# DETECTION OF FILARIAL ANTIGENEMIA IN PREPARATORY SCHOOL CHILDREN

*Thesis*
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*Of Master Degree in Epidemiology*

Presentd By

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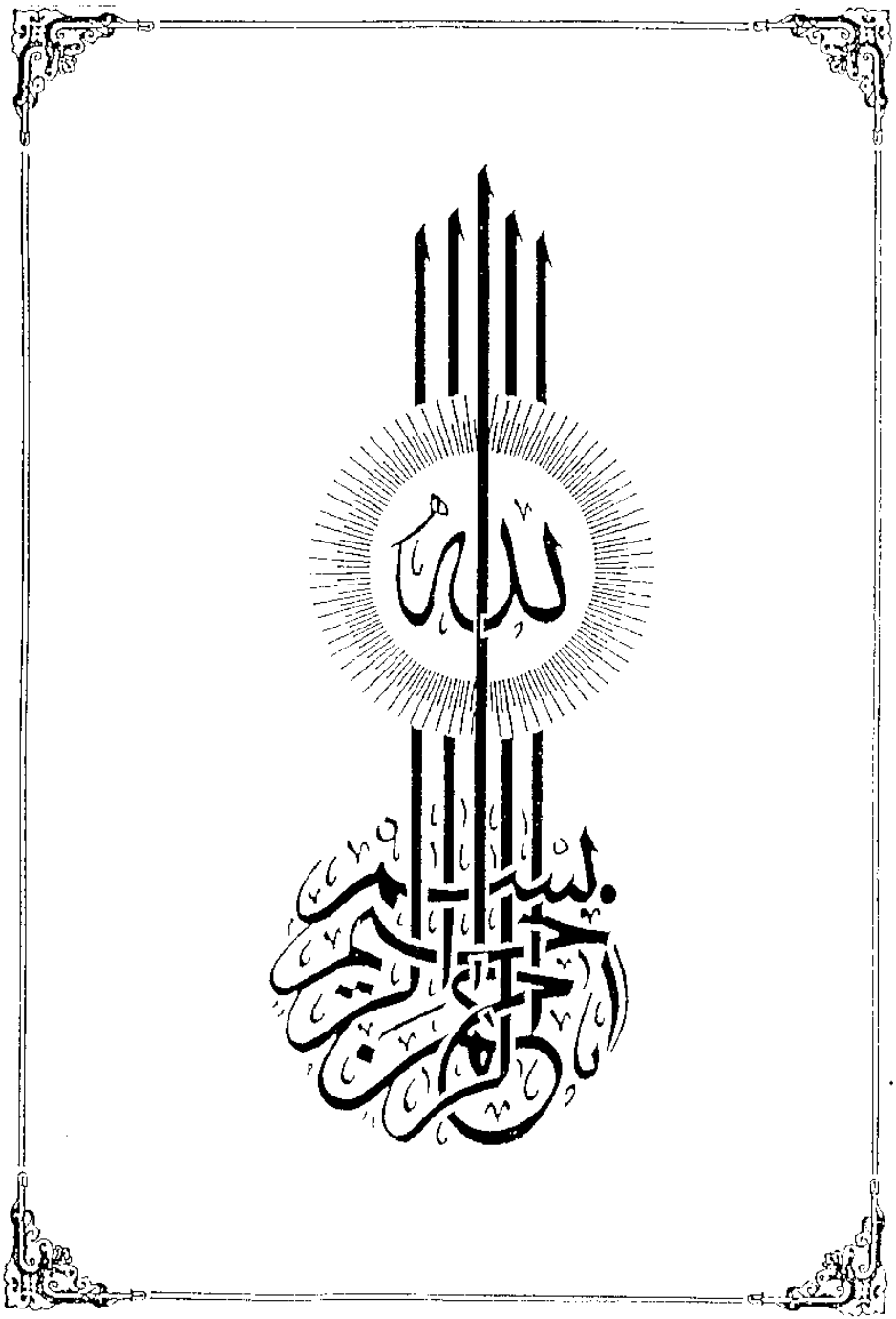

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# C O N T E N T S

# INTRODUCTION

# I N T R O D U C T I O N

Lymphatic filariasis caused by *Wuchereria bancrofti* is an important public health problem in the tropics, with an estimated 80 million people infected (W H O ,1984).

