PARASITIC INFESTATIONS AND ITS EFFECT ON PREGNANCY OUTCOME

Thesis

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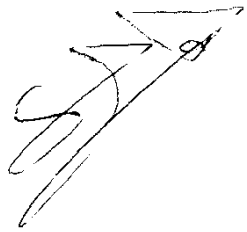

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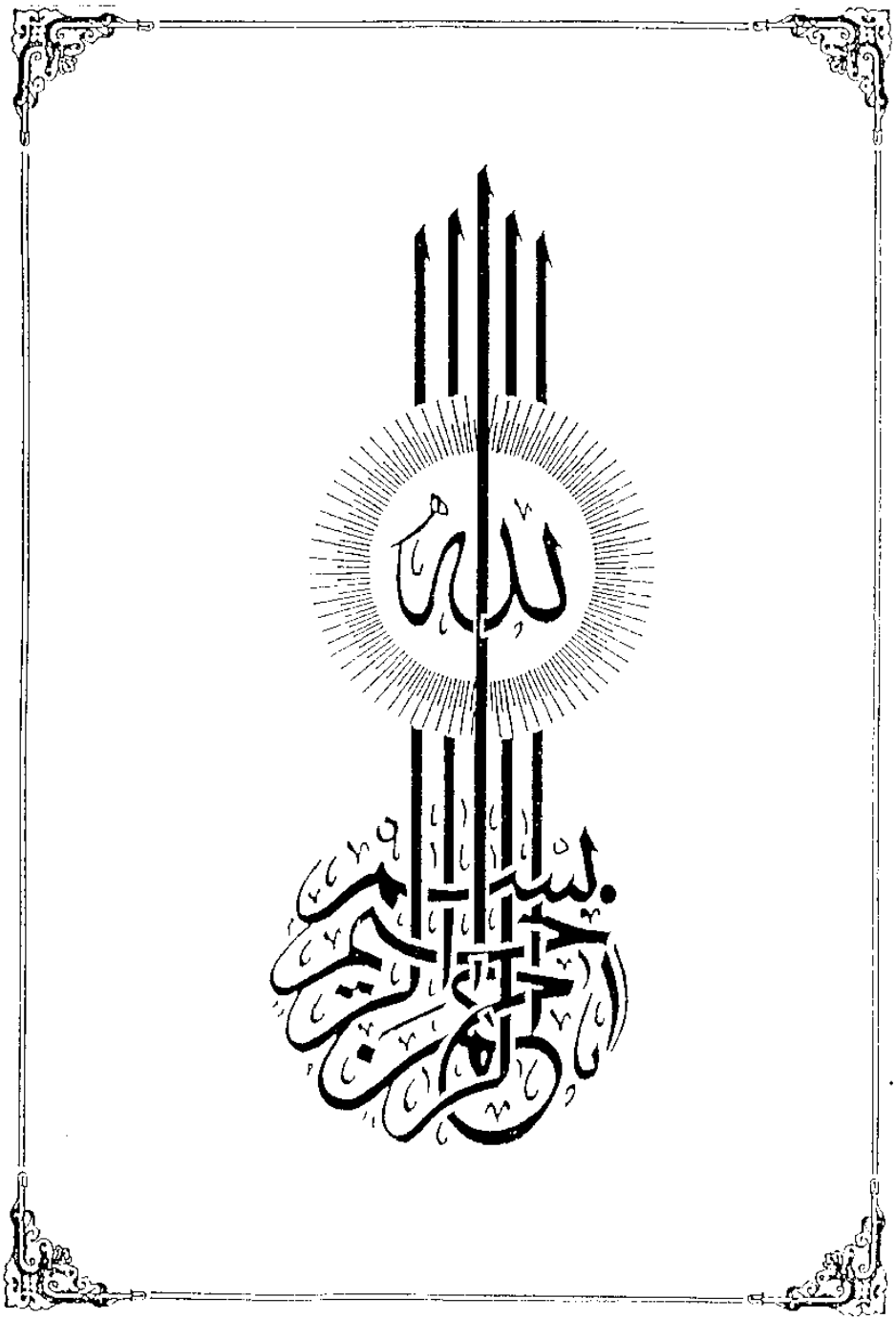

TO MY WIFE ABEER

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Contents

INTRODUCTION

Parasitic infestaions contribute significantly to medical problems in developing countries. The common parasites are : toxoplasma gondii, ancylostoma duodenale, ascaris lumbricoides, entameba histolytica and schistosoma sp. (*Smith et al.*, 1976). In recent years toxoplasmosis has become increasingly recognized as an important pathogen of human and domestic animal. It is one of the most common latent infection in human which caused by sporozoan toxoplasma gondii where infection referes to presence of either tachyzoite form or cyst form in tissues (*McCabe* and *Remington*, 1984). Toxoplasmosis either congenital or acquired form. Congenital form is usually the result of an asymptomatic acute infection in the mother. Spontaneous abortion, prematurity and still birth may be the result but inspite of most newborn are asymptomatic but some may suffer from retinochoroiditis, blindness, microcephaly, hydrocephalus, mental retardation and epilepsy, if untreated, may occur months or years later (*Kimbal et al.*, 1971). Ancylostoma duodenale : this hookworms infects small intestine. If pregnant women infected with this hookworm, she will be in need for extra iron for long period to compansate the chronic blood loss as each adult worm leads to loss of 0.15 ml/day. So the amount of blood loss is related to number of the worm (*Layrisse*, 1964b). This iron deficiency anemia may be mild or severe (*Erslev*, 1990). There is increased risk of pre term birth with mid trimester anemia (*Klebanoff et al.*, 1991). The relation between pregnancy and hematocrite value was studied by Lu and Associates (1991). They found that there is increase fetal growth retardation and high hematocrite value. Schistosomiasis : These trematodes inhabite blood vessels of venous plexus of uterus, vagina and urinary bladder, in case of hematobium, or mesentric venous plexus in cases of S. mansoni. The pathology of this disease results from the eggs rather than the adult worms (*Boros*, 1989). The early symptom

