PREVALENCE OF *SARCOCYSTIS* SPECIES IN URBAN AND RURAL RATS IN PERAK, MALAYSIA

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Introduction

Sarcocystosis caused by *Sarcocystis* spp is one of the most prevalent parasitic zoonotic disease reported in wide range of domestic and wild animals in Malaysia [4]. Human muscular sarcocystosis has been reported as an emerging parasitic infections among travellers to Tioman Islands, Malaysia in 2011[5]. However, subsequent epidemiological investigations conducted on local communities in Tioman Island showed that sarcocystis spp was not present in humans, animals and the environment [2]. A group of 95 college students and teachers who attended a retreat at a hotel in Pangkor Island, Peninsular Malaysia [3] were affected with muscular sarcocystosis and Sarcosystis nesbitti was found to the cause of this outbreak. In order to avoid both intestinal and muscular form of sarcocystosis, detection and prevention among domestic and wild animals have been suggested in order to reduce the sources of infection maintained by semi-domestic and wild animals [6].

OBJECTIVE

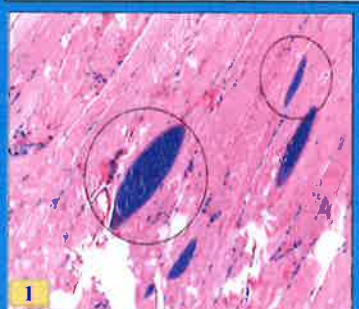
The aim of the present study was to determine the prevalence of *Sarcocystis* spp in urban and rural rats in Perak.

METHODOLOGY

A total of 184 rats were trapped between February 2014 to September 2015. One hundred and four rats were trapped from alleys behind wet markets and restaurants in Ipoh, Malaysia and 80 were trapped from National Service Training Camps and Recreational Water Spots throughout Perak, Malaysia using baited wire traps. The rodents were dissected and fresh muscle samples were examined grossly in situ under light microscope for the for the presence of rice grain-like globular appearing macrocyst, less than 30 mm in length, forming sarcocysts. Sarcocyst containing tissues were sectioned and stained with hematoxylin and eosin (H&E) (Figure 1&2) [1].

RESULTS

A total of 184 rats belonging to three species namely, *Rattus norvegicus, Rattus diardii* and *Rattus exulans* examined for *Sarcocystis spp* from urban and rural areas showed an overall infection rate of 14.7%. *Sarcocystis spp* was found in 14.42 % (15/104) of urban and 15.0 % (12/80) of the rural areas, respectively (Chart.1).



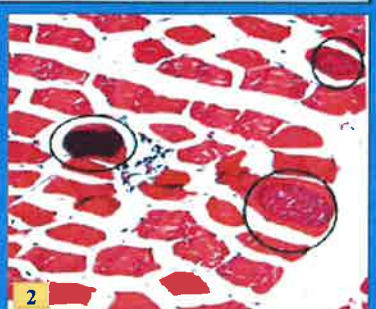
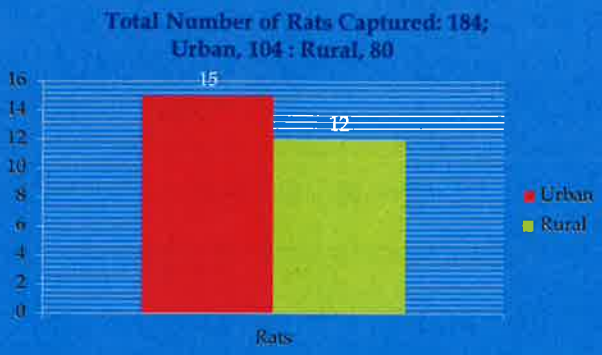


Figure 1 & 2 showing *Sarcocystis.spp* visible through H&E staining .

Chart 1: Number of Rats with Sarcocysts



DISCUSSION

The occurrence of *Sarcocystis spp* among both rural and urban rats poses a threat to public health such as the incident which happened in 2012 where students and teachers who attended a retreat in Pangkor Island and in Tioman Island 2011. In Malaysia, *Sarcocystis* cyst have been reported from rodents, slow loris, buffalo, macaque, snake cattle and zoo animals. Since these animals were allowed to roam freely and defecate indiscriminately around the compound, oocysts or free sporozytes could be acquired by rural communities through contaminated environments. Intestinal sarcocystosis could easily occur where ever there is unsanitary disposal of human and animal waste. All cases had symptoms like fever, myalgia and eosinophilia, whilst some had diarrhoea. Inhabitants from socioeconomically disadvantaged communities in both rural and urban areas are capable of serving as a definitive or intermediate host for both domestic and sylvatic species of *Sarcocystis,* thereby increasing their chances of acquiring the infection from rats [4]. More research activity is needed to understand this parasite better.

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