http://www.pjbs.org

PJBS

ISSN 1028-8880

Pakistan Journal of Biological Sciences

ANSInet
Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Pakistan Journal of Biological Sciences 10 (7): 1147-1148, 2007
ISSN 1028-8880

Seroepidemiology of Sheep Toxoplasmosis in Babol Northern Iran 2004

M.R. Youssefi, S.A.A. Sefidgar and S. Ghaffari
Department of Parasitology and Mycology, Babol Medical Sciences, Iran

Abstract: This study is carried-out with the aim of determining the prevalence rate of toxoplasmosis in sheep at Babol (Bandpei part). In this study, 285 sheep of Bandpei area in Babol was selected. The samples studied with indirect immunofluorescence antibody. The results showed that 31.2% of sheep in this study were affected by toxoplasmosis. In positive cases, there was not any statistically significant difference between male and female sheep. The most positive cases observed by 1:200 titer. According to the researches in other parts of this country, the prevalence rate in this area is more than the others.

Key words: Toxoplasmosis, sheep, Babol, indirect florescent antibodies

INTRODUCTION

Toxoplasmosis is one of the most important diseases in humans and animals that causes by *Toxoplasma gondii* parasite. Reservoir and final host is cat and intermediate host is warm blood animals. For example, domestic animals such as sheep, cattle and goat (Dubey, 1988).

Toxoplasmosis prevalence in humans and animals is different on base of age, geographical area, nutrition habitat and keeping of cat at farm. In this subject toxoplasmosis prevalence depends to increasing the age, consumption of the raw or half- cooked meat and living in warm and humid areas. Toxoplasmosis in pregnant mother may be cause blindness, mental retardation or other nervous disease and abortion that concomitant with immune system deficiency (Dubey, 1988).

Toxoplasmosis in animals such as sheep is a widespread disease in which the major economic losses are abortion, death of the fetus and neonatal death of the fetus and neonatal death (Buxton *et al*., 1991). The first study on *T. gondii* in sheep was carried out by Olafson and Monlux in 1942 (Dubey, 1988). Data colleted from serological studies in many countries throughout the world have shown different prevalence rate (0-100%) of toxoplasmosis in sheep.

Bandpei area in Babol city is one of the important areas in animal husbandry industry in Mazandaran province, north of Iran. Thus, the main objective of this study was to detect the seroprevalence study of *T. gondii* infection in sheep in Bandpei region by using the Indirect Fluorescent Antibodies (I FA).

MATERIALS AND METHODS

This descriptive-cross sectional study is carried-out to determine anti Toxoplasma antibodies in 285 sheep in Bandpei area Babol, northen Iran, from September through December 2004. Two to three milliliter blood sample from each sheep have been taken and after 5 min centrifugation with 2000 rpm; serum kept in sterile tubes in -70°C. Then all of samples survived with IFA method. At first all of samples screening test with 1:50 titer and positive sample detected. Followed by positive sample survived with 1:100, 1:200, 1:400 and 1:800 titer. The statistical analysis was performed by using chi-square and t-test ($p<0.05$) was considered as statistical significant.

RESULTS

Eigtynine cases out of 285 sheep (31.2%) survived that were positive and 196 cases (68.8%) were negative. Fifty sheep were male and the remain were female (Table 1).

Table 1: Total number and percentage of Toxoplasmosis in sheep in Bandpei, Babol, northen Iran 2004

Case	Positive	Negative	Male	Female
Sheep	89.0	196.0	50.0	235.0
Percent	31.2	68.8	17.5	82.5

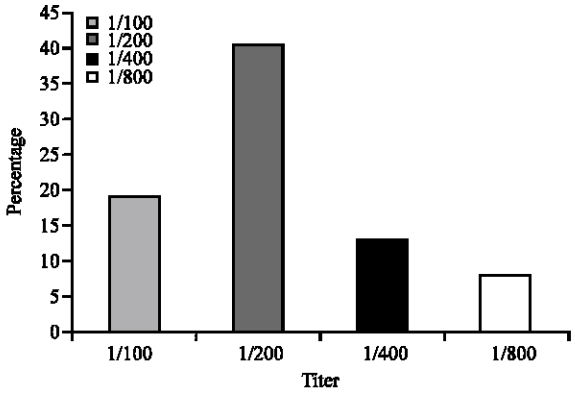

Fig. 1: Toxoplasmosis antibody titer in sheep of Bandpei, Babol city, northen Iran, 2004

Corresponding Author: M.R. Youssefi, Department of Parasitology and Mycology, Babol Medical Sciences, Iran

After diagnosis of positive cases from negative cases, for determination of antibody titer a several dilution of 1:100, 1:200, 1:400 and 1:800 were applied that repeated by serial dilution titer. The results of 80 positive cases in the final assay, the most valuable antibody titer was 1:800 (10.1%) and the lowest valuable titers 1:200 (50.6%) (Fig. 1).

DISCUSSION

Many studies have been carried-out in different countries through the world aimed at detection of the prevalence of *T. gondii* in animals and to confirm its signification as an infection source for man by means of various serological tests including IHA. LAT and IFA as well as isolation procedures (Sevgili and Babure, 2005).

Results of this research showed that 31.2% sheep of Bandpei with serological test by IFA method was positive. The infection rate of toxoplasmosis in sheep in the UK, Australia and New Zealand were reported 33 and 14%, respectively (Blewett and Watson, 1983).

Due to estimation of Mc Colgan and Buxton (1986) the annually damages of toxoplasmosis in sheep around the world is 6-12 million US Dollars. This concerned to abortion, deerews of milk prevention and economical damages (Mc Colgan and Buxton, 1986).

Some of researches about toxoplasmos in other area of Iran, e.g., Saveh central Iran showed 25.5% of infection rate in sheep (Chegini and Assmar, 2002). The decreasing of sera titer may be due to different climate conditions and sheep keeping in comparison with the present study area.

Another study by Hashemi Fesharaki (1996). domestic animals by latex agglutination (LAT) and Indirect Haemaglotian Antibodies (IHA) method showed 24.5% of positive cases. Perhaps decreasing positive rate in Hashemi Fesharaki (1996) research in comparison with this research in short, IFA is more sensitive and specific test than IHA and LAT.

ACKNOWLEDGMENTS

This work was supported by a grant from Islamic Azad University, Babol Branch, Iran.

REFERENCES

Blewett, D.A. and W.A. Watson, 1983. The epidemiology of ovine toxoplasmosis in relation possible mechanism of transmission. Br. Vet. J., 140: 54-63.

Buxton, D., K.M. Thomson and S. Maley, 1991. Vaccination of sheep with a live incomplete strain (s 48) of *Toxoplasma gondii* and their immunity to challenge when pregnant. Vet. Rec., 129: 89-93.

Chegini, S. and M. Assmar, 2002. Toxoplasmosis in humans and animals. J. Babol. Univ. Med. Sci., 4: 47-52.

Dubey, J.P., 1988. Toxoplasmos of Animals and Man. CRC Press. Inc. Boca Raton. Florida, pp: 61-80.

Hashemi Fesharaki, R., 1996. Seroprevalence of Toxoplasma gondii in cattle, sheep and goats in Iran. Vet. Parasitol., 61: 1-3.

Mc-Colgan, C. and D. Buxton, 1986. Ovine toxoplasmosis: Immunity and chemoprohylaxis. In: Sheep Veterinary Society Proceeding of Meeting 1986, pp: 75-77.

Sevgili, M. and C. Babur, 2005. Determination of seropositivity for *Toxoplasma gondii* in sheep in Sanliurfa province. Turk. J. Vet. Anim. Sci., 29: 107-111.