

# Anthrax of the eyelids

Abdelouahed Amraoui, Khalid F Tabbara, Khalid Zaghoul

## Abstract

**Anthrax is a disease caused by *Bacillus anthracis*. The disease affects primarily herbivores including sheep, cattle, horses, and other domestic animals. Humans may rarely be affected. We examined one male and two female patients with a localised itchy erythematous papule of the eyelid. A necrotising ulcer formed in each of the three cases resulting in a black lesion. Scraping in each case showed Gram positive rods and culture grew *Bacillus anthracis*. All three patients responded to the intravenous administration of penicillin G, and the lesion resolved leaving scars in two cases. Anthrax is a rare disease but should be considered in the differential diagnosis of ulcers or pustules of the eyelids.**

(*Br J Ophthalmol* 1992; 76: 753-754)

Anthrax is a disease of herbivores caused by *Bacillus anthracis*. Humans become infected as they come into contact with infected animals or animal products.<sup>1</sup> Cutaneous anthrax accounts for the majority of cases<sup>2,3</sup> but oropharyngeal anthrax may appear.<sup>4</sup> The clinical presentation is characteristic: infection begins as a small itchy papule that enlarges within 24-48 hours, developing into an ulcer surrounded by vesicles. A black, necrotic, central eschar then forms, which is characteristic of the disease. Oedema is often striking, especially if the lesion is situated on the face. Lymphangitis and regional lymphadenopathy may occur. The disease may be fatal in about 20% of the cases if untreated.

We report three cases of anthrax of the skin of the eyelids.

## Case reports

### CASE 1

A 32-year-old female farmer noted a small erythematous papule in her left lower eyelid. This was followed by a vesicular eruption and eschar formation 8 days prior to admission. On examination the patient was found to have diffuse oedema of the left upper and lower eyelids with inability to open the eye. The left lower eyelid showed a black eschar with a plaque and slight ectropion (Fig 1). Visual acuity and the remainder of the ocular examination were normal.

Scrapings of the lesion revealed Gram positive rods, and culture yielded *Bacillus anthracis*. The patient was started on systemic penicillin G, 10 million units intravenously per day for a period of 7 days. The lesion resolved, with persistent cicatricial ectropion of the left lower eyelid (Fig 2). A biopsy specimen of the cutaneous lesion was subjected to histopathological evaluation.



Figure 1 A 32-year-old woman with a dark eschar and ectropion of the left lower eyelid. Culture grew *Bacillus anthracis*.

This revealed a localised nodular granuloma and Gram positive rods.

### CASE 2

A 43-year-old male presented with a history of a localised cutaneous lesion of the left eyelid of 15 days' duration. The patient gave a history of a small erythematous papule which became vesicular and painful, and has been associated with severe pruritis. On examination the patient was found to have a black eschar of the left lower eyelid, measuring 2 cm in diameter, which was surrounded by multiple vesicles. Other findings



Figure 2 Same patient in Figure 1 after treatment with systemic penicillin.

Centre Hospitalier,  
Universitaire De  
Casablanca, Morocco  
A Amraoui  
K Zaghoul

Department of  
Ophthalmology, College  
of Medicine, King Saud  
University, Riyadh, Saudi  
Arabia  
K F Tabbara

Correspondence to:  
Dr K Tabbara, PO Box 55307,  
Riyadh 11534, Saudi Arabia.

Accepted for publication  
22 July 1992

in both eyes were normal. The patient had a temperature of 38°C. Scrapings of the eyelid revealed Gram positive rods, and culture revealed *Bacillus anthracis*.

The patient was admitted to hospital and was given 10 million units of penicillin G intravenously each day for a period of 7 days. The lesion healed completely within 10 days, leaving no clinical evidence of eyelid abnormalities. Histopathological studies of the lesion biopsy specimen revealed a chronic inflammatory reaction.

#### CASE 3

A 45-year-old woman presented with a history of a localised erythematous lesion of the left outer canthus, extending into the left upper and lower eyelids. The lesion was painful. On examination the patient was found to have a black eschar with necrosis of the upper and lower eyelids. The left cornea was normal but the anterior chamber showed flare and cells with evidence of posterior synechiae. Ophthalmoscopy of both eyes revealed normal optic nerve head, blood vessels, and retina. The right eyeball was normal.

Culture of the lesion grew *Bacillus anthracis*. The patient was treated with 10 million units of penicillin G given intravenously each day for a period of 7 days. She showed progressive improvement and complete healing of the skin lesion at the left outer canthus, associated with slight cicatrisation. The patient was seen again and had complete resolution of her uveitis in the left eye.

#### Discussion

Human infections are usually divided into two

groups: agricultural and industrial. Our cases appeared to be agricultural infections as all persons involved were farmers who gave histories of contact with domestic animals. The ultimate reservoir of *Bacillus anthracis* is the soil. The organism has an ability to sporulate. Anthrax spores, however, do not give rise to cases of anthrax in animals, and a vegetative phase is required whereby the spores multiply and mature before animals can become infected. In countries where anthrax is enzootic, bones from animals may be contaminated with anthrax. This material is often used as fertiliser or as supplement to animal foods and has accounted for several human cases of cutaneous anthrax.

All three cases reported by us had localised itchy papules of the eyelid followed by a vesicular eruption and eschar formation. The treatment of anthrax with systemic penicillin is effective and was curative in all three patients. Anthrax is a rare disease but should be considered in the differential diagnosis of ulcers or papules of the eyelids. In case 3 there was, however, complete healing of the cutaneous anthrax of the patient's left outer canthus, and the uveitis in her left eye recovered completely following the systemic administration of intravenous penicillin G, and without use of topical steroids.

- 1 McKendrick DRA. Anthrax and its transmission to humans. *Cent Afr J Med* 1980; 26: 126-9.
- 2 Yorston D, Foster A. Cutaneous anthrax leading to corneal scarring from cicatricial ectropion. *Br J Ophthalmol* 1989; 73: 809-11.
- 3 Heyworth B, Ropp ME, Voos UG, Meinel HI, Darlow HM. Anthrax in Gambia: an epidemiological study. *BMJ* 1975; 1: 79-82.
- 4 Navacharoen N, Sirisanthana T, Navacharoen W, Ruckphaopunt K. Oropharyngeal anthrax. *J Laryngol Otol* 1985; 99: 1293-5.