

Animal carcass and eyelid anthrax: a case report

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Anthrax is a worldwide zoonosis of herbivores, which is caused by the spore-forming bacteria *Bacillus anthracis*, and humans become infected when they are exposed to infected animals and their tissues or the organism directly. In this report, we present a 13-year-old boy who developed eyelid anthrax after contact with a sheep carcass during his summer holiday that resulted in eyelid anthrax and cicatricial ectropion.

Key words: anthrax, ectropion, zoonosis, animal carcass.

Anthrax is a worldwide zoonosis of herbivores, which is caused by the spore-forming bacteria *Bacillus anthracis*¹. Infection mainly occurs in wild and domestic animals; humans get infected when exposed to infected animals and their tissues or to the organism directly². Anthrax is considered somewhat as an occupational disease, since farmers, butchers, veterinarians, shepherds, and farm workers are at great risk of exposure to infected material, and it is limited to underdeveloped countries. Anthrax regained its importance as a biological warfare agent with the emergence of both respiratory and cutaneous anthrax and the death of civilians in 2002 in the United States, although it was a well-known agent that was investigated during the First and Second World Wars². Anthrax is transmitted via direct contact with infected animals and their products, such as hides or wool, and inhalation of spores².

Although anthrax has three forms of the disease, including cutaneous, respiratory and gastrointestinal forms, cutaneous anthrax accounts for the majority of the cases, mostly in exposed skin areas, such as the face and forearms^{2,3}. In the face, the eyelid is the most common site of infection³.

Timely diagnosis and proper management are mandatory even for cutaneous anthrax, since untreated cutaneous anthrax results in death in 10% to 20% of cases, whereas less than 1% will die if appropriate therapy is administered⁴.

Eyelid anthrax in particular can lead to serious complications like cicatrization and ectropion and even blinding corneal scar formation⁵. For this reason, eyelid anthrax must be diagnosed early and properly treated and requires long follow-up. In this report, we present a 13-year-old boy who developed eyelid anthrax after contact with a sheep carcass during his summer holiday that resulted in eyelid anthrax and cicatricial ectropion.

Case Report

A 13-year-old boy presented with a history of cutaneous lesion of the left eyelid of seven days' duration. He had noticed an erythematous papule in his left lower eyelid. He had fever on the second day of the appearance of the lesion. He developed diffuse edema of the left side of the face involving both of his upper and lower eyelids and the left eyelid lesion progressed into a black eschar plaque. He had a history of contact with a sick sheep carcass three weeks before during his summer holiday. They slaughtered the sheep after it had become ill, and without knowing the underlying disease of the sheep, consumed it. He had contact with the carcass during the slaughtering process.

On his physical examination, the patient was found to have diffuse edema and a patch of black necrotic eschar tissue 3 x 4 cm in size (Fig. 1). The anterior segment structures were normal on ocular examination. The ocular



Fig. 1. Lower eyelid cutaneous anthrax.

examination revealed no signs of involvement of extraocular muscles. The patient's body temperature was 38.5°C, and his heart rate was 80 beats per minute; the white blood cell count was 8700/mm³. His physical examination was normal. Orbital computed tomography revealed preseptal cellulitis of the left eye (grade I). Microscopic examination of the scraped material revealed Gram-positive rods, but no bacteria could be isolated from clinical samples including scrapings of the lesion.

Intravenous penicillin G 250,000 IU/kg (6 doses/day) and intravenous chloramphenicol (100 mg/kg/day in 4 doses) were given for 14 days. Edema and hyperemia regressed on the fifth day of therapy, but the eschar tissue remained after discharge. The scab had fallen off by the third month.

Discussion

The most common form of anthrax is cutaneous anthrax, characterized by generalized severe edema of the involved site, and periocular involvement is not a common feature of the disease. Periocular anthrax mainly involves the upper eyelid and then spreads to the lower eyelid and cheeks^{3,4}. Edema of the involved site then regresses, and a characteristic necrotic tissue associated with pustules known as "eschar" is formed. Granulation tissue develops within two to four weeks on the eschar, in which lymphangitis and lymphadenopathy accompany.

Although confirmation of the diagnosis with isolation of bacillus in the culture is necessary, it could not be achieved in all cases. It was reported that only two-thirds of the cultures were positive in periocular involvement³. In our case, although the culture was negative, the diagnosis was supported with the microscopic examination of scraped material showing Gram-positive rods.

Cicatricial ectropion is one of the most serious complications of periocular anthrax³⁻⁷. Yorston and Foster⁵ reported that 8 of 11 patients with cutaneous anthrax of the eyelid had developed cicatricial ectropion despite appropriate therapy including high doses of penicillin. Although the number of cases is low in Turkey^{3,6-8}, the ratio of the long-term sequelae of the disease was high despite antimicrobial therapy. Our patient also developed ectropion despite antimicrobial therapy and absence of corneal ulceration.

Although anthrax is a rare disease thought to be limited to underdeveloped countries and special occupational risk groups, it has regained its importance in medical and public health issues worldwide as a biological warfare agent used in bioterrorist activities¹. Thus, every physician might be faced with anthrax cases. We would like to point out the importance of detailed medical history and animal contact, and in the case of eyelid anthrax, prolonged follow-up is necessary.

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