

**MELIOIDOSIS IN A SUMATRAN ORANG UTAN  
(PONGO PYGMEUS ABELII)\***

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**SUMMARY:** A case of chronic melioidosis in a Sumatran orang utan (*Pongo pygmeus abelii*) is reported. Moderates areas of multiple abscesses were demonstrated in the liver, spleen and diaphragm. A pure culture of *Pseudomonas pseudomallei* was isolated from the liver; a chronic liquefactive necrotising hepatitis was observed, histologically.

**Keywords:** Melioidosis, *Pseudomonas pseudomallei*, Sumatran orang utan, rats.

## INTRODUCTION

Melioidosis, a disease caused by the bacteria *Pseudomonas pseudomallei* was first recognised in a native Burmese in 1911 (Whitemore, 1913). Two years later, the disease was reported in laboratory guinea pigs and rabbits in Malaysia (Stanton and Fletcher, 1932). Cases of melioidosis have since been widely reported in both man (Chaowagul *et al.*, 1989) and animals such as in pigs and goats (Omar *et al.*, 1963), cats (Chooi *et al.*, 1982), horses (Loganathan and Tan, 1983), camels (Bergin and Torenbeeck, 1991) and non-human primates (Tammenmagi and Johnston, 1963; Retnasabapathy and Joseph, 1966; Dance *et al.*, 1992).

This paper reports a case of melioidosis in a Sumatran orang utan (*Pongo pygmeus abelii*) at Zoo Melaka, Malaysia.

## CASE HISTORY

A 15-year-old male Sumatran orang utan, housed in an enclosure measuring 10 x 5 x 5 m<sup>3</sup> and fed with fruits and vegetables, was first found to be inactive, weak, pyrexia and anorexic thirteen days prior to death. Initially, the animal responded well with the therapy namely; 80 mg of trimethoprim and 400 mg of sulfa-methoxazole, orally, twice daily for 5 days. On the 10th day, the animal was recumbent. The animal was then

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\*This paper was presented on the 4th Veterinary Association Congress, 4th October 1992, Kuala Lumpur, Malaysia.

treated with 8 ml of 20% tetracycline (intramuscularly) and 750 mg amoxicillin and 1000 mg paracetamol, (orally). However, it did not respond to treatment and it was found dead three days later. The carcass was submitted to Universiti Pertanian Malaysia for necropsy.

*Pseudomonas pseudomallei* has isolated from multiple pulmonary abscesses of wild rats captured in the same compound at the Zoo about three months prior to the present case (Zamri-Saad, 1991).

## LABORATORY FINDINGS

### *Necropsy and Histopathology*

The carcass was presented in a fairly good condition, however, it was slightly emaciated and dehydrated. The subcutaneous tissues were moderately yellowish. The most prominent gross lesions were a moderate numbers of pale yellowish nodules of abscesses ranging from about 3 to 15 mm in diameter in the liver, spleen and diaphragm. The nodules consisted of yellowish mucoid to caseous material. Most of the abscesses were encapsulated, especially the larger ones, but the capsule was less developed in the small abscesses. The affected organs as well as the lung and kidney were also moderately congested. Histological examination of the liver, spleen and diaphragm showed multifocal areas of liquefactive necrosis. The affected regions were also intensely infiltrated by both mononuclear and polymorphonuclear leukocytes, especially the neutrophils.

### *Bacteriology*

*Pseudomonas pseudomallei* was isolated in pure growth from the liver abscess only on both the blood and Mac Conkey agar plates after 48 hours of incubation. The bacterial colonies were greyish, dry, wrinkled with an earthy odour on the blood agar. On Mac Conkey agar, the colonies had a bright metallic-shine and appeared dry. Gram staining of direct smears showed gram negative rods or coccobacilli often with bipolar characteristics. The colonies were positive for oxidase, citrate, nitrate reduction, mortality and urea, but negative for indole on biochemical tests. Colonies subcultured on Triple Sugar Irons were alkalined at both the butt and slant and negative for gas and hydrogen sulfate.

## DISCUSSION

The absence of any specific clinical signs, despite of moderate hepatic, splenic and diaphragmatic abscesses in the present case may have resulted in the failure to diagnose the disease earlier. There are reports of cases where there were no visible lesions in the lung, superficial lymph nodes or skin (Dance *et al.*, 1992). The pulmonary lesions is more commonly found in cases of melioidosis in man (Chaowagul *et al.*, 1989) but the lesions have also been reported in the orang utan (Tammemagi and Johnston, 1963) and in the macaque monkey (Retnasabapathy and Joseph, 1966). It has been suggested that the pulmonary lesions are associated with inhalation as the primary route of infection (Dance *et al.*, 1992).

The route of transmission of melioidosis in the present report is unknown. *Pseudomonas pseudomallei* has the potential to be transmitted either by direct or indirect routes from infected animals to other animals or man or from the environmental contamination. However, neither the soil nor the water or feed materials were examined for the presence of the bacteria. The role of rats in the epidemiology of melioidosis has been suggested earlier, although contaminated soil and water can be the most probable vehicle for transmission of the disease (Strauss *et al.*, 1969; Jubb and Kennedy, 1970)).

Treatment for melioidosis in animals is unpractical. However, it has been reported that *Pseudomonas pseudomallei* is sensitive *in vitro* to various types of drugs such as chloramphenicol, sulfadiazine and oxytetracycline (Brundage *et al.*, 1968). The failure of the therapy in the present case could be due to the advancement of the lesions, particularly with the presence of encapsulated abscesses.

#### ACKNOWLEDGEMENTS

The authors wish to thank Mr. Mohd. Tajudin Abdullah and Mr. Mohd. Noor Manap their assistance.

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## RINGKASAN

### *MELIODIOSIS PADA SEEKOR ORANG HUTAN SUMATRA (PANGO PYGMEUS ABELII)*

*Satu kes melioidosis kronik pada seekor orang hutan Sumatera (Pango pygmeus abelii) dilaporkan. Abses-abses terdapat pada hati, limpa dan diafragma. Satu kultur Pseudomonas pseudomallei dipencilkan daripada hati, pemeriksaan histologi menunjukkan hepatitis nekrosis likuefaktif kronik.*