

Case Report

FELINE CRYPTOCOCCOSIS IN MALAYSIA : A FIRST REPORT

A. Habibah¹, A. R. Mutalib², M. Hair-Bejo² and H. G. Heng^{1*}

¹ Dept of Veterinary Clinical Studies

² Dept of Pathology and Microbiology

Faculty of Veterinary Medicine, Universiti Putra Malaysia
43400 UPM, Serdang, Selangor Malaysia

SUMMARY

Cryptococcosis was diagnosed in a Domestic Shorthair cat showing upper respiratory signs of sneezing, stertorous, bilateral mucopurulent nasal discharges and swelling over the frontal area and nasal bridge. The diagnosis was made based on cytology, culture and histopathology. Treatment with itraconazole was unsuccessful because of poor client compliance. To our knowledge, this is the first report of cryptococcosis in cats in Malaysia.

Keywords: Cats, cryptococcosis, cytology, itraconazole

INTRODUCTION

Cryptococcosis is caused by *Cryptococcus neoformans*, a saprophytic, round, yeast-like fungus, 3.5 to 7µm in diameter. It has a worldwide distribution and infects humans and animals including dogs and cats. The organism has been isolated from soil and food but is most commonly associated with pigeon droppings (Medleau and Barsanti, 1990).

Cryptococcus neoformans has a characteristic thick capsule, which the organism normally produces in the infected tissues. This organism may not produce this capsule in the environment or when grown in artificial media. During asexual reproduction, the organism forms one or two buds with a narrow base. The yeast population is from buds breaking off and can easily be seen on smears made from fine needle aspirates, tissue scrapings or nasal flushings (Medleau and Barsanti, 1990).

In cats, the disease commonly involves the upper respiratory system with signs of sneezing, snuffling and serous, mucopurulent or haemorrhagic nasal discharges. The majority of cases also show swelling of the nose bridge and a polyp-like mass protruding from inside the nostrils. Other organs that may be affected are the skin, eyes and central nervous system. The usual cutaneous lesions are nodules on the nasal bridge or alopecic, ulcerated and crusted nodules on the nasal planum. Similar lesions may occur on the trunk, limbs, neck and tail (Grogan and Hart, 1997).

This paper reports a case of cryptococcosis in a cat presented to the University Veterinary Hospital, Universiti Putra Malaysia (UVH-UPM). To our knowledge, this is the first report of the disease in cats in Malaysia.

CASE REPORT

History

A 3-year-old female Domestic Shorthair cat weighing 2.5kg was presented to University Veterinary Hospital, Universiti Putra Malaysia (UVH-UPM) for a second opinion on the chronic swelling of the frontal region and difficulty in breathing. The cat had a history of sneezing and nasal discharges and swelling on the nasal bridge for 3 weeks prior to presentation. The cat was thin and breathing stertorously without other abnormal findings. A private practitioner treated the cat for Feline Upper Respiratory Disease, but the problem was not resolved. Radiographs taken then revealed a soft tissue density on the right side of the nasal cavity. Biopsy samples sent to a medical pathology laboratory returned with the interpretation of a granulation tissue.

Clinical findings

The swelling was soft and non-painful, extending over the medial canthus. The nasal bridge was also swollen. Proliferative flesh-coloured lesion completely occluded the right nostril and partially covered the left nostril (Figure 1). There was ulceration and crusting of the mucocutaneous junction of both nostrils.

Radiography

Radiographs of the skull showed an increase in density of the nasal cavity on the right side with lysis of the nasal bone.



