PREVALENCE OF TOXOPLASMOSIS AMONG THAI BUDDHIST MONKS

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Abstract. A seroprevalence survey of toxoplasmosis among 91 Thai Buddhist monks was conducted in two temples in Nakhon Pathom Province, Thailand. A high prevalence (8.8%) of toxoplasmosis among these subjects was observed. Control of cats and dogs in Buddhist temples should be made a current public health strategy.

INTRODUCTION

Toxoplasmosis is an infection caused by a single-celled parasite called *Toxoplasma gondii*. The disease is widely distributed affecting more than a billion people, worldwide. While more than one million people probably carry the *Toxoplasma* parasite, very few have symptoms, because the immune system usually keeps the parasite from causing illness (Hill and Dubey, 2002; Bhopale, 2003). However, pregnant women and those with compromised immune systems should be cautious because *Toxoplasma* infection can cause serious problems (Hill and Dubey, 2002; Bhopale, 2003).

Interaction with domestic cats and dogs plays an important role in the distribution of the disease (Hill and Dubey, 2002; Bhopale, 2003). In Thailand, unwanted cats and dogs are abandoned in temples. As a result, the temples become slums for these unwanted pets, and Buddhist monks living in the temples become a risk population for toxoplasmosis. A seroprevalence survey of toxoplasmosis among Thai Buddhist monks was conducted in 2 temples in Nakhon Pathom Province, Thailand. A high prevalence of toxoplasmosis among these subjects was observed.

MATERIALS AND METHODS

A seroprevalence study was performed during 2002, in two temples, Pra Ngarm Temple and Sanae Har Temple, in Nakhon Pathom Province, Thailand, about 50 km from Bangkok. The protocol for this study was approved by the Ethics Committee of the Faculty of Medicine, Chulalongkorn University, Thailand.

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A total of 91 male Buddhist monks from the two temples were included into this study. After giving informed consent, each subject provided 5 ml of blood for toxoplasma serological analysis. All laboratory analysis was performed at the Department of Clinical Microscopy, Faculty of Allied Health Science, Chulalongkorn University, using a commercial Human Toxoplasma IgG ELISA kit (Firmer, Thailand). In addition, blood samples from 5 dogs in the temples were collected and sent to the laboratory for toxoplasma serological analysis using a Canine Toxoplasma IgG ELISA kit (Firmer, Thailand).

Statistical analysis was performed using SPSS for Windows. The seroprevalence of toxoplasma among these monks was calculated and presented.

RESULTS

Of the 91 monks sampled, the prevalence of toxoplasma IgG-seropositive was 8.8% (8/91). Seroprevalence of toxoplasmosis by age group is presented in Table 1. All 5 (100 %) dogs gave seropositive results for toxoplasmosis.

Table 1
Seroprevalence of toxoplasmosis among Buddhist monks[a] (by age group).

Age group	Number of positive subjects	Percentage
≤ 40 years old	7/89	7.9
> 40 years old	1/2	50

[a] All subjects had been Buddhist monks at the temples for more than one year. A trend of increase in seropositivity with age can be noticed.

DISCUSSION

Toxoplasmosis is a zoonotic protozoal disease, caused by an obligate intracellular parasite of the genus Toxoplasma (Hill and Dubey, 2002; Bhopale, 2003; el-On and Peiser, 2003). It would appear to be one of the most common human infections, but is usually asymptomatic (Torda, 2001). Cats and dogs have long been blamed for playing a major role as reservoir of infection (Torda, 2001). To some extent, this is true although contact with infected raw meat is probably a more important cause of human infection in many countries (Torda, 2001). A substantial group getting this zoonosis is pet lovers who usually play and live with their cats and dogs; ingestion of the oocyst from fecally-contaminated hands can be expected (Torda, 2001; O'Rourke, 2002).

Here, the seroprevalence of toxoplasmosis among a sample of Thai Buddhist monks is reported. This population may be considered an at-risk group due to their potential contact with cats and dogs. Due to tradition, in general, Thai people usually bring unwanted pets to temples and leave them there, believing that the temples will take care of their pets, as welfare. Therefore, the numerous abandoned dogs and cats living in Thai temples can be a source of toxoplasmosis.

Of interest, a high prevalence of toxoplasmosis (8.8%) was found in our subjects, which is about double those recently reported in general healthy subjects (3.1-4.9 %) (Maruyama *et al*, 2000; Pinlaor *et al*, 2000). This high rate confirm that Buddhist monks are a risk population for toxoplasma infection.

In addition, dogs in the same temples as our subjects were studied for toxoplasma seroepidemiology, and 100% were seropositive for toxoplasmosis, confirming that abandoned pets in temples are highly infected with toxoplasmosis. A similar high prevalence of other zoonotic infections, such as toxocariasis and gnathostomiasis, among stray canines has recently been reported (Rojekittikhun *et al*, 1998). Our results confirm that abandoned pets are a potential source of zoonosis. Control of cats and dogs in Buddhist temples should become a corrent public health strategy.

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