

## A mini outbreak of cutaneous anthrax in Vizianagaram district, Andhra Pradesh, India

Sir,

Anthrax is a disease of herbivorous animals caused by *Bacillus anthracis* and humans incidentally acquire the disease by handling the infected dead animals and their products.<sup>[1-4]</sup> Sporadic cases of cutaneous anthrax by biting flies have been reported.<sup>[5,6]</sup> Unfortunately,

*Bacillus anthracis*, has also been a potential source for bio-terrorism acts.<sup>[7]</sup> Cutaneous anthrax is the commonest and other two, pulmonary and gastrointestinal anthrax are uncommon forms.

Many regions in India are still enzootic for animal anthrax; however, it is less frequent to absent in North India, and sporadic cases of human anthrax have been reported especially from Southern states of India.<sup>[8]</sup> In Andhra Pradesh, Chittoor, Cuddapah, Guntur, Prakasam and Nellore districts are known endemic areas for animal and human anthrax.<sup>[9,10]</sup> Recently six tribal patients were described with cutaneous anthrax from a remote tribal area in Visakhapatnam.<sup>[11]</sup> Now four more patients presented with similar clinical features from a different tribal area, which comes under Vizianagaram district, Andhra Pradesh, India.

Four tribal men were brought to the Department of Dermatology during the month of September 2007, with an undiagnosed skin disease of 8–10 days duration. These patients had painless ulcers with vesiculation and edema of the surrounding skin on the extremities without any constitutional symptoms. These cutaneous lesions made us to suspect cutaneous anthrax. There was a history of animal death in their house 10 days prior to the onset of these skin lesions. They did not seek any medical advice for nearly 8 days. Axillary lymphadenopathy was present in one of the four patients and one patient had cervical lymphadenopathy. There were no constitutional symptoms. Patient's vital data was normal. The clinical details of all cases are given in Table 1. After obtaining the detailed history of contact with an infected carcass and the characteristic clinical features, a diagnosis of cutaneous anthrax was made.

In order to establish our clinical diagnosis, the following investigations were performed. Smears and swabs were taken from vesicles, beneath the ulcers and fluid from the surrounding edematous region. These specimens were sent to the Department of Microbiology, for conventional methods like Gram staining and culture. In addition to these specific investigations, routine blood and biochemical investigations and chest X-ray were done in all cases.

The direct smears of all the four suspected cases revealed thick Gram-positive bacilli. The bacilli were found singly and some showed capsule. These smear findings were suggestive of *Bacillus anthracis*.

The collected swab exudates were inoculated onto



**Figure 1: Two ulcerative plaques covered by black eschar surrounded by edema**



**Figure 2: Ulcer with surrounding erythema and edema covered with a black eschar**

**Table 1: Clinical details of cutaneous anthrax patients**

Age (years) /sex	Clinical features	Associated features	Investigations done
11/ Male	Painless noduloulcerative lesion over the right cheek covered by a black eschar for 8 days	Bilateral cervical lymph nodes enlarged and non-tender	Gram +ve bacilli, culture showed opaque growth on blood agar
38/ Female	Presented with two ulcerative plaques covered by black eschar surrounded by edema over the left wrist for 9 days [Figure1]	No lymphadenopathy	Gram +ve bacilli, culture showed opaque growth on blood agar
40/ Female	Painless ulcer with surrounding erythema and edema covered with a black eschar, over the right middle finger for 10 days [Figure 2]	No lymphadenopathy	Gram +ve bacilli, culture showed opaque growth on blood agar
62/ Female	Presented with hemorrhagic blister over the right thumb for 10 days	Right axillary lymphadenopathy, non-tender	Gram +ve bacilli, culture showed opaque growth on blood agar

blood agar, which showed non-hemolytic, large, irregular, raised, dull, opaque, grayish white colored colonies with a frosted glass appearance, suggestive of *Bacillus anthracis*.

All the cases were treated with ciprofloxacin 500 mg twice a day orally and ampicillin 500 mg, eighth hourly orally for a period of two weeks.

Lab diagnosis of cutaneous anthrax depends upon

microscopic examination of Gram-stained smears from the lesions and cultures from the skin lesions. Confirmation of cutaneous anthrax depends upon polymerase chain reaction (PCR).<sup>[1,7]</sup> even in cases of prior antimicrobial therapy. In all our four cases, direct smears from skin lesions showed thick, Gram-positive bacilli and culture-yielded *Bacillus anthracis* growth, confirming the diagnosis. As the culture showed the growth in all cases, so the test for PCR was not done. All four cases responded dramatically to ciprofloxacin and ampicillin therapy and lesions healed without scar formation.

Anthrax is a disease of public health importance and is a notifiable disease. Once the diagnosis was established in our area, the concerned district health authorities and animal husbandry personnel were informed about existence of anthrax in these areas to take up immediate control measures.

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