

High occurrence of *Acanthamoeba* spp. in the water samples of public swimming pools from Kerman Province, Iran

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Abstract:

Acanthamoeba spp. is a free-living amoeba that can cause major infections in humans, including keratitis and granulomatous encephalitis. Thus, water resources play an important role in transmitting *Acanthamoeba* spp. infection to humans. The purpose of this study was to investigate the presence of *Acanthamoeba* spp. in public swimming pools from three cities of Kerman Province, southeastern Iran. Eighty water samples of 20 public indoor swimming pools were taken from Kerman, Jiroft, and Kahnuj cities. Water temperature (°C), pH, and free chlorine concentration (ppm) were measured. Filtration and cultivation were applied on non-nutrient agar medium. The polymerase chain reaction was applied by using the genus-specific primers (JDP1 and JDP2) on positive samples; these primers can amplify the 423–551 bp fragment. Eighteen of the 20 swimming pools (including 32/80; 40% samples) were contaminated with *Acanthamoeba* spp. All swimming pools of Jiroft and Kahnuj and 88.2% of swimming pools in Kerman were contaminated. As such, all 32 *Acanthamoeba* isolates were amplified using the JDP primer pairs. Two genotypes, T3 and T4, were also identified. The present research is the first to report *Acanthamoeba* spp. in public swimming pools from Kerman Province. Due to high occurrence of this protozoan, it is recommended to use warning signs around swimming pools to create awareness of this infection.

Keywords: *Acanthamoeba*, Iran, swimming pool.