Molecular diagnosis of Entamoeba spp. versus microscopy in the Great Cairo

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Abstract

Amoebiasis is a human disease produced by Entamoeba histolytica which causes widespread mortality and morbidity worldwide
through diarrheal disease and abscess establishment in parenchymal tissues such as liver, lung, and brain. The true prevalence
of infection is unknown for most areas of the world due to the difficulty to characterise Entamoeba histolytica versus other
non-pathogenic amoebas with identical morphology, as Entamoeba dispar, and Entamoeba moshkovskii. To overcome microscopy
misidentification issues, we tested a nested multiplex polymerase chain reaction (PCR) and a real-time PCR on 194
stool samples collected from incoming dysentery patients in Cairo hospitals diagnosed with E. histolytica by microscopy. Nested
PCR showed only 20 (10.3%) samples positive to E. histolytica and 17 (8.7%) to E. dispar. The real-time PCR detected only
19 and 11 samples positive to E. histolytica and E. dispar respectively, showing less sensitivity than the nested PCR. The data
show that prevalence of E. histolytica in Cairo is lower when specific diagnosis methods are used instead of traditional microscopy,
allowing to differentiate between morphologically identical human amoebas species.

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