THE ROLE OF TOXOPLASMOSIS IN FAETAL WASTAGE

THESIS

Submitted In Partial Fulfillment For The
Master Degree In
Obstetrics And Gynecology

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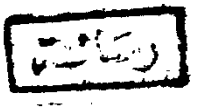


FACULTY OF MEDICINE
AIN SHAMS UNIVERSITY

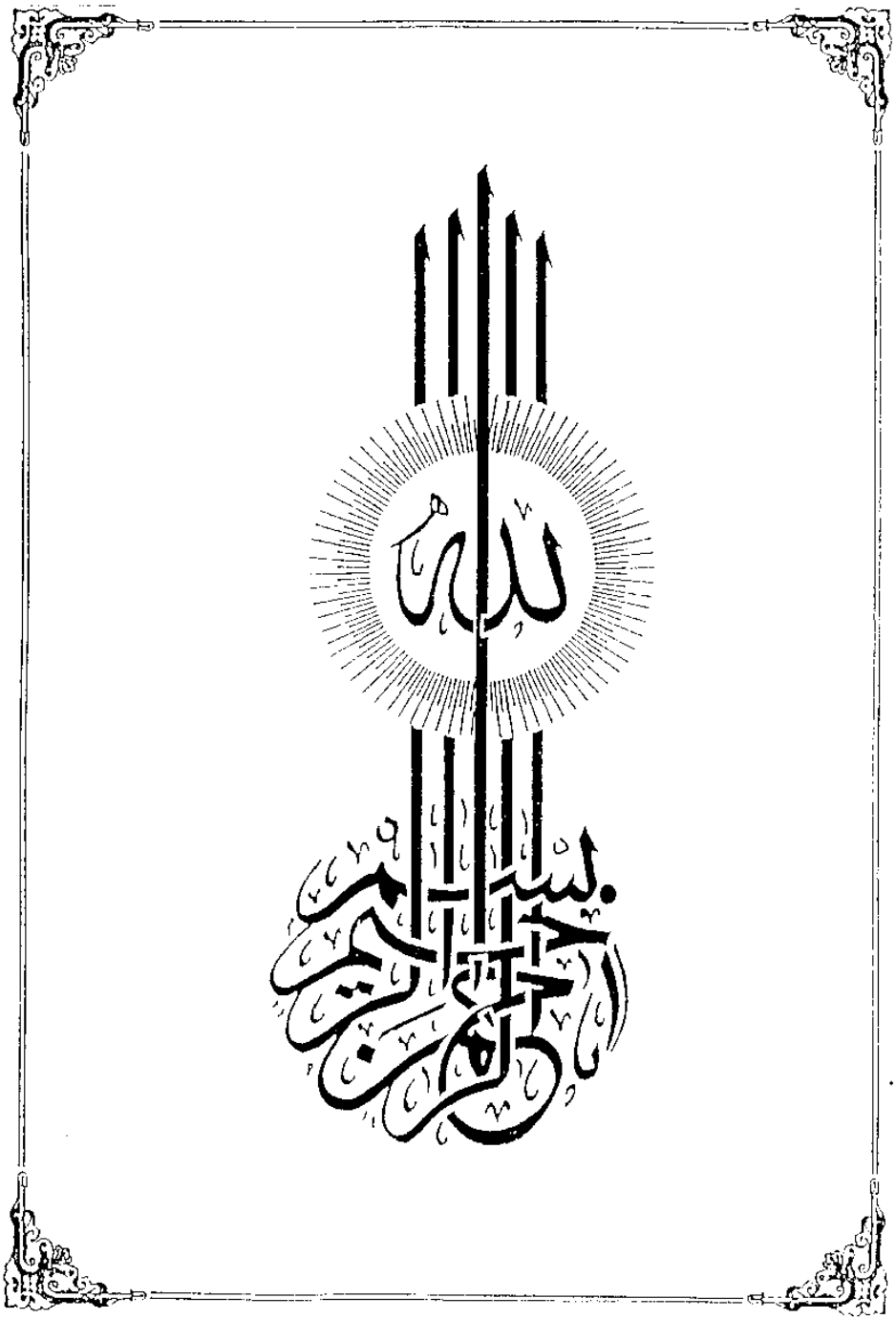
1987

بسم الله الرحمن الرحيم

" قالوا سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم "

صدق الله العظيم

" سورة البقرة آيه ٣٢ "



TO THE SOUL OF :

MY MOTHER
AND MY FATHER

ACKNOWLEDGEMENT

I wish to express my overlasting gratitude to **Prof. Dr. SOBHI KHALIL ABO LOUZ , Ass professor** . of Obstet.and Gynecology , Faculty of Medicine , Ain Shams University, for his advice, encouragement, guidance and his concrete help apears in the arrangement of this work.

