

Serological evidence of exposure and possible *Taenia solium* larval infection in Orang Asli communities of Peninsular Malaysia

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Abstract. Orang Asli communities are known as aborigines of peninsular Malaysia who are underprivileged and also known to be carriers of many different parasitic infections. However, the possible burden of cysticercosis (caused by *Taenia solium* larvae or *Cysticercus cellulosae*) has never been explored in these communities. Objective of this study was to explore the seroprevalence of human cysticercosis among Orang Asli (subgroups: Semelai, Semai Pahang, Temuan, Orang Kuala, Temiar, Semai Perak, and Mah Meri) communities. In this preliminary study, both male and female of all age groups (1 to 68 years) were screened for *T. solium* larvae specific antibodies in sera employing a commercially procured IgG-ELISA kit. Sera from a total of 522 randomly chosen Orang Asli individuals were screened between July to December 2013. A total of 20 (3.8%) subjects were diagnosed positive for anti-*Cysticercus* antibodies (95% CI: 2.5% – 5.8%; $\chi^2=17.8$; $p<0.05$). The prevalence of antibody positivity ranged between 0.9% (Semelai subgroup) to 9.9% (Orang Kuala subgroup). Statistical significance was observed between the low income status of family and seropositivity for cysticercosis ($p=0.041$) based on univariate analysis. Present study findings indicated that exposure to *T. solium* larval infection might have occurred in the aborigine communities from peninsular Malaysia. Results could only suggest that cysticercosis is an under recognized health problem here. Therefore a regional public health surveillance program might help verifying further the risk factors of *T. solium* cysticercosis targeting a larger population in both peninsular and East Malaysia.

INTRODUCTION

Human cysticercosis caused by larval *T. solium* (*Cysticercus cellulosae*) infection is known since many decades particularly in the tropical developing countries (Bern *et al.*, 1999). It is a significant public health problem in most of Asian continent (Willingham *et al.*, 2006; Xu *et al.*, 2010). Human acquires infection either exogenously by accidental ingestion of the parasite eggs through contaminated food/water or due to endogenous autoinfection as in the case of carriers of the adult worm in their intestine; by either means, eggs containing

the hexacanth larvae are disseminated hematogenously to various organs in the body (viz., brain, eye, muscle etc.) which then develop into metacestode larvae or cysticerci. Although studies in the past have highlighted the underlying *T. solium* taeniasis/cysticercosis prevalence in Malaysia (Cross, 1988; Shekhar, 1991), there have been persisting assumptions that this region is non-endemic. The general impression of absence or low prevalence of the above infection here is thought to be due to strict regulations in pig farming practice particularly in peninsular Malaysia. However, the true estimate of the underlying