

## Cutaneous Staphylococcal Granuloma in a Free Living Zebra (*Equus burchelli*) in Zambia

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**ABSTRACT.** An outgrowth on the left anterothoracic region behind the elbow joint was seen in a free living Zebra at the time of postmortem examination. The covering skin was ulcerated, nodular, hard with multiple fistula containing yellowish pus. A pure culture of coagulase positive *Staphylococcus aureus* was isolated from the deep tissue. Histopathology revealed pyogranulomatous dermatitis characterized by eosinophilic amorphous grains including bacterial colonies. This is the first report of cutaneous staphylococcal granuloma in Zebra in Zambia. — **KEY WORDS:** cutaneous staphylococcal granuloma, Zambia, Zebra.

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Cutaneous staphylococcal granuloma (so-called botryomycosis) is a granulomatous bacterial lesion of the skin and subcutis and similar lesion rarely occurs in the viscera [1, 4, 5]. As far as we know there is no report of such a condition in Zebra (*Equus burchelli*). Therefore we intend to report here a case of cutaneous staphylococcal granuloma in a free living Zebra in Zambia.

Game animals including Zebra captured at Lochinvar National Park of Zambia in 1992 were translocated to one of the game ranches which have been established under a new concept of wildlife conservation and their utilization in the region. One of the Zebras became lame and was shot in November 1995. A tumorous outgrowth measuring about 18 cm × 10 cm × 5 cm on the left anterothoracic region behind the elbow joint was noticed at the time of postmortem examination. The surface was ulcerated, nodular, hard with draining tracts and yellowish thick pus oozed from the lesion.

Yellowish pus taken from inside of the mass was inoculated onto 5% sheep blood agar plates (Difco) and Sabouraud's agar. The cultures were incubated aerobically and anaerobically at 37°C. The tumorous tissues fixed in 10% formalin were trimmed and embedded in paraffin wax. Sections cut at 5 µm in thickness were stained with hematoxylin and eosin, Hucker's Gram, periodic acid-Schiff and Ziehl-Neelsen's carbolfuchsin stains.

Histopathological examination revealed that the hard lesion of the skin was a very thick mass of collagen including multiple discrete and/or confluent granulomas. The granulomas contained amorphous eosinophilic materials and colonies of cocci varying in size and lined with irregular ragged edges (Splendore-Hoeppli reaction). Degenerated neutrophils, foamy macrophages and epithelioid cells surrounded the amorphous eosinophilic structures (Fig. 1). Irregular-shaped foamy giant cells also clustered in some areas. Suppurative change extended along the vasculatures,

resulting in separation of collagen bundles. Plasma cells infiltrated sparsely among separated collagen bundles and clustered around the small vessels in some portions. Hucker's stain demonstrated Gram positive cocci resembling Staphylococci in the centre of granuloma (Fig. 2). PAS and Ziehl-Neelsen's stains failed to demonstrate any fungus or acid fast-bacteria in the lesion. A pure culture of coagulase positive *Staphylococcus aureus* was isolated. Any organisms did not grow on Sabouraud's agar.

*Staphylococcus aureus*, *Esherichia coli*, *Pseudomonas aeruginosa*, *Actinobacillus lignieresii*, *A. equuli*, Bacteroides, Streptococcus and Proteus have been implicated as a cause of cutaneous pyogranuloma [2, 4, 5]. However, the most common cause of equine botryomycosis has been reported to be *Staphylococcus aureus* [4]. Most cases of cutaneous pyogranuloma were initiated by local trauma associated with or without foreign body [3, 4]. Trauma may be an important prerequisite for inoculation of the organisms [4]. In the present case we believe that an injury to the skin caused by foreign body contaminated with Staphylococci might have resulted in typical lesions. The lesions seen in the present case were similar to those reported in cattle and horses [1,

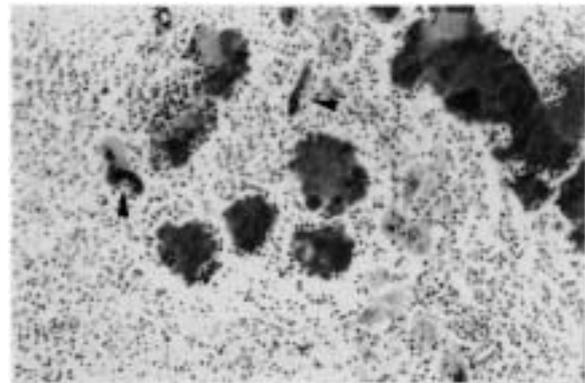


Fig. 1. The granuloma containing amorphous eosinophilic material and foreign body giant cells (arrow heads). H & E stain. × 148.

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Fig. 2. Colonies of Gram positive Staphylococci in amorphous eosinophilic material. Hucker's Gram stain.  $\times 148$ .

4]. This study suggests that the Zebra can suffer from cutaneous staphylococcal granuloma and this can cause damage to the skin a most valuable by-product of game ranching from Zebra. It is suggested that even minor injury

should be treated with antibacterial substances to prevent this condition. This is the first report of cutaneous staphylococcal granuloma in wildlife particularly in Zebra in Zambia.

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