

Cutaneous Anthrax After a Cat Scratch: A Case Report

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Abstract: Despite a global decline, Central Asia and Africa remain vulnerable to anthrax. Anthrax is usually caused by bacteria that enter the body through a wound from slaughtering sick animals. 95% of anthrax cases are skin-related. After 1 to 7 days, the spores in skin abrasion become vegetative. We present a 42-year-old woman with a cat scratch history who had small itchy blisters and swelling around a painless skin ulcer with a black core, low-grade fever, and hypotension. She had anemia, hypotension, and bilateral lower limb ulcers. Wound culture showed gram-positive bacilli compatible with *B. anthracis*. Blood transfusion, Ciprofloxacin 200mg/100ml twice daily, Meropenem 1g three times daily, and Clindamycin 600mg three times daily was given. Her amputated gangrene-infected finger helped her recover. Early diagnosis, antibiotic therapy, and preventive measures like immunization help control epidemics. This sporadic case of cutaneous anthrax alerts physicians.

Keywords: Anthrax; Cutaneous anthrax; Skin lesions

Introduction

Anthrax is a zoonotic disease caused by a bacterium, *Bacillus Anthracis*. This bacterium, capable of producing spores, can be quite resistant to heat and chemicals and is observed to live through the years. It can grow after contact with diseased animals and animal products (1). Cattle, horses, sheep, goats, and swine are the most commonly affected animals (2). Anthrax manifests in three primary forms: cutaneous, respiratory, and gastrointestinal (3). Cutaneous anthrax is the most common form (approximately 95% of all cases), and most cases are seen on hands and faces where exposure is more likely (4). Cutaneous anthrax is a fatal disease (20% to 30%) if not treated properly. However, antibiotic therapy has decreased mortality to less than 1% (5). Surgery should be postponed until the microorganism is completely eradicated (6).

Case report

A 42-year-old female with a cat scratch history was admitted to our infectious diseases department complaining of a group of small, itchy blisters, swelling around painless skin ulcers with a black center that appeared after the small blisters (Figure 1), low-grade fever, low hemoglobin level, and hypotension.

On examination, she was a wasted female with evidence of severe anemia; her vitals were unremarkable, except a blood pressure of 74/42mmHg sitting; she had bilateral lower limb ulcers (black in central, some pain on touching). Her blood test results revealed: WBC; 26,000, Hgb; 4.6g/dl, platelet count of 476, MCV of 62fl, MHC of 22 pg/cell, Neutrophils (95 percent), and CRP of 228mg/l. Gram-positive bacilli compatible with *B. anthracis* was observed in gram staining performed with the wound culture taken from the lesion.

Ciprofloxacin 200mg/100ml two times a day, meropenem 1g 3 times a day, clindamycin 600mg 3 times a day, and blood transfusion was given. One of her fingers was amputated due to gangrene with good debridement, and she gradually improved.

She was discharged with the plan of daily wound dressing and antibiotics for up to two months.

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Figure 1. Cutaneous anthrax lesions on the lower extremities.

□

Discussion

Although anthrax is decreasing worldwide, it is still an important public health problem in Central Asia and Africa (7).

Anthrax is most often caused by the transfer of bacteria into the body from abrasion during the slaughtering of infected animals or the skinning of dead animals (8). Skin anthrax composes 95% of all anthrax cases. The spores from a bruise on the skin become vegetative; their incubation time is approximately 1–7 days. A typical ulcerous lesion's basin characteristically becomes black. This lesion was called “anthrax,” which means coal in Greek. Depending on the severity of the disease, edema, lymphadenopathy and fever may occur (9). The diagnosis of cutaneous anthrax can be made by taking the epidemiological story and observing characteristic skin lesions; in our case, the diagnosis was based on clinical suspicion and on gram staining of the sample taken from the lesion, which showed *Bacillus Anthracis* under the microscope.

Due to the reports of beta-lactamase strains of *Bacillus Anthracis*, the American Academy of Dermatology had published guidelines to treat the patients with ciprofloxacin 500 mg 12 hourly or doxycycline 100 mg 12 hourly and one or two additional antimicrobial groups for 60 days (10).

Conclusion

Early diagnosis, treatment with antimicrobial therapies, and preventive measures like a vaccination against the spread are essential to help control outbreaks swiftly and effectively. This sporadic case of cutaneous anthrax is reported to create awareness among physicians.

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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