

## Morphological and Molecular Studies (ITS1) of Hydatid Cysts in Slaughtered Sheep in Mashhad Area

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**Abstract :** Echinococcus granulosus have ten strains from G1 to G9. Each strain is related to special intermediated host. The morphology, epidemiology, treatment and control in these strains are different. There are many morphological and molecular methods to differentiate of Echinococcus strains. However, using both methods were provided better information about identification of each strain. The aim of study was to identify Echinococcus granulosus strain of hydrated cysts in slaughtered sheep using morphological and molecular methods in Mashhad area. In the present study, the infected liver and lung with hydatid cysts were collected and transferred to laboratory. The hydatid cyst liquid was extracted and morphological characters of rostellar hook protoscolices were measured using micrometer ocular. The total length of large blade length of large hooks, total length of small and blade length of small hooks, and number of hooks per protoscolex were  $23 \pm 0.3 \mu\text{m}$ ,  $11.7 \pm 0.5 \mu\text{m}$ ,  $19.3 \pm 1.1 \mu\text{m}$ ,  $8 \pm 1.1$  and  $33.7 \pm 0.7 \mu\text{m}$ , respectively. In molecular section of the study, DNA each samples was extracted with MBST Kit and development of PCR using special primers (EgF, EgR) which amplify fragment of ITS1 gen. The PCR product was digested with Bsh1236I enzyme. Based on pattern of PCR-RLFP results (four band forming), G1, G2 and G3 strain of Echinococcus granulosus were obtained. Differentiation of three strains was done using sequencing analysis and G1 strain was diagnosed. The agreement between the molecular results with morphometric characters of rosetellar hook was confirmed the presence of G1 strain of Echinococcus in the slaughtered sheep of Mashhad area.

**Keywords :** Echinococcus granulosus, Hydatid cyst, PCR, sheep

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