

CRYPTOCOCCOSIS IN A CAMEL (CAMELUS DROMEDARIUS)

BY

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(Received: 9.11. 1989)

INTRODUCTION

Cryptococcosis is caused by the yeast *Cryptococcus neoformans* (Saunders 1948; Barron 1955). This is a saprophyte with wide distribution in the soil particularly those enriched with bird manure (Emmons 1955). The infection has been reported in most species as generalized disease or granulomatous meningoencephalitis (Blood et al., 1983). San Felice (1894) isolated an encapsulated yeast from the lungs of swine and lymph node of an ox.

This report would probably be the first to describe *Cryptococcus neoformans* infection in the one-humped camel.

CASE HISTORY

An adult 5-year old she-camel weighing about 450 kg. was presented to the Veterinary Teaching Hospital of the King Faisal University suffering from diffuse swelling of the head for about 25 days.

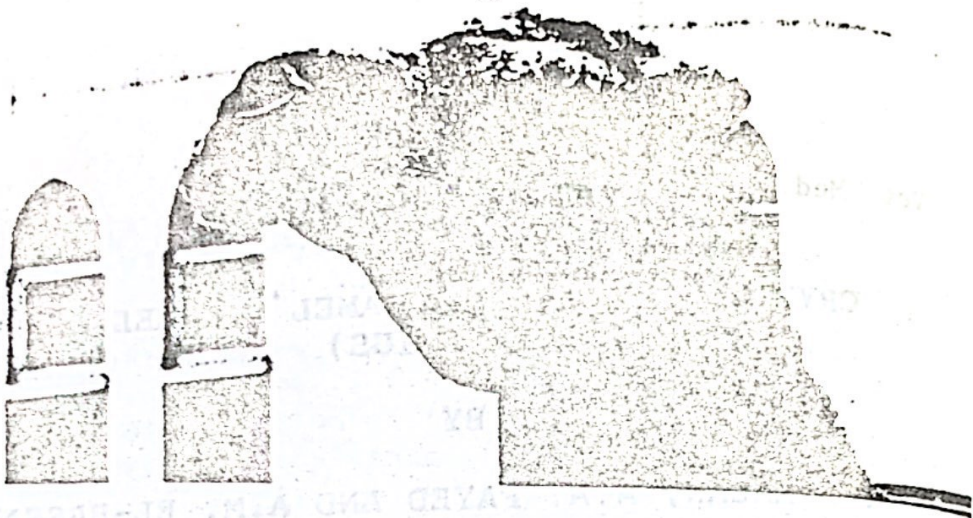


Fig. 1: Swelling of the supraorbital fossa and crusts on the mandibular regions.



Fig. 2: Same camel as above, front view.



Fig. 3: Subcutaneous abscesses on the side of the body covered by crusts.

Cryptococcosis in a Camel (Camelus dromedarius).

CLINICAL FINDINGS

Clinical examination revealed a crusty diffuse swelling extending from the angle of the mouth on both sides to the sub mandibular space and filling the supra-orbital fossa (Fig. 1). The eyes were sunken. The skin over the area was mostly dry. When this skin was removed, multilocular cavities filled with whitish creamy pus was identified. There were similar lesions on both sides of the body, an area which coincided with the places where the camel was rubbing on his head (Fig. 2).

LABORATORY INVESTIGATIONS

Tissue biopsy was collected under aseptic conditions for microbiological studies. Part of the biopsy was fixed in 10 per cent neutral formol saline for histopathological examinations.

TREATMENT

The camel was inoculated with broad spectrum antibiotics (Tetracycline Long acting) and the wound was dressed and sprayed with aerosol of (CNG) Chloramphenicol, Neomycin and Gentian violet. The owner was advised to repeat the spray frequently.

RESULTS

Results of microbiological examinations; Giemsa stained smears from the exudate revealed large 8-15 um spherical, thick-walled single budding yeast. Sabouraud's glucose agar cultured plates incubated at room temperature for 2 days showed cream coloured colonies with smooth edges and the growth had aromatic odour. Biochemically, the isolates fermented inositol and hydrolysed urea. The isolate was typed as *Cryptococcus neoformans*.