of schistosomiasis is hematuria which leads to chronic loss of blood and iron deficiency anemia where there is increased risk of pre term birth with mid trimester anemia (*Klebanoff et al.*, 1991). Amebiasis is an infection by entameba species mostly entameba histolytica which may cause various disease commonly amebic colitis and liver disease (*Ravdin*, 1988). There is also gastrointestinal disturbance which lead to marked weight loss (*Brown H.W. et al.*, 1983).

AIM OF THE WORK

The aim of the work is to Find out a relationship between parasitic infestation and its effect on pregnancy outcome

REVIEW OF LITERATURE

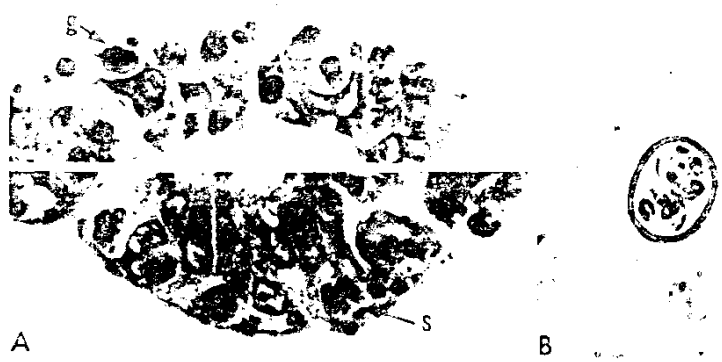
Toxoplasmosis is cosmopolitan, and antibody survey indicate that from 20 to 75 percent of various population are chronically but asymptomatically infected specially in areas where cats are numerous, sanitations poor and the climate is humid (*Brown*, 1983). It occurs in a wide variety of both carnivorous and herbivorous mammals and birds. In human, evidence of infection has been found in all populations investigated (*Edward et al.*, 1992). In 1972, Roever has reviewed the status of toxoplasmosis in seven african countries and it was clear that toxoplasma gondii is widely distributed in large part of africa, in man as well as animals. The mode of transmission is unknown except in congenital infection and there is no difference in infection rate between urban and rural areas (*Edington et al.*, 1986).

Morphology and biology :

Three forms exist in nature :

1) Tachyzoite :

Which may or may not present singly or in pairs. It is crescentic, measuring 3-5.3 μm. one end is pointed and the other blunted and contains the nucleus. There is no kinetoplast (*Edington et al.*, 1986). In great majority of instances, they are not detected in routine paraffin section because of shrinkage and celloidin embedding is preferable (*Wilder*, 1952). They stain well with Hamatoxylen and Eosin and are PAS-positive and Gram-negative (*Edington et al.*, 1986). This form is seen in the acute stage of infection and invade all mammalian cells except non nucleated erythrocyte (*Luft and Remington*, 1983) Frenkel (1973) proposed the term (tachyzoite) for the



Toxoplasma gondii in infected cell culture. A. Gamonts (arrows) (× 1600). B. Oocyst containing two sporocysts with sporozoites (× 1600). (courtesy Dr. J. K. Frenkel, University of Kansas School of Medicine, Kansas City, KS.)

Figure(I)

rapidly dividing proliferative forms of tachyzoite seen in acute infection and the term (bradyzoite) for the slowly multiplying forms contained in true cysts.

2) Tissue cysts :

They are 30 x 100 μm in size and contain numerous basophilic nuclei. Reticulin stain may outline the wall (*Kass et al.*, 1952). Freezing and thewing, heating to 60 °C or disiccation destroys tissue cysts exist in every organs. Although the brain, the skeletal muscle and heart muscle are the most common sites (*Beaver et al.*, 1984).

3) Oocysts (Figure 1) :

Ovoid and 10-12 μm in diameter, and with a thick resistant wall, containing sporoblasts and are not infective. It has been found only in members of the cat family. Sporulation at room temperature (20-22 °C) requires 3-4 days, during this time the primary sporoblast divides into 2 sporoblasts and four sporozoites are formed within each of these. These sporocysts are relatively tolerent to environmental condition and may remain infective in the soil for at least one year. Exposure to boiling or dry heat (over 66 °C) renders sporocyst noninfective (*Beaver et al.*, 1984).

Life cycle (Figure 2)

Frenkel et al. (1970) and Hutchinson et al. (1971) reported that toxoplasma gondii, has a sexual cycle of schizogony and gametogony in the intestinal epithelium of the definitive host and an asexual cycle "The toxoplasmic phase".