AETIOPATHOLOGY AND MANAGEMENT OF RECURRENT INGUINAL HERNIA

ESSAY

Submitted in partial fulfilment of requirements for the master degree of surgery(M.S .)

BY

IHAB ABDEL HAMID AHMED SHAKER

M.B.B.Ch.(AIN SHAMS UNIVERSITY)

Supervised by

Prof. Dr. FAKHRY H. EBIED Ass. Prof. of surgery

Faculty of medicine Ain Shams university.

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ACKNOWLEDGMENT

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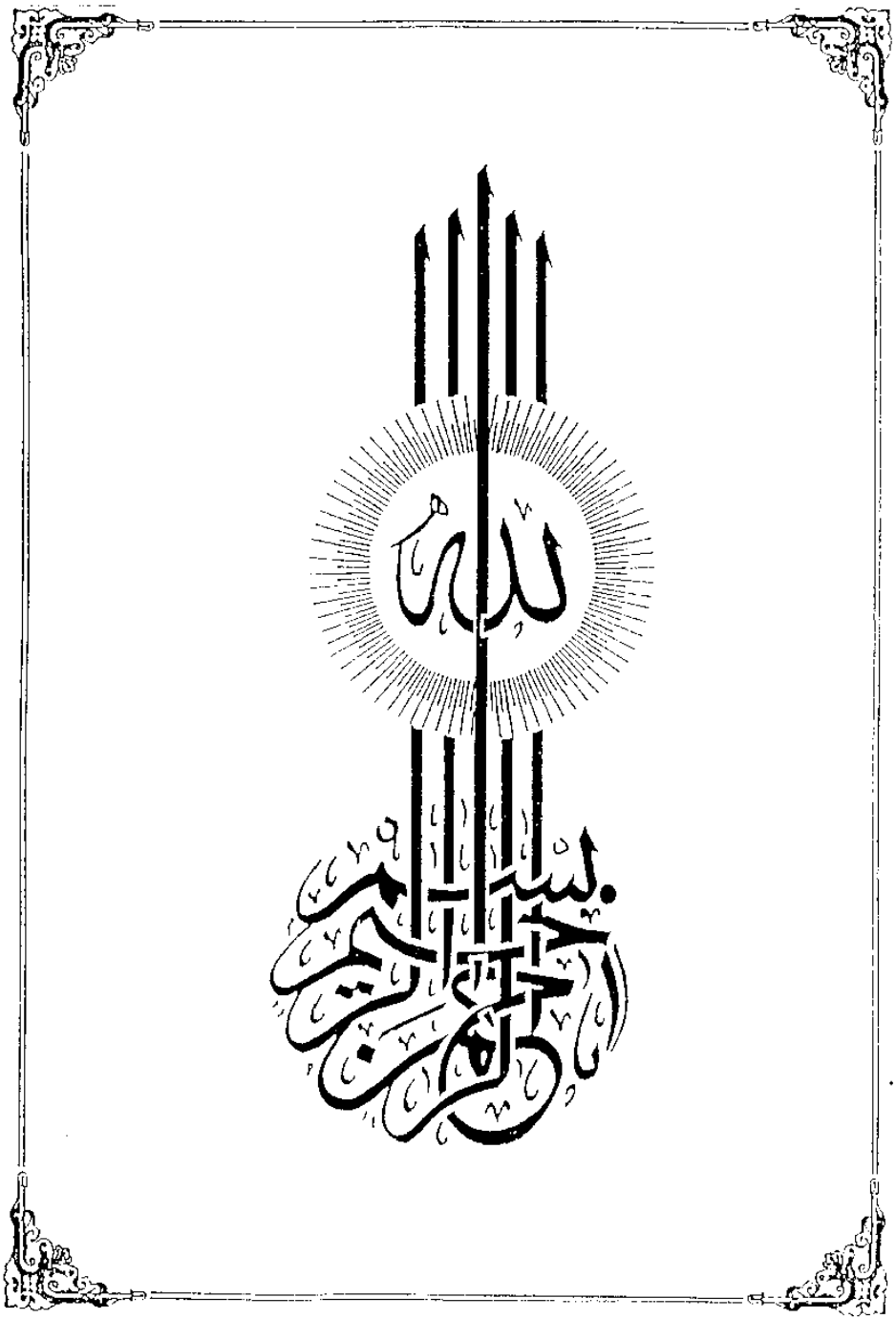
This work was carried under the supervision of Professor FAKHRY HAMED EBIED Ass. Prof. of surgery Ain Shams university to whom I wish exprss my warm gratitude and deep thanks for his valuable selection of this study,kind help, guidance and encouragement through-out this work.