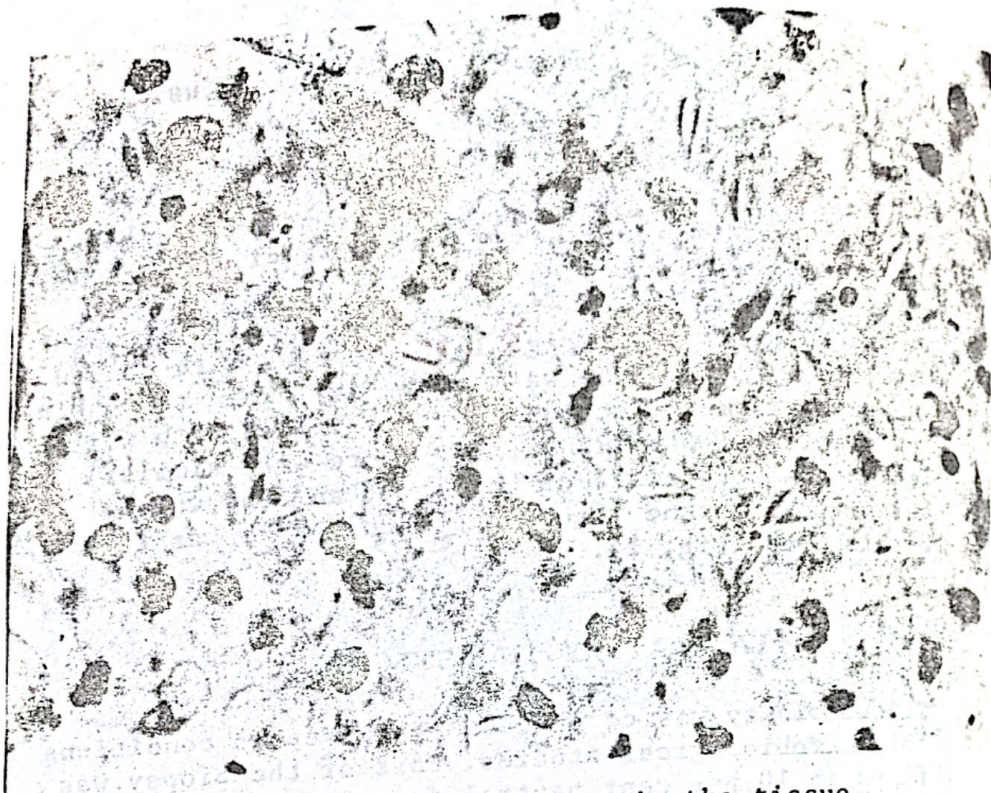


Fig. 4: Several PAS positive yeasts in the tissue. Note the unstained capsule surrounding the two organisms in the center of the field. The elliptical.

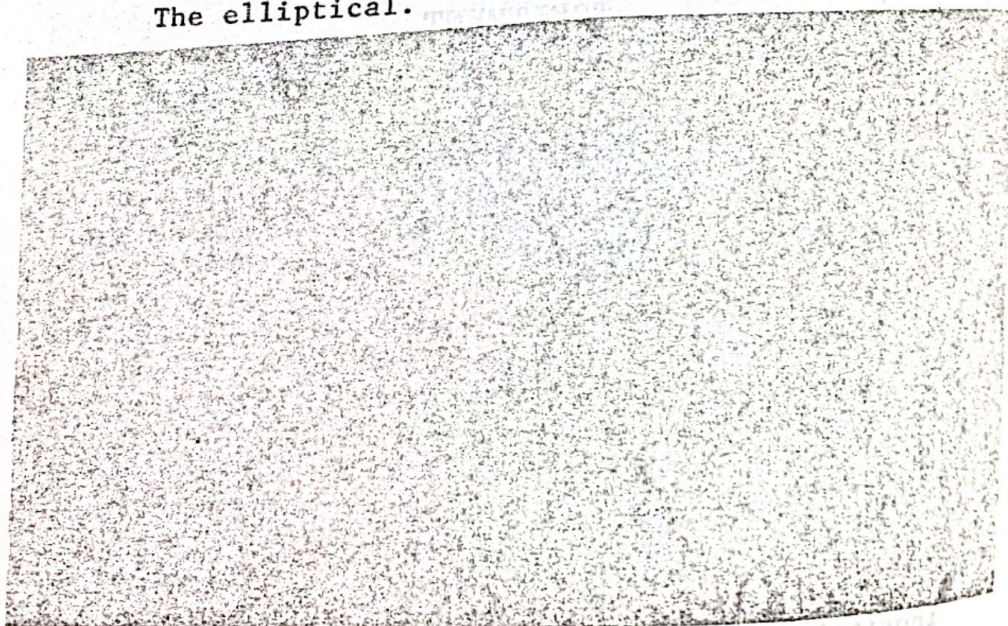


Fig. 5: Single narrow-necked budding yeast in the center of the field (PAS x 1000).

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Results of histopathological examination; Sections from the ulcerated area showed granulation tissue in which there was an acute inflammatory exudate and colonies of bacteria. Deeper in the section the inflammatory reaction consisted of lymphocytes and histiocytes with fewer neutrophils. Scattered throughout the tissue there were many extracellular single budding yeast that measured 5-10 u. In the PAS stained sections, the body of the yeast was strongly positive and several organisms were surrounded by an unstained capsule (Fig. 4). The budding was narrow necked (Fig. 5). Some of the blood vessels were thrombosed but no fungus was detected in the vessels.

DISCUSSION

Cryptococcosis was reported in birds, cats, dogs, pigs and cattle (Barron 1955) but it was not described in camels before. In animals the infection is usually in the form of pneumonia, meningoencephalitis. In man the disease usually affects the lungs where it may remain localized or disseminated to other organs (Rippon, 1982). Dissemination is particularly common in the compromised host.

The source of infection could be from ingestion of food contaminated with bird droppings as the yeast is found in the skin and mucous membranes of man and animals (Emmons, 1955). From these sites the organisms may infect an incidental wound in the skin or mucosa producing the disease. In man however the main portal of entry is the lung. Entrance of organism through the skin, nasopharynx or alimentary tract is possible but is considered to be rare (Rippon, 1982). In the case described here the probable portal of entry is the skin as there was no evidence of disease in other organs.

Cryptococcosis in a Camel (Camelus dromedarius).

The tissue reaction in cryptococcosis varies depending on the organ affected. Two basic histological patterns are described: gelatinous and granulomatous (Moor, 1957). The gelatinous type is characterized by many organisms and mucoid degeneration of the tissues. The granulomatous lesion consists of histiocytes, giant cells and lymphocytes. The pathology in this camel was modified by the secondary bacterial infection. Further studies are needed to determine the prevalence and significance of cryptococcosis in the camel.

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