I am also deeply indebted to **Prof. Dr. MOHSEN MAGED, Ass. Prof** . of Obstet. and Gynecology , Faculty of Medicine, Ain Shams University, for his meticulous guidance, keen supervision and cooperation throughout this work.

I owe a lot of thanks to **Prof Dr. MOHAMED ALI M.ABD EL HAFFEZ, Ass. Prof.** of Biochemistry , Faculty of Medicine, Cairo University . His continuous effort and wise guidance were much helpful in performing this work.

I am indebted to **Prof . Dr Ibrahim Soliman Hegazy. Ass. Prof. of** Public health faculty of Medicine, Cairo University . For his honest assistance.kind advise . and valuable guidance in directing this work.

Finally, I would like to express my thanks to all those who shared in bringing this presentation to light.

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INTRODUCTION

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Toxoplasmosis is an infection caused by the obligate intracellular protozoon , toxoplasma gondii, one of the most common infection of animal and man (Anderson, 1980). The genus toxoplasma was established by Nicolle and Manceaux , **(1908)** for an organism they have discovered in a small *African rodent* (*ctendactylus gondi*) at the *institute* of Pasteur in Tunis, . They named it toxoplasma gondii. Toxoplasma is named fom a Greek toxon, meaning arc. **(Beaver et al. 1984).**

The species was soon found to have a cosmopolitan distribution with records of infection in over 200 species of birds and *mammales* including man **(Wright, 1957, Jacobs, 1967, Joint 1967).**

More than 20 other species of toxoplasma has been discovered, but according to **Levine (1977)** only seven are valid , the remainder are synonymus of T.gondii. Of the six species other than *T.gondii* , five are found in the reptiles and amphibians . the sixth , T. hammondi **(Hamondia hamondi, 1975)** is a parasite of the house mouse and cat, and was recognized as a distinct from T. gondii, only recently **(Frenkel and Douby, 1975).**

The first discription of human toxoplasmosis has been credited to **(Janku, 1923)** Who described an infant who had chorioretinitis and hydrocephalus. He described the organism but was unable to identify it. The first isolation of T.gondii from a human patient (newborn infant) was reported by **Wolf et** al. 1939 . **Pinkerton , and Weinman described in1940,** The first adult patient with toxoplasmois recorded in United States . Since then an increasing number ofcases of toxoplasmosis in infants, juveniles and adults have been added to the literature **(Kalderson et al 1964).**

AIM OF THE WORK

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The aim of this work is to find the incidence of toxoplasma infections in cases of repeated abortions, intrauterine fetal death and congenital malformations, aiming to find a possible relation between the disease and such complications.

REVIEW OF THE LITERATURE

Etiology

T.gondii is considered to be *coccidian* **because**of enteroepithelial cycle and is presently classified among the sporozoa in the suborder eimerina. **(Luft, Remington 1983).**

Morphology & Biology:

Three forms exist in nature :

1) Tachyzoites (Trophozoites) . Fig 1.

Crescent to oval in shape approximatly 3 um.x 7 um. Tachyzoites stain well with either *wright* or Giemsa stain.

