THE RELATIONSHIP BETWEEN PRIMARY VAGINAL HYDROCELE AND BILHARZIASIS IN EGYPT.

THESIS

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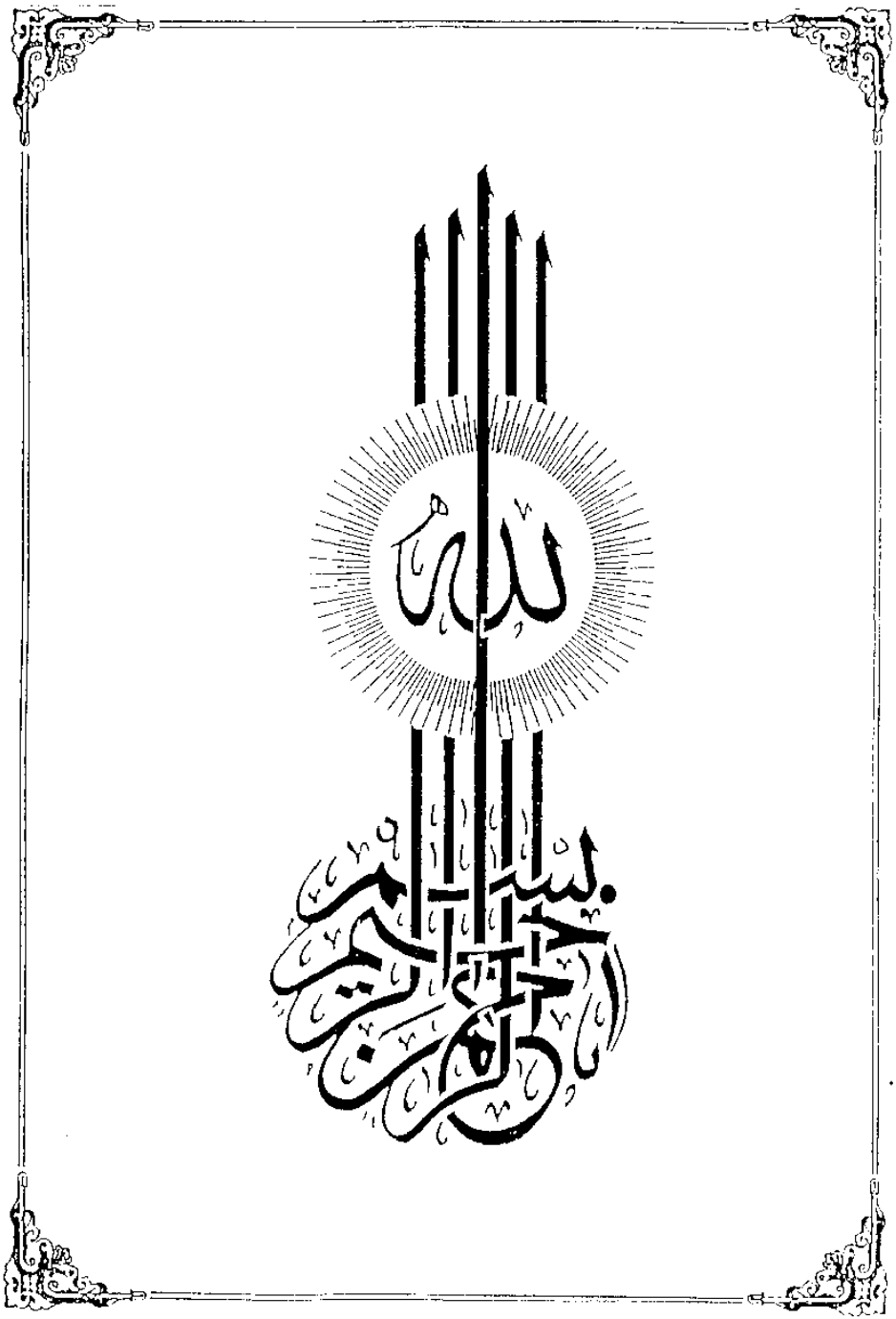

I N D E X

INTRODUCTION

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Vaginal Hydrocele which is the collection of serous fluid between the two layers of the tunica vaginalis is classified into two types:

1) Secondary vaginal hydrocele: Due to some disease affecting the testis, epididymes or spermatic cord.

