

Seroprevalence of Cystic Echinococcosis in Goats in Region of Hakkari, Turkey

Yasar GOZ¹ Abdulalim AYDIN² Abdurrahman GÜL³ Serdar DEĞER³

¹Faculty of Medicine, University of Yuzuncu Yil, 65200, Van, Turkey

²Hakkari High School, University of Yuzuncu Yil, Hakkari, Turkey

³Department of Parasitology, Faculty of Veterinary, University of Yuzuncu Yil, 65080, Van, Turkey

Sorumlu Araştırmacı:

Summary: *Echinococcosis is one of the most important helminthic zoonotic disease and a serious public health problem in Turkey and in the other countries. In this study, seroprevalence of cystic echinococcosis was investigated in goats in Hakkari province, eastern region of Turkey, by indirect haemagglutination test (IHAT). As a result 9 (12.5 %) out of 72 goats were positive for anti- Echinococcus antibodies.*

Key words: *Cystic echinococcosis, goat, Hakkari*

Hakkari Yöresi Keçilerinde Kistik Ekinokokkozis'in Seroprevalansı

Özet: *Kistik ekinokokkozis, Türkiye'de ve diğer ülkelerde ciddi halk sağlığı problemlerine neden olan helmintik bir zoonoz hastalıktır. Bu çalışmada Türkiye'nin doğusundaki Hakkari ili keçilerinde İndirekt Hemaglutinasyon Testi (İHAT) kullanılarak Kistik ekinokokkozis'in seroprevalansı araştırıldı. Çalışma sonucunda 72 keçinin 9 (%12.5)'unda anti-ekinokok antikorları saptandı.*

Anahtar kelimeler: *Kistik ekinokokkozis, keçi, Hakkari*

INTRODUCTION

Echinococcosis is a zoonotic infection caused by *Echinococcus* spp. and is one of the most important helminthic diseases worldwide. This infection causes considerable economic losses and public health problems in many countries. Cystic echinococcosis is considered endemic in Mediterranean zone including Turkey and all other countries from the Middle East. Cattle, sheep, goats and camels are domestic intermediate hosts. And these animals are major reservoir for this disease (3, 20). The prevalence of *E. granulosus* in studies performed in slaughterhouses has been reported to be 1.6 %-32.6 % in different regions of Turkey in goats (2, 5, 15, 18, 19, 21).

Indirect haemagglutination test (IHAT) was carried out for the detection of echinococcosis by Garabedian et al (7) in 1957 at the first time. In Turkey, serological identification of echinococcosis is not much. Dik et al (6) and Şenlik (17) was applied Indirect

haemagglutination test (IHAT) for detection of echinococcosis in sheep.

An epidemiologic study on echinococcosis in intermediate hosts (Cattle, sheep and goats) was performed in the region of Hakkari by Aydın (1). The aim of this study was to determine the seroprevalence of cystic echinococcosis in goats using Indirect haemagglutination test (IHAT) in the area of Hakkari, Turkey.

MATERIALS AND METHODS

Blood samples were collected from goats in May 2004 from Hakkari province that bordered on Iran and Iraq countries. Approximately 10 ml venous blood samples were obtained from jugular vein of 72 goats produced in a local livestock, aged at 1 to 4 years old. Blood samples were centrifuged at 4000 rpm for 10 minutes and stored at -20 °C until analysis. A commercial kit (Echinococcus-HAI, Fumouze Laboratories, France) was used to determine total anti-echinococcus antibodies in the sera. Various dilutions of sera (1/80, 1/160, 1/320, 1/640, 1/1280, 1/2560) were prepared and then maintained at room temperature for one hour. Samples in which

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Haemagglutination occur at 1/160 and higher dilutions were considered as positive.

RESULTS

Only 9 (12.5%) of 72 serum samples were positive for *Echinococcus granulosus* antibodies by indirect haemagglutination (IHA) test. 7 of this serum samples were positive in 1:160 titre and 2 were positive in 1:320 titre.

DISCUSSION

The prevalence rates of echinococcosis were found 1%-54.5% in dogs and 1%-79.6% in intermediate hosts in Turkey (20). In epidemiologic studies in Turkey that for determining the prevalence of echinococcosis in slaughtered animals, it was found in goats 9 % (21) and 1.6 % (15) in Ankara, 25.1 % (19) in Kars, 29.3 % (5) and 5.9 % (2) in Konya, 4.5 % (18) and 32.6 % (4) in Van. Prevalence of cystic echinococcosis was detected 20.4 % in 1732 goats by Aydın (1), slaughtered in Hakkari Municipality Slaughterhouse between July 2001-June 2002. In countries that borned on Hakkari province, prevalence of *Echinococcus granulosus* in slaughtered goats was found 44 % (13) and 6.2 % (8, 16) in Iraq, 2.2% (12) and 6.3 % (3) in Iran. This is the first serological study performed in goats in Hakkari province, eastern region of Turkey. Martinez et al (11) detected 76 %

sensitivity in goats serum with IHA. These researchers reported that IHA test is more sensitive in identification of pulmoner cysts in goats. Kaldes (9) reported that can be defined of echinococcosis in 2-6 weeks after disease with IHA. The rate of the values obtained from the present study has not been ignored according to studies performed in slaughterhouses. However, in the present study, the seroprevalence values were lower (22.1% and 20.4 %) in the reports by Umur (20) and by Aydın (1), but higher (4.5% and 6.2%) in the reports by Njoroge *et al.* (14) and Saeed *et al.* (16). In the present study, the seroprevalence in goats were found to be similar (12.7%) to the findings of Kamhawi *et al.*(10).

There are a lot of stray dogs in Hakkari like in the other regions of Turkey. These dogs have been enter easily the places where people lived in. In addition, illegal slaughtering has been performed in these area. Thus, control of the infection is getting more difficult. Because cystic hydatidosis is a zoonosis, this high rate in goats has been shown that people in this area were under high risk. At the same time, animal smuggling can contribute to high prevalence of the infection in the area.

The finding of this study indicate that cystic echinococcosis is common in goats. Goats can play an important role in the life cycle of *E. granulosus* in this region. At the same time, stray dogs should be under control for preventing to spread out of this disease.

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