Cutaneous Anthrax Patients: Evaluation of Four Family Members

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Abstract

Anthrax is a zoonotic infectious disease caused by B. anthracis. Declining with each passing day in our country is still an endemic disease. Cutaneous anthrax (CA) is the most common form and consists of approximately 95% of all cases of anthrax. In this study, we report and discuss with literature 4 skin anthrax diagnosed patients who admitted to emergency service with complaints of no pain and black colored wound on their hands in the same family members. (Eurasian J Emerg Med 2016; 15: 54-5)

Keywords: Anthrax, cutaneous anthrax, bacillus anthracis

Introduction

Anthrax is a zoonotic and sometimes fatal infectious disease caused by Bacillus anthracis. Contamination occurs when endospores enter the body through skin abrasions, inhalation, or ingestion. Humans are considered as an incidental host and acquire the infection by direct or indirect contact or from animal products (1). Anthrax in humans may present itself in four different clinical pictures: cutaneous, inhalational, gastrointestinal, and oropharyngeal. Infection in humans most often involves the skin, causing cutaneous anthrax (CA), which comprises 95% of all anthrax cases. It mostly affects the hands, arms, face, and neck (1, 2).

A typical history that should raise suspicion for anthrax is a rapidly forming painless ulcer at the center of an edematous region following exposure. Anthrax still remains as an endemic zoonotic disease in Turkey. In this study, 4 family members who presented to the emergency department with painless and black anthrax lesions on their hands 1 week before admission. The appearance of cutaneous lesions was typical of CA (Figure 1). The patients were hospitalized in the Department of Infectious Diseases with the diagnosis of anthrax. On their initial physical examination, they were afebrile and all vital signs were found to be normal. The examination of other organ systems revealed nothing pathological. Blood samples were taken for routine analysis. Table 1 shows demographic features and laboratory results of the patients. Penicillin G 800,000 IU 2x1 iv was commenced in all patients, which resulted in successful resolution of the skin lesions within 10 days.

Discussion

B. anthracis is a disease commonly occurring in tropical regions such as Africa, Asia, and South and Central America (3). In Turkey, although its incidence has been decreasing, it still remains as an endemic problem. In total, 10724 new human anthrax cases were reported between 1960 and 1969. The numbers of reported cases were as follows: 4423 cases between 1980 and 1989, 4220 cases between 1990 and 1999, and 2210 cases between 2000 and 2005. The Turkish Ministry of Health reported the number of new cases as 262, 126, and 132 in 2007, 2008, and 2009, respectively. This downward trend in the incidence of the disease might be due to developments in the economy and social areas, effective animal vaccination programs, and education programs involving farmers (4, 5).
edema and few purplish vesicles. Malignant pustules, as common le-
necrosis and drying, forming the unique black eschar surrounded by
ritic papules. Within 24–36 h, the lesion turns to a vesicle with central
days, and they are usually in the form of nondescript, painless, pru-
weeks after infection (7).
manifestations may be seen anytime between 9 h and 8
ops following an incubation period of 2–7 days, while it is known
manifestations by inhibiting the action of polymorphonuclear cells (6).
harsh environmental conditions such as drying, heat, ultraviolet light,
visible, and have no measurable metabolism, they are very resistant to
anthrax. Because anthrax endospores may cease to grow, do not di-
and the application of many disinfectants (Dixon). Three types of proteins are present in anthrax toxin: protective anti-
gen, edema factor, and lethal factor. These toxins cause toxic clinical
manifestations by inhibiting the action of polymorphonuclear cells (6).
After acquiring CA infection, the clinical picture usually devel-
by the time and accuracy of the diagnosis. In patients with suspicious
cause of morbidity in Turkey. The prognosis is significantly affected
mals or animal products and lesions typical of the disease.
patients had malignant pustule lesions on
hands, fingers, and arms, which are exposed to infected animal and
common areas affected by lesions have been reported to be
sions, are not purulent and characteristically painless (1). The most
common areas affected by lesions have been reported to be the
hands, fingers, and arms, which are exposed to infected animal and
animal products (8, 9). Our patients had malignant pustule lesions on
their hands and fingers.
The disease mostly affects individuals who work in the fields of ani-
mal husbandry and agriculture. Patients working in the field of agriculture
comprise most cases in developing countries as it occurs in Turkey. Some
studies have reported farmers and housewives as high-risk occupations
for the disease (8, 9). All patients in our study were female housewives.
Suspicion is the first step in CA diagnosis. In areas where the dis-
ease is not endemic, making the diagnosis may be rather difficult. Brown recluse spider bites, ecthyma, accidental vaccine, ulceroglan-
dular tularemia, and necrotic herpes simplex should be considered in
the differential diagnosis of CA. Making the diagnosis may be easier
when a typical malignant pustule or extensive edema is present in a
patient with a history of contact with animals (5, 8, 9). All patients in
our study had a history of direct or indirect contact by infected ani-
mals or animal products and lesions typical of the disease.
Penicillin G, an old drug, is still the first choice in treatment;
doxycline or ciprofloxacin are the best alternative options in the
treatment of naturally occurring anthrax. Intravenous treatment
is required in case of CA with systemic involvement and extensive
edema (1). All patients in the present study received penicillin G for
treatment. None of our patients developed complications such as
secondary infection and toxemic shock, and no mortality occurred.

Conclusion
In conclusion, CA is an infectious disease and is an important
cause of morbidity in Turkey. The prognosis is significantly affected
by the time and accuracy of the diagnosis. In patients with suspicious
skin lesions and a history of contact with animals or animal products,
a diagnosis of CA should be considered.

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