Original Paper

Molecular determination of Echinococcus granulosus isolated from hydatid cyst using mitoconderial atp6 gene

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Abstract

Background and Objective: Several strains of the Echinococcus granulosus have been described based on morphological characters, intermediate host specificity and/or genetic analysis of mitochondrial and nuclear DNA. The aim of this study was to characterize different E. granulosus isolates by using sequences of mitochondrial atp6 gene.

Materials and Methods: In this study, Sixty infected liver and lungs of cattle, sheep and goats were collected from the abattoir of Varamin city-Iran during 2008. Protoscoleces were removed from each fertile cyst and DNA extracted. New and specific primers were designed for two existing genotypes (G1 and G6) of E. granulosus known to occur in Iran and applied in PCR reactions.

Results: The new primers selectively amplified the G1 and G6 genotypes of E. granulosus with specific bands of 708 and 705 bp respectively. The G1 genotype was identified in all fertile cyst samples.

Conclusion: This study showed that the new primer pairs which specifically amplify portions of the mitochondrial atp6 gene of the G1 and G6 strains of Echinococcus granulosus are proper molecular marker for investigating genetic variation in a number of isolates of E. granulosus from a range of hosts (sheep, goats, cattle) in Iran. The result of sequenced samples showed that our sequences were the same as those reported previously for these strains.

Keywords: Echinococcus granulosus, atp6 gene, G1 genotypes, G6 genotypes

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