UNIVERSITI TEKNOLOGI MARA

IDENTIFICATION OF HUMAN SARCOCYSTOSIS FROM POST MORTEM CASES AT HOSPITAL SUNGAI BULOH, SELANGOR AND HOSPITAL QUEEN ELIZABETH, KOTA KINABALU, SABAH

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Sarcocystosis is an emerging infection caused by an intracellular protozoan, *Sarcocystis* spp. These parasites require two hosts: definitive and intermediate hosts. In humans, the parasite can be presented in two forms i.e. muscular and intestinal. The first reported case of human sarcocystosis in Malaysia was in 1975, yet, little information is available regarding human *Sarcocystis* infection in Malaysia. Various species of domestic animals serve as the intermediate hosts for *Sarcocystis* spp. which eventually transmit the infection to humans through consumption or ingestion of contaminated food and water sources. Hence, the present study aims to determine the presence of sarcocystosis among human cadavers from two Malaysian government hospitals namely Hospital Sungai Buloh (HSgB), Selangor and Hospital Queen Elizabeth (HQE), Kota Kinabalu, Sabah by immunofluorescence antibody test (IFAT), pepsin digestion method, histopathology examination (HPE) and confirmation of the positive case using electron microscopy (EM) and polymerase chain reaction (PCR). Two hundred (n=200) cadavers comprised of three parts of muscle tissue samples from tongue, diaphragm, pectorals muscle and blood samples on filter paper Whatman No.4 were collected from medico-legal autopsy cases at both hospitals. Out of 200 dried blood samples on filter paper, 32 (16%) had Sarcocystis antibodies and showed degrees of fluorescence by using IFAT. 14 and 18 samples were positive from HSgB and HQE respectively. The results showed that the filter paper technique used for the first time is a reliable test for clinical diagnosis of sarcocystosis. Indirect fluorescent antibody test was applied to dried blood sample collected onto filter paper and positive for sarcocystosis at 1:50 dilution. Pepsin digestion method was conducted with 51 (8.5%) samples from tongue, diaphragm and pectoral's muscles tissue; 30 (10.0%) samples for Hospital Sungai Buloh, Selangor and 21 (7.0%) samples for Hospital Queen Elizabeth, Kota Kinabalu, Sabah were positive containing bradyzoites microscopically. The histopathology study revealed sarcocyst of Sarcocystis spp. in only one of the tongue tissues with the size of 76.44 x 52.38 µm containing banana – shaped bradyzoites. The wall was radially striated with villous like projections and thickness of 1.71 µm. Subsequent molecular analysis for species identification was preceded with a high yield of the possibility of *Sarcocystis zamani* reported in this study. Pythons serve as hosts for *S. zamani*, and the human infection is most likely through consumption of contaminated water with sporocyst in the feces of the host. This study reflects the presence of *Sarcocystis* infections in humans and medical authorities should be made aware of this parasitic infection. With further improvement in diagnosis or early identification based on signs and symptoms, more sarcocystosis cases could be identified.

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