracutaneous forms of anthrax are generally very dangerous and life-threatening. Therefore, early recognition and prompt treatment are the most crucial steps to save the life of patients.

**Keywords** • anthrax • ascites • fulminant sepsis

Introduction

Anthrax is a relatively common zoonosis caused by *Bacillus anthracis* a gram-positive *Bacillus*. The most common presentation is a black necrotic skin wound (in 95% of the cases). Fulminant sepsis, acute abdominal pain, and ascites are among rare forms of the disease. Here we present a 21-year-old man who had fulminant sepsis with gastrointestinal involvement (hemorrhagic ascites).

Case Report

A 21-year-old man was admitted to the Emergency Unit of Imam Reza Hospital, Mashhad, Iran with acute abdominal pain, diarrhea (bloody), vomiting (hematemesis), and stupor. The symptoms had started since 3 days prior to the admission. The general condition of the patient was very bad. Physical examination revealed a pulse rate of 110/min, BP of 110/65 mmHg, R/R of 28/min, and temperature of 37.5°C. There were fluid thrill and shifting dullness (signs of ascites). He also had cyanosis.

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Anthrax is an old and well-known infectious disease. It has been described in the medical references since 34 centuries ago. Recognition of its etiologic agent (Bacillus anthracis) and many of dark and unknown aspects of disease were the results of the valuable researches and investigations of Louis Pasteur and Robert Koch (19th century). Anthrax is naturally a zoonosis and transmission to human is usually by contamination of skin abrasions with the bacilli or spores. Human to human transmission has not been documented.

There are six clinical presentations of anthrax (Table 1).

Because most physicians may know only the cutaneous form of anthrax, and are not aware of other forms, the diagnosis of extracutaneous forms is almost always delayed. Their mortality rate is very high, and only early diagnosis and prompt starting of appropriate treatment may be life-saving in some patients.

Unfortunately, he died after 24 hr with features of sepsis and gastrointestinal involvement. There was an anthrax, which usually rise the suspicion of the disease.

### Table 1. Clinical forms of anthrax

<table>
<thead>
<tr>
<th>Form</th>
<th>Clinical findings</th>
<th>Mortality rate</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutaneous</td>
<td>Black necrotic wound, tense edema (nonpitting, nontender)</td>
<td>1%</td>
<td>1, 4</td>
</tr>
<tr>
<td>Oropharyngeal</td>
<td>Ulcerative and necrotic pharyngitis with edema, breathing difficulty</td>
<td>40%</td>
<td>5</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>Severe abdominal pain and tenderness, diarrhea (bloody, watery), vomiting, hematemesis, acute hemorrhagic ascites</td>
<td>60%</td>
<td>1, 4, 6</td>
</tr>
<tr>
<td>Inhalation (mediastinitis)</td>
<td>Flue-like symptoms (2 – 4 days). Severe acute respiratory symptoms, pain, cough, hemoptyis, and dyspnea</td>
<td>75%</td>
<td>1, 3, 4</td>
</tr>
<tr>
<td>Meningeal</td>
<td>Acute onset, severe headache, repeated vomiting, disturbed consciousness</td>
<td>95%</td>
<td>1</td>
</tr>
<tr>
<td>Fulminant sepsis</td>
<td>Tachypnea, leukocytosis, hypoxemia, metabolic acidosis, oliguria, and disturbed consciousness…</td>
<td>90%</td>
<td>1</td>
</tr>
</tbody>
</table>

*Despite antibiotic treatment.

**Discussion**

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Acute hemorrhagic ascites and fulminant sepsis due to anthrax

weeks after the third dose of vaccine).  
Currently the vaccine is given in a volume of 0.5 mL (SC) at 0, 2, and 4 weeks, and 6, 12, and 18 months, followed by an annual booster.  
Pentagon had decided in 1998 that it would vaccinate every member of the US Armed Forces against anthrax (especially on the Korean Peninsula and in the Persian Gulf).  
Extracutaneous forms of anthrax are life-threatening and dangerous. Therefore, it is very important and necessary for all physicians, who especially work in the emergency services, to be aware of them, and to know their clinical pictures very well.

References