SHORT REPORT: POSSIBLE CRYPTOSPORIDIUM MURIS INFECTION IN HUMANS

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Abstract. Oocysts of cryptosporidia whose morphology resembled that of Cryptosporidium muris were found in the stool of 2 healthy girls in Surabaya, Indonesia. The oocysts were predominantly oval and measured 7.75 ± 0.17 × 5.55 ± 0.13 μm (mean ± SD). The number of oocysts excreted were more than 10^5 per gram of stool. The oocysts were well stained with fluorescein-conjugated monoclonal antibody to Cryptosporidium. The specimens from both girls containing the oocysts showed a positive result by the polymerase chain reaction (PCR) using primers specific for the genus Cryptosporidium, but a negative result by the PCR using primers specific for C. parvum. The 2 girls passed oocysts for 5 and 6 days, respectively. They did not complain of any symptoms during the passage of oocysts.

Cryptosporidiosis is an emerging disease that poses a serious threat to the people throughout the world. The gravity of cryptosporidiosis in patients with acquired immunodeficiency syndrome and the outbreak of this disease in communities have been reviewed. Asymptomatic infections have also been detected with increased frequency in many
The slides were examined by phase-contrast microscopy. An aliquot of stool suspension was examined for oocysts appearing as phase-bright, birefringent bodies containing black residual bodies against a dark background were identified, the remaining concentrated sample was overlaid with saline and stained using the Kinyoun-modified acid-fast technique. The identification of Cryptosporidium was done using taxonomic characteristics, a direct monoclonal antibody immunofluorescent staining method (Crypto-Cel; Cellabs, Brookvale, Australia), which reacts with oocysts of both C. parvum and C. muris, and the polymerase chain reaction (PCR) with primers specific for the genus Cryptosporidium and the primers specific for C. parvum. To estimate the oocysts concentration in stool, it was weighed and suspended in water. An aliquot of stool suspension was examined for oocysts by using the Kinyoun-modified acid-fast technique. To calculate the number of oocysts per gram of stool was then calculated from the mean number of oocysts in 3 samples.

Informed consent was obtained from the parents of both girls (see below). The study was approved by the Ethical Committee of the Tropical Disease Research Center of Airlangga University.

The prevalence of C. parvum infection has been reported elsewhere. The number of oocysts excreted at the first observation was more than 10^7/g of stool. The oocysts were found in stool of 1 girl for 5 days and in the other girl for 6 days. The girls did not complain of any symptoms during the passage of the large oocysts and did not pass C. parvum oocysts.
Indonesia closely resembled the oocysts of *C. muris* in terms of the size and morphologic characteristics. These oocysts were well stained by a monoclonal antibody specific for oocysts of both *C. parvum* and *C. muris*. The results of the PCR showed that the oocysts belonged to the genus *Cryptosporidium*, but were not *C. parvum*. Unfortunately due to the limited amount of field material and infrastructure for animal experiments, the inoculation of oocysts into experimental animals could not be done to confirm the species of the parasite excreted by the 2 girls. However, this study indicates that *Cryptosporidium* oocysts different from those of *C. parvum* were excreted in human stool. The present study strongly suggests that infection with *C. muris* occurs in humans.

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