2) Primary or idiopathic vaginal hydrocele which is of unknown aetiology.

The idiopathic type of hydrocele is a very common disease in Egypt as well as in tropical and subtropical counteries. Many researches were done trying to reach the exact cause of this type of hydrocele. Lymphatic obstruction, imbalance between secretion and absorption and repeated trauma to the scrotum were blamed to be possible causes. Bacterial, protozoal and viral infections were also suggested as other probable causes. In all these researches and suggestions a definite proof was always lacking.

Although vaginal hydrocele and bilharziasis are prevalant and are common association in Egypt, yet any relationship between the two was always lacking.

In this work by the different methods of investigation we will try to prove or disprove any relationship between bilhariasis and idiopathic vaginal hydrocele in Egypt.

Etiological Theories of Primary Vaginal Hydrocele:

In 1922 Maddon stated that vaginal hydrocele was due to lax and pendulous scrotum as a result of wearing Gallabeahs. This results in impairment of venous return and effusion into the sac of the tunica vaginalis. He blamed also sexual excess to be an aetiological factor in the production of vaginal hydrocele by producing over vascularity of the testes and scrotal contents. He did several studies to find out any relationship between filariasis and hydrocele but he failed to find microfilaria in either the blood of the patients suffering from the disease or in the hydrocele fluid. He found that the fluid collected in the tunica vaginalis in cases of elephantiasis of the scrotum was different in nature from the fluid found in cases of simple vaginal hydrocele.

In 1927 Ali Ibrahim did not believe in pendulous scrotum, excessive coitus, and wearing Gallabeans to be the causes of hydrocele. He studied endemic funiculitis in relation to vaginal hydrocele and noticed that it might occur during an attack of funiculitis or at the end of the attack, while resolution is taking place or even after complete resolution of all signs and symptoms of funiculitis. He investigated cases of vaginal hydrocele and found obliteration of the lymphatics in the spermatic cord and believed that primary vaginal hydrocele was due to lymphatic obstruction resulting from repeated attacks of lymphangitis coused by filariasis but he failed to find microfilaria in the peripheral blood samples of the cases investigated.

In 1930, Acton and Rao postulated that hydrocele and elephantiasis were due to lymphatic obstruction in the paraortic and iliac lymph nodes produced by adult and preadult filarial worms causing lymph stasis distally and hydrocele formation.

In 1931 Huggins and Butz studied the absorptive power of the tunica vaginalis of normal persons and those suffering from vaginal hydroceles. They proved

this by injection of "Phenolsulphonphthalin" into the sac of the tunica vaginalis of patients having vaginal hydrocele. They found that elimination of the dye in urine was nill or just a trace in 24 hours. They concluded that the absorptive power of the tunica vaginalis in cases of primary vaginal hydrocele is limited and delayed when compared with that of normal individual.

Elsbach in 1934 believed that lymph stasis in cases of elephantiasis and hydrocele was due to obstruction of the lymphatic vessels rather than obstruction at the level of lymph nodes as was believed by Acyon and Roa. He stated that primary hydrocele is due to compelete or intermittent lymphatic obstruction caused by adult and preadult filarial worms.

In 1939, Rinker and Allen studied the lymphatic drainage of the tunica vaginalis, epididymis and testis in normal subjects and in cases of vaginal hydroceles by injection of indiaink into the sac of the tunica vaginalis.

They concluded that there was defective reabsorption of the dye via the lymphatics which were not blocked but scarcer in number in comparison to those of normal tunica. They atributed hydrocele formation to repeated unnoticed trauma to the scrotum causing damage of the endothelium of the tunica vaginalis with oozing of a transudate which accumulates in the sac of the tunica vaginalis owing to defective reabs orption.

In 1951 Burkitt:Succeeded in demonstrating microfilaria in the peripheral blood of 17 cases out of 130 cases of vaginal hydroceles. He suggested that filariasis play an important role in the pathogenesis of idiopathic vaginal hydrocele. In 1955, Peter Jordon studied the relationship between filariasis and both vaginal hydrocele and elephantiasis of the lower limbs. He concluded that the view of Dutton and Hoo was unsatisfactory and that hydrocele is not due to fibrosis and obstruction of the paraaortic lymph nodes. He put the following data to support his conclusion:-

1) The legs and scrotum drain into inguinal lymph nodes, and ultimately to the para-aortic lymph nodes. The

testis, epididymis and tunica drain directly to the para-aortic lymph nodes.

