J. Vet. Malaysia (1999) 11(1): 45-46

SHORT COMMUNICATION

MELIOIDOSIS IN A SULPHUR-CRESTED COCKATOO (*CACATUA GALERITA*)

A. Nurizan

Regional Veterinary Laboratory,
P.O. Box 63, Bukit Tengah,
14007 Bukit Mertaiam, Malaysia.

SUMMARY

Melioidosis was diagnosed in a sulphur-crested cockatoo when *Burkholderla pseudomallei* was isolated from the lung, heart, liver, spleen and kidney of the affected animal. Foci of caseation with epitheloid cells surrounded by fibrous tissue encapsulation were observed in the liver. The lungs had localised necrosis with infiltration of lymphocytes and fibrous tissue. There were congestion with localised interstitial lymphocyte infiltration and tubular necrosis in the kidney. Focal necrosis was observed in the spleen.

Keywords: Melioidosis, sulphur-crested cockatoo, *Burkholderia pseudomallei*

Melioidosis is a glander-like disease of man and animals caused by a gram-negative bacterium, *Burkholderia pseudomallei*. The organism is found in the soil and water of the tropic (Straus *et al.*, 1969). In Malaysia, the disease was first discovered in 1913 and subsequently was reported in laboratory animals, pig and goat (Omar, 1963), sheep (Lim and Retnasapathy, 1967), calf (Chooi *et al.*, 1967), spider monkey and gibbon (Lim and Mukhundan, 1968), race horse (Loganathan and Tan, 1983) and deer (Chiang, 1989). In 1967 melioidosis was reported in a parrot (Lim and Tan, 1967). This paper describes another case of melioidosis in an avian involving a sulphur-rested cockatoo (*Cacatua galerita*).

A sulphur-crested cockatoo *(Cacatua galerita)* was found dead 3 weeks after it was brought into a park. Prior to death, the animal was chained to a wooden perch along a pathway in the park.

Necropsy was carried out on the same day. Lung, heart, liver, spleen and kidney were collected for bacterial isolation by direct culture on ox blood agar. Bacterial identification was based on morphology, staining reaction, culture characteristics and standard biochemical reactions. The same tissue were fixed in 10% formalin, embedded in paraffin and sectioned at 5μm. Haematoxylin and eosin stains were used.

At necropsy, necrotic foci were observed in the liver as reported by Lim and Tan (1967). The kidney was swollen while the heart and intestine were congested. Gram-negative, bipolar rod organisms were isolated from all organ examined. The morphology, cultural characteristics and biochemical reactions revealed the organism as *Burkholderia pseudomallei* (Cottral, 1979). No other organisms were isolated.

This bacterium was found to be sensitive to tetracycline, chloramphenicol, enrofloxacin, kanamycin, neomycin and trimethoprim. It was reported that tetracycline and chloramphenicol were amongst the drugs of choice for the treatment of melioidosis in human and animals, although treatment was not often recommended in animals (Nor Aidah, 1993). In animals, therapy was ineffective and involved high cost since prolonged treatment was needed.

Microscopically, there were foci of caseation in the liver, which were surrounded by epitheloid cells and fibrous tissue encapsulation (Fig. 1). This was different from the lesions described by Lim and Tan (1967) who reported non-capsulated foci of necrosis and suppurative exudate in the liver. There were haemorrhages and localised necrosis with infiltration of lymphocyte and fibrous tissue in the lung. The kidney exhibited widespread vascular congestion with localised interstitial lymphocyte infiltration and tubular necrosis. There was focal necrosis in the spleen while the heart, intestine and brain were congested.

The caseation necrosis with epitheloid and fibrous tissue but without giant cell reaction was typical lesions observed in melioidosis (Omar, 1963). The lesions in the liver, however, was indicative of a mature lesion often seen in chronic melioidosis (Omar, 1963). The lung and kidney lesions were similar to the changes described by Omar (1963).

The route of infection in this case was probably through ingestion as indicated by the chronic changes in the liver before the organisms were disseminated haematogenously to other organs. Ingestion of contaminated feed and water appears to be the main route of infection (Lopez, 1995).

In conclusion, melioidosis observed in this sulphur-crested cockatoo is of chronic type with typical melioidosis lesion in the liver. Its detection in a park bird is alarming since the affected animal was placed along the pathway and within the reach of the public visiting the park. Thus, zoonotic spread is possible.

The management should isolate newly arrived birds for a period of 30 days before placing them on wooden perch on the pathway.

ACKNOWLEDGEMENTS

The author would like to thank the Director General of Veterinary Services, Malaysia for his kind permission to publish this paper and Dr. Ong Bee Lee for her encouragement.

REFERENCES

Chiang, B.L. (1989). An outbreak of melioidosis in Fallow Deer. *In*: Proceedings of the 1st Congress Veterinary Association Malaysia. pp97-100.

Chooi, A.C., Lim, S.Y., Shanmugaran, P. and Rajagopal, K.M. (1967). Melioidosis in a calf. *Kajian Vet.* **1**: 80-83.

Cottral, G.E. (1979). *In:* Manual of Standardised Method for Veterinary Microbiology. Cornell University Pess, New York. p373

Lim, S.Y. and Retnasapathy, A. (1967). Melioidosis in a local sheep. *Kajian Vet.* **1**: 77-79.

Lim, S.Y. and Tan, B.E. (1967). *Actinobacillus whitmori* isolated from a parrot. *Kajian Vet.* **1**: 44-48.

Lim, S.Y. and Mukundhan, V. (1968). Melioidosis in a spider monkey and a gibbon. *Kajian Vet.* **1**: 180.

Loganathan, P. and Tan, S.H. (1983). A case of melioidosis in a racehorse. *Kajian Vet.* **15**: 74-76.

Lopez, A. (1995). Respiratory system. *In:* Thomson's Special Veterinary Pathology. W.W. Carlton and M.D. McGavin (Eds.). Mosby Yearbook Inc., St. Louis. p128

Nor Aidah, A.R. (1993). Melioidosis in animals. Technical Report No. 15. Department of Veterinary Services. Malaysia.

Omar, A.R. (1963). Pathology of melioidosis in pigs, goat and a horse. *J. Comp. Path.* **73**: 359-372.

Straus, J.M., Ellison, D.W., Gan, E., Jason, S., Marcarelli, J.L. and Rapmund. G. (1969). Melioidosis in Malaysia II. Distribution of *P. pseudomallei* in soil and surface water. *Am. J. Trop. Med. Hyg.* **18**: 698-702

RINGKASAN

MELIOIDOSIS DALAM SEEKOR KAKAK TUA JAMBUL KUNING (CACATUA GALERITA0

Melioidosis telah didiagnoskan dalam seekor kakak tua jambul kuning apabila Burkholderia pseudomallei *telah dipencil daripada paru-paru, jantung, hati, limpa dan ginjal burung tersebut. Fokus pengkaseatan dengan sel epitheloid yang dikelilingi pengkapsulan tisu bergentian telah dicerap dalam hati. Paru-paru meunjukkan nekrosis setempat dengan penyusupan limfosit dan tisu bergentian. Kesebakan dengan penyusupan limfosit setempat dan nekrosis tubul berlaku dalam ginjal. Nekrosis juga dicerapkan dalam limpa.*