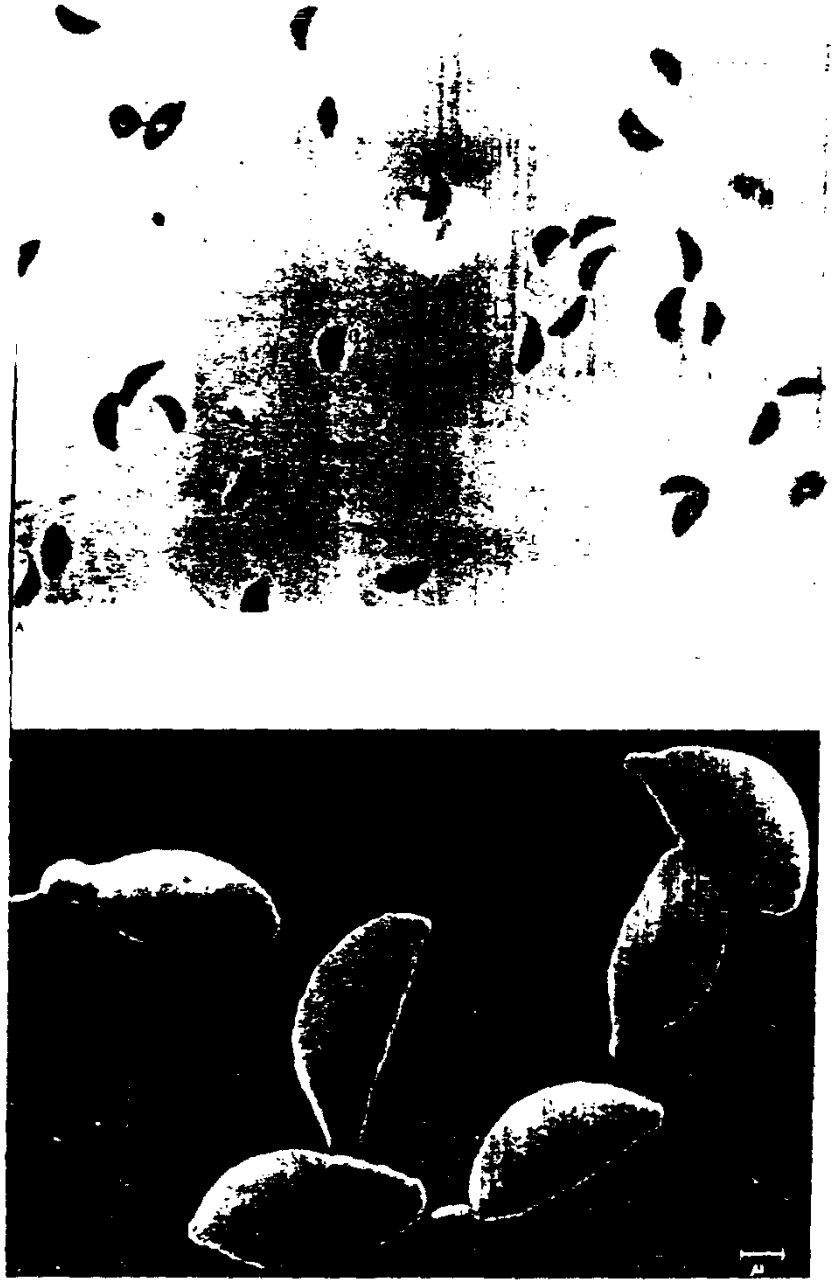
This form is seen in the acute stage ofinfection and invade all mammalian cells except non-nucleated *erythrocytes***(Luft, Remington, 1983).**

The Trophozoites in the stained films are crescentic in shape, 4-8 um inlength, 2-3 um in breadth, and have one end that is more rounded than the other. Evident in *Giemsa* stained preparation of various types of smears are a delicate azury of cytoplasm and a reddish . spherical or ovoid nucleus that is usually nearer the blunt end of the parasite. Electron micrograph reveal a complex system of organelles that clearly demonstrate the taxonomic relationship of this organism to the apicomplexa, one of these structures is a rather short, turncate . hollow conoid that is located at the more pointed anterior end.

In histologic sections . The Trophozoites appear to be ovoid **(Beaver et al., 1984).**

ig.1 : A. Tachyzoites from peritoneal fluid of an infected mouse.

B. Scanning electron micrograph of toxoplasma tachyzoites from the peritoneal fluid of mice.



After McCabe and Remington,1984.

The mechanism of infection is controvirsial . There is evidence suggesting that active penetration occurs as a result of combined mechanical & chemical actions on the cell membrane, and a protein enhancing factor has been extracted from the trophozoites. Other studies suggest that trophozoites induces phagocytosis by the host cell.

Trophozoites can remain viable extracellularly in certain body secretions such as peritoneal fluid, milk, urine , saliva or tears for hours to several days but cannot survive drying, freezing or digestive juices.

Trophozoites are used in the Sabin-Feldman dyetest , the fulton agglutination test, and the fluorescent antibody test, antigen derived from it are used in the complement fixation test, the haemaglutination test and the enzyme linked immunosorbent assay (EIISA).

2) Tissue cysts :

Varying in size from 10 um To 100 Um and containing as many as 300 organisms. They are formed when the parasites multiply and produce a wall within a host cell. The cyst wall is eosinophyllic or argyrophillic and weakly PAS - positive. the organisms within the cyst are strongly PAS-positive.

During the acute infection , groups of proliferative stages may be seen in a wide range of host cell types. These have been