2)If hydrocele is due to fibrosis and obstruction of the para-aortic lymph nodes, elephantiasis of the testis, epididymis and cord should also be present, This does not occur.

3)Since the inguinal lymph nodes drain to the external iliac and thence to the para-aortic lymph nodes, elephantiasis of the legs would be expected in all cases of hydrocele. This does not occur.

4)Elephantiasis of the legs is frequently preceded by lymphangitis and lymphadenitis involving the inguinal lymph nodes draining the lower limbs. If hydrocele have the same aetiology as elephantiasis, the initial pain should be felt in the back and in the abdomen from inflammation of the para-aortic lymph nodes and the lymphatics reaching them. This is not the cases as the initial pain is felt at the site of the developing hydrocele.

Thus Jordon in 1955 attributed hydrocele to be due to local tissue reaction in the tunica vaginalis as a result of the presence of adult filarial worm.

In 1956 Yates and Bell stated that primary hydrocele is due to inbalance between excretion and absorption from the tunica vaginalis.

In 1970 Sitadevi et al. studied the electrophoretic pattern of the hydrocele fluid in relation to the pathological changes that affect the tunica vaginalis. They found that there was a significant increase in the total proteins and the gamma globulin fraction in the hydrocele fluids associated with pathological changes of the tunica when compared with the hydrocele fluids of cases having a relatively normal tunica vaginalis.

Anatomy and Embryology

Embryology of the testis, tunica and scrotum

Development of the testis and tunica vaginalis

The testis is developed from the genital ridge of the mesoderm which appears on the medial side of the mesonephros (Wolffian body) on the posterior abdominal wall of the embryo. It becomes isolated and slung by a short peritoneal fold, the meso-orchium which contains the testicluar vessels and nerves.

A fibromuscular band, the gubernaculum, develops in this mesentery finding attachment above to the lower pole of the developing testis and below to the skin which latter forms the scrotum. As the gubernaculum does not grow pari passu with the body it becomes relatively short, and in some way seems to guide the testis in its descent from the abdomen to the scrotum through the inguinal canal. This descent normally being compelete by the time of birth.

The processus vaginalis appears as a dimple of peritoneum about the tenth week of intra-uterine life

it precedes the testis through the layers of the abdominal wall down to the scrotum. Its lower part is invaginated by the testis to become the tunica vaginalis testis while its upper part which associates the spermatic cord up to the internal ring becomes oblitrated forming the vestigeal remnant of the processus vaginalis. In its descent through the inguinal canal, the testis receives the three coverings from the abdominal wall normaly the internal spermatic fascia, the cremastric muscle and fascia and the external spermatis fascia.

Development of the scrotum:

The scrotum is developed from the external genital ridge from ectodermal tissue. The two labioscrotal folds which at first are on either sides of the genital tubercle migrate postero-medially and unite with each other in the middle line forming the scrotum.

At the junction of both labioscrotal folds, the scrotal raphe is apparent externally and internally forming septum which divides the scrotum into two compartments.

Anatomy of the tunica vaginalis, testis and epididymis

1. The tunica vaginalis:

Is a closed sac of peritoneum which almost compelete they surrounds the testis and epididymes and extends upwards for a short distance into the spermatic cord. It has an outer parietal layer lining the scrotum and an inner visceral layer covering the testis and the sides of the epididymes. There is a bare area on the posterior surface of the epididymes where the visceral layer of the tunica is reflected to become contineous with the pariatal layer.

The tunica vaginalis is formed of an inner smooth layer of endotnelial cells and an outer fibrous layer which is deficient in the visceral part of the tunica so that the tunica albuginea is only covered by single layer of flat cells and there is no continuation of the fibrous peritoneum over it. In between the visceral and parietal layer of the tunica there is potential space containing thin film of serous fluid.

2. The testis:

Is oval in shape 4 Cm long, 2 Cm thick and 2.5 Cm. from before backwards. It has two surfaces, medial and