Figure 1: Swollen frontal area and nasal bridge of the case

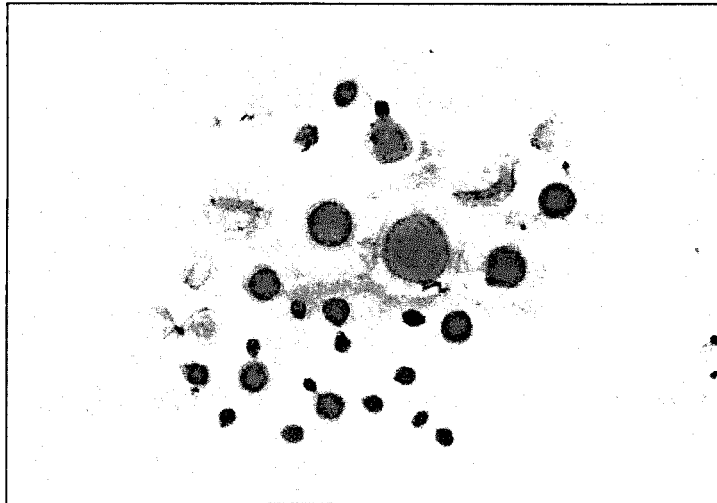


Figure 2: Typical narrow based budding and thick capsules of the cryptococcal organisms on Gram stain (x 40)

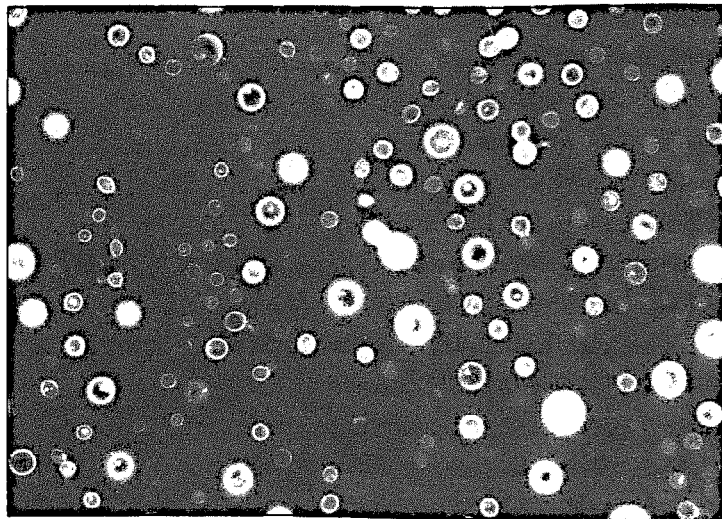


Figure 3: India-ink staining of the cryptococcal organisms (x 40)

Cytology

Tissue scrapes, fine needle aspirates (FNA), and nasal flushings were obtained for cytology. Fine needle aspirates stained with Wright's stain revealed round organisms of varying sizes with thick capsule and narrow-based budding. Nasal washings stained with Gram's revealed Gram-positive round organisms with thick capsules and prominent budding and with India-Ink stains they were round with a thick clear capsule against a dark background (Figures 2 and 3).

Blood

Analysis of blood parameters revealed neutrophilic leukocytosis, hyperproteinaemia (87.5g/l) with hyperglobulinaemia (63.92g/l). The cat tested negative for FIV and FeLV on ELISA (Idexx Laboratories, Inc).

Diagnosis

A diagnosis of Cryptococcosis made based on these findings was confirmed by culture of the nasal washings. Growth on Sabouraud's Dextrose Agar, after incubation for 48 hours at 37°C, showed smooth and creamy mucoid colonies, typical of *Cryptococcus neoformans*.

Treatment

The cat was treated with Itraconazole, 100mg at half a capsule (40mg/kg) once a day for 2 months. The cat responded well to the treatment during the first 6 weeks. However, there was no reduction in the size of the swelling although the consistency changed from firm to soft. The cat was also able to breathe much easier. The dose was increased to one capsule a day. However, on subsequent visit one month later, the condition worsened whereby the swelling on the head had increased in size and the nostrils completely blocked with proliferative tissue. The cat was again breathing stertorously. The owner reported that medicating the cat was occasionally difficult because of its temperament and thus could not fully comply with the medication regimen. Since the cat was also anorexic, the drug could not be incorporated into its food. The owner subsequently requested for the cat to be euthanised.

Post-Mortem

Tissue biopsies of the lesions showed chronic severe granulomatous dermatitis. A round to oval yeast-like cells surrounded by a clear halo of unstained capsule was identified. The lesions were also moderately infiltrated by mononuclear inflammatory cells.