In Egypt lymphatic filariasis has been endemic since pharaonic time, with focal distribution mainly in the Nile Delta. ( Southgate, 1978 )

Surveys for filariasis combining measurements of the microfilaria rate and of the frequency of clinical manifestations were conducted in many communities in Egypt. The results of these studies provided a sketchy panorama of the distribution of filariasis in the country. ( Shawarby, et al, 1965 )

Foci with high levels of endemicity were found scattered in the densely populated area in the Nile Delta, reaching microfilaria rates of 20 percent and more, especially in the Governorates of Qalyubiya, Sharkiya, Dakhaliya, and Damietta In contrast, filarial infections appeared to be absent in most parts of middle and upper Egypt, with an exception of a small hypo-endemic area in Assiut governorate.( Southgate, 1979 )

To locate such endemic foci we have to use a suitable screening test that should be valid , simple and practical.
The conventional methods for diagnosis of *Wuchereria bancrofti* infection are insensitive and often impractical because of the need for night blood collections (either by using thick smears or membrane filtration tests) due to the nocturnal periodicity of the microfilariae. (Ramzy, et al, 1991)

Clinical examination is also insensitive because many people who are infected may not have symptoms and signs of the disease. Moreover, lymphatic obstruction is not necessarily due to lymphatic filariasis which makes clinical examination a nonspecific way for diagnosis. ( Weil, et al, 1987 )

Weil, et al mentioned that ideal diagnostic test would be sensitive for active infection, provide a species-specific diagnosis, indicate the intensity of infection, and of course should be practical for use in the developing countries where the disease exists.

A sensitive and specific antigen detection assay has been developed for *Wuchereria bancrofti* which is based on a monoclonal antibody (AD12) that binds to adult worm excretion product present in sera from infected humans. ( Weil, and Liftis, 1987)

The need for a better way of identifying and locating communities where lymphatic filariasis is endemic was the goal of this study, where, the antigen test was applied on school children as a sentinel population to detect filarial antigenemia among students and to point for endemic foci from which those students were recruited.

# AIM OF THE WORK

# A I M  O F  T H E  W O R K

The focal distribution phenomenon of lymphatic filariasis in Egypt and the use of insensitive and rather difficult methods to locate endemic patches by local health authorities called for the use of a simple and sensitive test to help in identifying and locating such foci.

The fact that many schools, especially in rural areas, recruit students from more than one region supported the idea of using school survey to reflect the prevalence of filarial infection in the communities from which those students are recruited

The objectives of this study are:

1) To evaluate school survey as a way to locate endemic foci with lymphatic filariasis.

2) To evaluate the validity of school survey in representing the prevalence of the disease in students communities.

3) To evaluate the ability of school survey to pick "index cases" .

# REVIEW OF LITERATURE

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## LYMPHATIC FILARIASIS AS A GLOBAL PROBLEM:

It is very difficult to produce reliable data on the number of people infected with the parasite concerned or affected by the disease and even more difficult to give a realistic estimate of the number of people who are " at risk " of infection.
At the present state of diagnostic capability which depends on demonstrating circulating microfilariae in the blood, the "infection rate" is seldom recorded as more than 50% ,even in the most heavily infected countries, taking in consideration the fact that many of the "microfilaria-negative" individuals may have clinical signs of the disease. It is therefore necessary, when estimating the prevalence of lymphatic filariasis, to include both the "microfilaria-positive" individuals and those with filarial disease. ( W H O , 1984 )

If more sensitive diagnostic techniques could be used to supplement parasitological and clinical diagnosis the figure for the total number of people infected would probably be much higher, for it would include all those infected persons who are asymptomatic and amicrofilaremic.

## LYMPHATIC FILARIASIS IN AFRICA AND ASIA:

Numerically the public health problem of lymphatic filariasis is greatest in China, India, and Indonesia. These three countries account for about two-thirds of the estimated world total of persons infected. There are extensive endemic areas in many countries of the African Region but detailed epidemiological studies have been confined to a few of those in East and West Africa So, the estimate of the number of persons infected in Africa is therefore less reliable than for other regions. ( W H O, 1984 )

## * LYMPHATIC FILARIASIS IN EGYPT *

### HISTORICAL VIEW:

Lymphatic filariasis caused by *Wuchereria bancrofti* has been well recognized in Egypt for hundreds of years. However, before the discovery of its life cycle all evidence of the occurrence was based on sporadic observations of the clinical manifestations.

Although clinical, pathological, and parasitological research on filariasis was carried out in Egypt during the earlier parts of this century, yet significant epidemiologic and entomological studies did not start before 1930. These investigations led to the identification of *Culex pipiens* as the main vector of the disease. They also revealed that the distribution of filariasis in Egypt was highly focal. ( Southgate, 1979 )

### EPIDEMIOLOGIC PICTURE:

Surveys for filariasis involving measurements of the microfilaria rate and of the frequency of clinical manifestations were conducted in many non randomly selected communities. Two major studies have been