

MOLECULAR STUDY OF HYDATID CYSTS IN HUMAN, SHEEP AND DONKEYS AT BASRA CITY, SOUTHERN IRAQ

Jalal Y. Mustafa*¹, Suzan A. Al-Azizz² and Arwa R. Lazim³

College of Veterinary Medicine, University of Basra, Basra, Iraq.

e-mail: dr.jalalyaseen1982@yahoo.com

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ABSTRACT : Hydatid disease or Echinococcosis is one of the serious public health problems. This study designed for molecular investigation of Hydatid cysts in different hosts animals (Sheep, donkey) and human in Basra city, as well as molecular characterization by PCR technique to determine the specific gene for human (*ND1*, *COI*, *COI*), sheep (*G6-7*, *sh4-1*, *COI*) and donkey (*COI*, *COI*). Then, gene sequencing to recognize the intraspecific variation of *Echinococcus* in relation to the host. In the current study, 818 sheep were examined and the number of sheep infected with hydatid cysts was 271. Donkey samples (10) were brought to the animal field of Veterinary Medicine at the University of Basra and the number of infected with hydatid cysts was two in the period from September 2017 to March 2018. The hydatid cysts were collected from the human after surgery at Al-Sadr Teaching Hospital where 21. The results were higher in female (15) than male (6) in the same period.

Key words : Molecular study of hydatid cysts, Basra, southern Iraq.

INTRODUCTION

Hydatid disease or *Echinococcosis* infects herbivorous animals and human caused by *Echinococcus* spp. tapeworms. A cestode parasite usually a small tapeworm adult found in intestine of carnivores animals. There are two species of cestode affecting the human population, *Echinococcus granulosus* and *Echinococcus multilocularis* causing Cystic *Echinococcosis* (CE) and Alveolar *Echinococcosis* (AE) respectively, ordinarily seen in visceral organs like: liver, spleen and lung (Gottstein, 2003). This disease has serious impacts on human and animal health (Snabel *et al*, 2009) and possess a significant economic and public health problem in many parts of the world especially in rural areas where dogs and livestock are raised together (Sikó *et al*, 2011; Groeneveld *et al*, 2010). Echinococcosis is one of the serious public health problems in Iraq (Mohamad *et al*, 2008). It has been found that a high prevalence of hydatid cysts was in sheep (14.75) and a prevalence of hydatid cysts according to area of the study was 1.5%, 5.9% and 13.7% in North, Middle and South of Iraq, respectively (Mohamad *et al*, 2008).

The clinical diagnosis of (CE) in humans and animals were difficult because the disease without symptoms and the morbid recognition of the causative species was difficult in the cases of irregular forms (Eckert and

Depalazes, 2004). *E. granulosus* showed a wide intraspecific difference in correlation to host specificity, epidemiology, morphology, developmental biology, biochemistry, physiology, biochemistry, and genetics (Thompson and Lymbery, 1998). For species identification, Nakao *et al* (2010) identified *Echinococcus* spp. by using molecular diagnosis, in this time, clinical samples taken at biopsy are subjected to PCR, and the amplified the fragments of mitochondrial and nuclear DNA are subsequently sequenced and determined strains.

MATERIALS AND METHODS

A total number of 818 sheep were examined and the number of sheep infected with hydatid cysts was 271. Donkey samples (10) were brought to the animal field of Veterinary Medicine at the University of Basra and the number of infected with hydatid cysts was 2 in the period from September 2017 to March 2018. In animals, determination of the age and sex of samples infected, determination of infected organs (lung, liver, etc.) and calculation the number of cysts in infected organs was done. Type of infection divided according to the number of cysts into light infection (1-10 cysts) and severe infection (more than 10 cysts). Detected conducted of the prevalence of Hydatid cysts in slaughtered sheep in Basra (licensed abattoir) revised. The organs of slaughtered sheep were examined and the total number of examination was 818 infection in organs (liver, lung).

*Corresponding author.