Last but not least, I wish to thank my colleagues in section 8 for their kindness and co-operation.



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Introduction

A great deal of confusion surrounds the subject of recurrent inguinal herniae as regards the precise definition, the incidence and causes of recurrence.

WATSON (1968) stated that any herniathat occur at thes site of the previous operation on ahernia should be considerd as arecurrent hernia.

However many of the so called recurrent inguinal herniae are not true recurrent. They may be an overlooked sac during the original operation or anew hernia which appeared as aresult of the operation itself .

It is absolutely necessary for every surgeon to be aware of all possible etiologic factors of recurrence if further progress is to be made toward resolving the problem.

This study includes areview of the problem of recurrent inguinal herniae as regards the different etiological factors , types and management.

ANATOMICAL REVIEW OF THE INGUINAL CANAL

Anatomy of the inguinal canal

The inguinal canal runs obliquely inbetween the muscles ,aponeuroses and fasciae of the anterior abdominal wall,above the medial part of the inguinal ligament.
In adults the inguinal canal ,about 4cintemeters long, extends downward , forward and medially from the deep to the external inguinal ring.
In infant and children up to the age of two years the external and deep inguinal rings are nearly superimposed so the obliquity of the inguinal canal is very slight.
In males, the inguinal canal transmits the spermatic cord, the ilio-inguinal nerve and the genital branch of the genito-femoral nerve. In females the round ligament replaces the spermatic cord.

Boundries of the inguinal canal.

The canal is bounded anteriorly in its whole length by the external oblique aponeurosis and in its lateral third by the lower fibres of the internal oblique muscle arising from the inguinal ligament.
The posterior wall of the canal is formed in its whole length by the transversalis fascia and in its medial half by the variable fascio-aponeurotic layers known as the conjoint tendon.

The posterior wall may contain in it's medial fourth the reflected inguinal ligament. This ligament is athin triangular reflexion of fibers from the lacunar ligament and the insertion of the infero-lateral crus of the external inguinal ring in the pubic tubercle. It passes medially toward the linea alba where its fibers interlace with those of the opposite side. It passes behind the cord and expands into atriangular band behind the medial crus of the external inguinal ring and infront of the conjoint tendon.

The reflected inguinal ligament is of no practical importance and only found in about 3% of subjects (ANSON& McVAY).

The posterior wall is arelatively weak area to resist herniation. Here the transversalis fascia is slightly thickened by apposition of the deeper layers of interparietal fascia to its external surface. It is reinforced also by avariable numbers of aponeurotic fibers that bridge the gap between the transversus abdominis arch above and the Cooper's ligament below in amesh like arrangement. The strength of this part of the groin is directly proportional to the number of aponeurotic fibres it contains. This is the area at which disruption first occurs in cases of direct inguinal hernia permitting adirect hernial sac to enter the inguinal canal and occupy aposition

posterior or deep to the spermatic cord.

The part of the posterior wall at the region where adirect hernia may occur is referred to as Hasselbach's or inguinal triangle. The triangle is bound medially by the lateral border of rectus muscle , supero-laterally by the inferior epigastric vessels and inferiorly by the medial half of the inguinal ligament.

The floor of the triangle is formed by the transversalis fascia.

The inferior epigastric vessels cross the posterior wall of the inguinal canal at the medial edge of the deep inguinal ring. So if ahernial sac passes lateral to the inferior epigastric vessels (through the deep inguinal ring) it is an oblique inguinal hernia, while one passing medial to the vessels (through Hasselbach's triangle) is a - direct inguinal hernia.

The roof of the inguinal canal is formed by the arched lower fibres of the internal oblique and transversus abdominis muscles.

The floor of the canal is the grooved upper surface of the inguinal ligament and of its reflection on to the superior ramus of the pubis (lacunar ligament).

The conjoint tendon

The structure known as the conjoint tendon or falx inguinalis varies both in its development and in the way in which it has been defined and has been the subject of many conflicting description.

