

EPIDEMIOLOGICAL ASSESSMENT OF PARASITIC ZOONoses IN MALAYSIA

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Abstract. Food-borne parasitic zoonoses are emerging as major public health problems in most countries because they are widespread and pose a medical challenge. Not only are they important from an economic standpoint, but they also cause severe sequelae in all those affected. The extent of parasitic zoonoses in Malaysia is considered a "tip of the iceberg" problem. Cases of zoonotic diseases, like porocphaliosis, sarcocystosis, toxoplasmosis, cysticercosis, hydatidosis, echinostomiasis, and gnathostomiasis are traced and documented. An epidemiologic reassessment of methods is suggested to determine the extent of these parasitoses in Malaysia.

INTRODUCTION

Food-borne parasitic infections of zoonotic origin is a "tip of iceberg" problem in Malaysia. The morbidity and mortality of these infections in the community cannot be easily ascertained. This could be because of the long latent phases of these diseases, asymptomatic presentations, short acute phases which go undiagnosed or misdiagnosed because of duplicity or overlapping clinical signs and symptoms with other non parasitic infections, and inadvertent dismissal of diseases of parasitic origin by the attending physicians. Besides, epidemics of diseases of parasitic origin have not been reported in this country enough to warrant their diagnosis. Most of the cases that have been reported in Malaysia have been incidental findings either discovered at biopsy or at autopsy.

Food-borne parasitic diseases are associated with the socio-cultural practices. The habit of eating properly cooked meat and meat products or fish and fish products, and strict meat inspection and condemnation of carcasses by the appropriate authorities has to this day prevented the establishment of important zoonotic infections in Malaysia. Changing life style, seen as a recent phenomenon, particularly in food habits, like eating raw or partially cooked meat, fish or crustacea, and indiscriminate slaughtering of animals without prior examination, has resulted in sporadic cases of important food-borne parasitoses. Importation of meat and fish

products from endemic countries has been found to be one of the contributory factors.

The endemicity and transmission of food-borne parasitic zoonoses depends upon the interplay of factors within the epidemiologic triad of host, pathogen, and environment. This paper reviews the important food-borne parasitic infections of zoonotic origin that have been reported in Malaysia. Epidemiologic assessment and documentation of its importance and impact on Malaysian society are discussed.

SARCOCYSTOSIS

Sarcocystosis, a prey-predator related zoonotic parasitosis is acquired by eating cysts in skeletal muscles of intermediate hosts in Malaysia (Kan, 1985). To date, 11 cases of human muscular sarcocystosis have been reported (Pathmanathan and Kan, 1990). All of them have been incidental findings reported at either biopsy or autopsy and have been associated with neoplasia. With the identification of a wide range of intermediate and definitive hosts for sarcocystosis, the population in this country is at an increased risk of developing this infection. As this disease manifests only as a transient enteric infection, it goes undetected most of the time. Whether man acquires this infection from inapparent ingestion of sporocysts has not been documented.

TOXOPLASMOSIS

In Malaysia, clinical toxoplasmosis is rare, gen-

erally asymptomatic and most of the time goes unnoticed. Few reports on the prevalence of *Toxoplasma* antibodies in human in Malaysia have been published (Zahedi *et al*, 1985). The seroprevalence of toxoplasmosis in domestic animals has also been published (Singh *et al*, 1967; Chooi *et al*, 1988; Chooi, 1989; Lokman *et al*, 1989). Congenital toxoplasmosis is rare and so far only two cases of acquired toxoplasmosis in asymptomatic patients have been described (Leong *et al*, 1976).

HYDATIDOSIS

So far, 3 cases have been reported: 2 pulmonary and one hepatic (Kutty *et al*, 1970).

CYSTICERCOSIS

Five cases have been reported but none could be considered indigenous. (Pathmanathan and Singh, 1987).

POROCEPHALIASIS

Eleven cases of pulmonary and hepatic porocephaliasis have been reported. This includes one living case of porocephaliasis in the fallopian tube (Prathap *et al*, 1968, 1969; Ong, 1974).