DISCUSSION

Cryptococcosis is a disease that is fairly easy to diagnose either cytologically or by culture. In our opinion, histopathological diagnosis is only an option and radiographs provide evidence of the extent and severity of the lesions. Cytologically, the presence of a thick capsule surrounding the cell and narrow-based budding characterise *Cryptococcus neoformans* (Tyler *et al.*, 1989).

The differential diagnoses for this case were sporothricosis and histoplasmosis. *Sporothrix schenckii* organisms are smaller than *Cryptococcus neoformans* and frequently exhibits its diagnostic feature, the cigar-shaped bodies. Histoplasmosis commonly affects the respiratory system. *Histoplasma capsulatum* cells are similar to *Sporothrix* organisms, but without the cigar-shaped bodies. Moreover, these organisms are found intracellularly rather than extracellularly (Clickenbeard, 1991).

The diagnosis of cryptococcosis can be done through cytological examination, tissue biopsy, fungal isolation and serology using latex cryptococcal antigen test. Cytological diagnosis is simple, rapid and can easily differentiate these organisms from other deep mycoses. Several stains such as new methylene blue, Gram, DiffQuick, Wright and India ink are used to visualise the organisms, although care must be taken when using India ink as lymphocytes, fat droplets and aggregated ink particles can be mistaken for the organisms (Medleau and Barsanti, 1990).

Many authors have reported the successful use of benzimidazoles for the treatment of cryptococcosis. Itraconazole was chosen because it was known to have fewer side effects than ketoconazole, while fluconazole was more expensive than the other two drugs. Itraconazole has been known to be effective for the treatment of cryptococcosis in 57% of cats (Medleau and others 1995). Amphotericin B and flucytosine can also be used alone or in combination but have the disadvantage of requiring intravenous administration, thus hospitalisation and close monitoring are needed (Malik *et al.*, 1996). In this case, there was treatment failure with the use of itraconazole. This was attributed to poor compliance to medication instructions by the owner due to the temperament of the cat.

Itraconazole is known to be hepatotoxic resulting in anorexia, vomiting and an elevation in serum liver enzymes. Therefore, it is recommended that the serum liver enzyme concentrations are monitored for early detection of liver damage. Temporary withdrawal of the drug is indicated in such situations and the anorexia will usually resolve.

In conclusion, Cryptococcosis is a deep mycotic disease that can be easily diagnosed cytologically. Treatment with itraconazole is recommended for the cutaneous form of the disease.

ACKNOWLEDGEMENT

The authors would like to thank the staff of University Veterinary Hospital, Universiti Putra Malaysia for their kind cooperation in the handling of the case. We would also wish to express our gratitude to Prof. Rasedee Abdullah for his contribution in the preparation of the manuscript.

REFERENCES

- Clickenbeard, K.D. (1991). Diagnostic cytology: sporotrichosis. *Compendium of Continuing Education for the Practicing Veterinarian* **13**: 207-211.
- Grogan, S.G. & Hart, B.D. (1997). Feline cryptococcosis: a retrospective evaluation. *J. Am Anim. Hospital Assoc.* **33**: 118-122.
- Medleau, L. and Barsanti, J.A. (1990). Cryptococcosis. In: *Infectious Diseases of the Dog and Cat*. Greene, C.E.(Ed), 3rd ed. Philadelphia, W.B. Saunders. pp. 687-695.
- Tyler, R.D., Cowell, R.L., Baldwin C.J. and Morton R.J. (1989). Introduction. In: *Diagnostic Cytology of the Dog and Cat*. Cowell R.L. and Tyler R.D. (Ed). American Veterinary Publications. Inc., pp. 1-20
- Malik, R., Craig, A. J., Wigney, D. I., Martin, P. and Love, D. N. (1996). Combination chemotherapy of canine and feline cryptococcosis using subcutaneously administered amphotericin B. *Aust.Vet. J.* **73**: 124-128.
- Medleau, L., Jacobs, G. J. and Marks, M. A. (1995) Itraconazole for the treatment of cryptococcosis in cats. *J. Vet. Internal Med.* **9**: 39-42.