It is generally regarded as an arching, tendenous structure in the lower medial part of the inguinal region, derived from both the internal oblique and the transversus abdominis muscles. The conjoint tendon is inserted far enough laterally along the superior pubic ramus to afford protection to the external inguinal ring.

The fused aponeuroses of the internal oblique and transversus muscles pass largely infront of the rectus muscle to form part of its sheath.

ANSON& McVAY noted that the internal oblique does not insert far enough laterally along the superior pubic ramus to afford much protection to the external inguinal ring. However the transversus is inserted along the pectineal line there-fore lies behind the external ring.

There is much disagreement as to the form, function and even actual existence of the conjoint tendon.

A conjoint tendon described as being sometimes present while in other cases the aponeurosis of both the internal oblique and transversus muscles may be separable

as far as their attachment on the rectus sheath, or aconjoint tendon formed by the transversus alone(HOWELL).

CH ANDLER & SCHADEWALD suggested that the conjoint tendon should be more properly called aconjoined aponeurosis asatendon having been recognised in only 5% of their cases.

On the other hand ANSON and his colleagues thought that the structure usually so identified actually is apart of the anterior sheath of the rectus muscle.

ZIEMAN stated that he found only 2 specimens with adefinite conjoint tendon among 20 cadavers, and quoted the results of aseries of dissection of 25 muscular specimens in which the conjoit in no case extended farther than I5 mm lateral to the insertion of the rectus muscle.

CHERNER described and illustrated various types of conjoint tendonss some long and some short, some wide and some attenuated, noting that the types vary according to the muscles with which the tendon is associated, and that the conjoint tendon may be completely muscular or completely fascio-aponeurotic.

CHERNER and others have regarded the conjoint tendon as so constructed that it definitly resist intra abdominal pressure at the level of the external inguinal ring.

External inguinal ring.

It is an aperture in the aponeurosis of the external oblique which lies about I.25 cintemeters above the pubic tubercle. It's long axis is oblique and corresponding with the course of the fibres of the aponeurosis. Being atriangular in shape the approximate length from base to apex is about 2.5 Cm and breadth at the base is I.25 Cm. The base is formed by the pubic crest.

The ring is bound by asupero-medial and an infero-lateral crus joined by the criss-cross inter-crural fibres.

The infero-lateral crus is thick and curved to receive the spermatic cord in male and is formed by that portion of the inguinal ligament which is inserted into the pubic tubercle.

The supero-medial crus is athin flat band , its fibres are attached to the medial part of the pubic crest along side the symphysis pubis and interlace with fibres of the crus of the opposite side.

The inter-crural fibres serve to reinforce the lateral portion of the aponeurotic opening and bind the two crura together thus they resist the spreading of this opening in cases of inguinal hernia.

The gap between the two crura of the external inguinal ring is bridged by athin layer of fascia derived from the deep surface of the external oblique aponeurosis and this fascia continues on the spermatic cord, so the uninterrupted continuity of the external oblique layer is maintained in such manner that fluids or pus which may come to occupy the space beneath SCARPAs fascia cannot enter the inguinal canal .

The superficial ring provides passage of the structure of the spermatic cord to the scrotum.

Also the ilio-inguinal nerve passes through the ring although it may occasionally pierce the aponeurosis just above the ring.

Deep inguinal ring.

It is a U shaped condensation of the transversalis fascia which is incomplete above. The competence of the deep ring depends upon the integrity of the transversalis fascia.

It lies I.25 Cm above the mid-inguinal point, it has a thick and strong inner margin known as(inter-foveolar ligament). It is bound laterally by the angle between the transversus abdominis and the inguinal ligament.

The ring allows passage of the spermatic cord in male and round ligament of the uterus in female and gives a fascial prolongation around the cord (internal spermatic fascia).

Structure of the spermatic cord.

The cord consists of many structures which include:

I) Vas deferens.

2) Blood vessels.

- testicular artery
- cremasteric artery
- artery of the vas
- pampiniform plexus of veins

3) Nerves.

- genital branch of genito-femoral nerve.
- testicular plexus of sympathetic nerve fibers.

4) Lymphatic vessels of the testis.

5) vestige of processus vaginalis when present.

This is a fold of peritoneum pushed infront the testis during its descent to the scrotum and normally becomes obliterated during the last month of pregnancy.

Persistence of this fold as a patent peritoneal pouch into and along the inguinal canal is considered as the congenital predisposing factor for the development of an oblique inguinal hernia.