Cutaneous Anthrax: What is the Hallmark?

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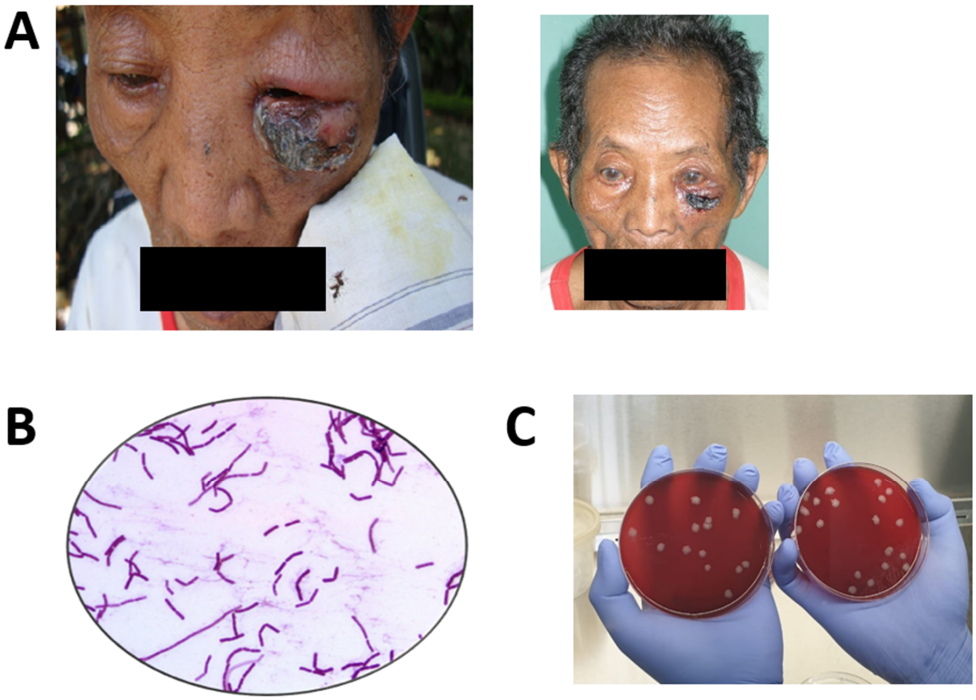

Figure 1.

A 71-year-old man complained of a blackish wound under his left eye, which began with fever and reddish spots after helping to slaughter a cow and cut its meat. The fever occured especially in the afternoon to evening, and is not accompanied by chills and sweating. On day 4 of fever onset, the fever diminished and the spots progressively widened with swelling. On day 7, the lesions on the skin became open wounds that were not purulent and did not bleed. On day 9, a blackish, painless layer appeared over the wounds and widened, further covering their surface. Upon

presentation, the patient's general condition was good, with normal vital signs and temperature. He presented with a solitary ulcer accompanied by edema, sized 1 cm x 3 cm, not hyperemic, firm border, flat edge, and covered with blackish eschar (**Figure 1A**).

Blood tests revealed normal levels of hemoglobin, leukocyte, platelets, kidney and liver function. The anti-anthrax protective antigen (anti-PA) IgG level is found to be seropositive with a level of 85 U/ml. Gram staining of the tissue underneath the eschar found Gram-positive rod bacteria in reddish-purple color (**Figure 1B**). The patient was clinically diagnosed with probable cutaneous anthrax, and was treated with amoxicillin 500 mg orally t.i.d. for three days and paracetamol 500 mg if fever developed. The tissue sample was sent to a laboratory with Bio Safety level 3 facilities for microbiological culture, with the results of *Bacillus anthracis* growth (**Figure 1C**). On day three after antibiotic administration, the wound was smaller (0.5 cm x 1.5 cm), firm border, flat edge, with a bit of edema above it. The eschar was thickened, painless, not purulent nor bleeding. Antibiotic administration is continued for another three days with amoxicillin 500 mg orally t.i.d. On day 6 of antibiotic administration, the eschar began to peel off, and antibiotics were stopped. On the 10th day, the eschar peeled off entirely without leaving a mark.

Anthrax in humans is a zoonotic infection caused by *Bacillus anthracis* that often arises after animals suddenly die (within 2-3 hours from appearing normal) from anthrax.[1] The clinical manifestations of in humans are cutaneous, gastrointestinal, and pulmonary anthrax.[2,3] More than 80% of anthrax that occurs in Indonesia is cutaneous anthrax, with a mortality rate of less than 5%.[3] Early diagnosis is especially important in endemic areas.[2,3] Yogyakarta and Central Java have the highest anthrax prevalence rates in Indonesia.[4]

Transmission of anthrax from animals to humans often occurs due to indirect contact. The incubation period is from 1 to 12 days.[5,6] The hallmark of cutaneous anthrax lesions includes painless or pruritic papule with disproportionately wide soft tissue edema. The lesions progress into ulcers and eventually black eschars within 7-10 days, and last for 7-14 days before sloughing and leaving scars.[7] The classification of anthrax diagnosis is divided into 3 types of cases: suspected, probable, and confirmed. This is very important in determining the steps to be taken when there is a case of anthrax in an area.[2,6] The management of anthrax is by giving antibiotics as early as possible and regular evaluation.[3,8] Cases with inadequate diagnostics and treatment may develop into airway obstruction by compression on the trachea from edematous swelling around neck lesions, septic shock, meningitis, temporal artery inflammation, deep tissue necrosis and secondary infection.[9]

Early diagnosis is crucial in preventing the spread that may lead to more cases. Clinical and serological examinations are the spearheads of early detection of anthrax cases. Prompt and appropriate management largely determines the success of therapy.

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