Evaluation of human IgG antibodies to *Acanthamoeba* keratitis for serodiagnosis and identification of the antigen component by two dimensional gel electrophoresis and mass spectrometry

Abstract

In Thailand, there are reports of *Acanthamoeba* contaminated natural water sources in Central, Northern and Southern parts, while there have been no report in Northeastern parts. *Acanthamoeba* is a causative agent of cutaneous lesions and sinus infections, vision- threatening keratitis and a rare but fatal encephalitis, known as granulomatous amoebic encephalitis. *Acanthamoeba* can be diagnosed by culture, polymerase chain reaction and serodiagnosis. The aim of this study are to isolate and identify *Acanthamoeba* in natural water sources in the Northeastern part of Thailand and *Acanthamoeba* isolates collected by this study have been used to investigate the immune response of IgG antibody by immunoblotting. In this study, 63 natural water samples from 11 provinces in northeast Thailand were collected and cultured on non-nutrient agar plates. Positive culture were subsequently analyzed by PCR and sequencing. The results showed that 10 samples out of 63 were positive (15.9 %). Phylogenetic analysis revealed that seven samples wereT4, one sample was similar toT3, and the other two samples were similar to T5.This is the first report demonstrating the contamination of *Acanthamoeba* species in natural water sources in northeast Thailand. In addition, T4 isolate from this study was used for investigation of IgG immune response. the result revealed that protein bands at around 14 and 23 showed highly reaction with *Acanthamoeba* patients, whereas, there are no reactive in all sera of healthy control samples and other parasite infections used in this study.

Keywords: *Acanthamoeba*, Culture, Genotyping, Polymerase chain reaction, Sequencing