CLONORCHIASIS/OPISTHORCHIASIS

Whether clonorchiasis/opisthorchiasis is acquired as a natural infection by people in Malaysia is questionable. Most cases of clonorchiasis reported in this country were acquired from endemic areas. While the intermediate hosts for opisthorchiasis are found in Malaysia, no human reports have been documented. Reports of clonorchiasis/opisthorchiasis acquired from endemic areas outside Malaysia are being reported with increasing frequency at the University Hospital and General Hospitals, Kuala Lumpur.

ECHINOSTOMIASIS

Two cases (one at autopsy) both in Indians have been reported (Kian Joe and Virik, 1963).

GNATHOSTOMIASIS

Two cases of human gnathostomiasis have been recorded (Sandosham, 1967). In both cases,

larval forms were removed surgically from the fingers of Chinese patients.

While most of the domestic food animals have been found to harbor other less common zoonotic parasites, such as *Balantidium coli*, *Fasciola hepatica*, *Fasciolopsis buski*, *Heterophyes heterophyes*, *Metagonimus yokogawai* and *Dicrocoelium dendriticum* from condemned carcasses in abattoirs, human infections have been not reported. Diseases of major public importance, such as paragonimiasis, intestinal capillariasis, angiostrongyliasis, trichinellosis, and anisakiasis which are endemic in neighboring countries, have not been documented thus far.

The conclusions of this epidemiologic review show that food-borne parasitic zoonoses in this country are restricted more to a special group of Malaysians or to those who consume meat and meat products which are raw or that have not gone through vigorous meat inspection or to the aborigines whose dietary habits are very different from others in the Malaysian community. The prevalence of the diseases like porocephaliasis, sarcocystosis, toxoplasmosis appear to be higher in these nomadic and primitive groups. The presence of many zoonotic diseases in Malaysia cannot be assessed for the lack of proper epidemiologic data, such as dietary history, travel history, proper case investigations and documentation, and even failure to associate parasite etiology. Many epidemiological assessment questions need to be asked and specific baseline research needs to be carried out to determine the exact extent of parasitic zoonoses in Malaysia. Many of the research questions should be centered on the following:

1. All cases of congenital defects, such as hydrocephalus or microcephalus, stillbirths, abortions, chorioretinitis would have to be investigated for etiology of toxoplasmosis in all hospitals throughout the country, to associate causal relationships. The true prevalence of the disease could then be established, as well as determining whether or not congenital toxoplasmosis exists.
2. All cases of malabsorption, diarrhea, and protein-losing enteropathy reported at hospitals need to be investigated thoroughly, especially if there is a dietary history of eating raw and undercooked freshwater

fish. Under these circumstances, intestinal capillariasis would have to be ruled out from other diarrheal diseases.

3. All cases of encephalopathy, meningitis, meningoencephalitis or central nervous disturbances need to be investigated to rule out etiology due to parasites, such as angiostrongyliasis, gnathostomiasis, etc.
4. All aborigines should be autopsied after death to trace the extent of infection with sarcocystosis, porocephaliosis, toxoplasmosis, hydatidosis, cysticercosis, clonorchiasis, opisthorchiasis, echinostomiasis and gnathostomiasis. It would be a good indicator of the true prevalence of these diseases in the country.
5. All cases of zoonotic diseases, like clonorchiasis, opisthorchiasis, and paragonimiasis reported from hospitals should be thoroughly investigated. Case investigations need to be carried out systematically to determine the origin of infection. An index case should reflect an endemicity of the infection, indigenous or imported.

With the available baseline data, systematic epidemiologic research can then be carried out to have a fair assessment of the status of parasitic zoonoses in this country. Research should include:

1. the food inspection services which are sources of case control data should supply the relevant authorities with these data for epidemiologic research.
2. special surveys and monitoring of prevalence of infection in endemic foci must be carried out.
3. surveillance data on specific food-borne parasitoses that would be otherwise overlooked in human and animal populations must be duly recognised.
4. there should be prompt reporting by medical and veterinary laboratories of any unusual incidence of parasitic zoonoses.

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