



OBLIQUE
INGUINAL HERNIA
COMPARATIVE STUDY OF DIFFERENT SURGICAL
PROCEDURES

Thesis Presented in Partial Fulfilment
For
The Master Degree of Surgery

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A C K N O W L E D G E M E N T

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

This thesis has been written for comparison between different surgical procedures on oblique inguinal hernia.

One hundred cases are chosen at random.

Also a note about the age, sex incidence was observed.

Also a comparison between different surgical procedures (Bassini's repair, Halsted's repair by rectus sheath Flap, relaxation operation of Reinhoff and Tanner, silk lattice repair by maingot and free graft operation) as regard recurrence, sepsis and haematoma of the wound.

Also this thesis include strangulated oblique inguinal hernia and it is managment.

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==) { ANATOMY OF INGUINAL CANAL } (==
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As in all areas of the abdomen, the abdominal wall in the groin is composed of multi laminar arrangement of muscle; their aponeurosis, fascia, fat, and either skin or peritoneum. The abdominal wall at the level of the groin may be divided into two groups of lamina, an outer and an inner. These two groups are mirror images of each other and are divided by inguinal canal and spermatic cord as in the following table.

Table 1: Layers of the abdominal wall.

S K I N
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Fat (abdominal panniculus)	
Fascia (Scarpa's)	
Aponeurosis and muscle (external oblique)	Superficial Stratum
Inguinal canal, muscle (internal oblique) and Spermatic cord	

Table 1: (cont.) :

S K I N :
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Aponeurosis and muscle

(Transversus abdominis) Deep

Fascia (Transversalis) Stratum

Fat (preperitoneal fat)

Peritoneum

Since by definition any hernia is a protrusion of of normal cavity contents through the fascial and muscular layers design to contain them, it is obvious that groin hernias are due to **failure** of the inner lamina of the abdominal wall, not from the outer.

External Oblique Aponeurosis

The external oblique muscle arises from the lower eight ribs posteriorly and sweep downward and around the trunk as a broad, flat muscle. The muscle fibers give way to their flat tendon of insertion, the external oblique aponeurosis at the linea semilunaris.

The aponeurosis is attached to :

- 1- The iliac crest and the anterior superior iliac spine laterally.
- 2- The linea alba medially.
- 3- Inferiorly the aponeurosis is slightly thickened and folded back upon itself to form the inguinal ligament. Its lower edge attached to the fascia-lata by innominate fascia. Medially the inguinal ligament inserted in the pubic tubercle, and fans downward on to the superior pubic ramus as the lacunar ligament

Internal Oblique Muscle

The internal oblique muscle is the central and most muscular layer of the abdominal wall.

ORIGIN :

- 1- Lateral two thirds of the inguinal ligament.
- 2- Anterior two-thirds of the intermediate line of the iliac crest.

- 3- The lower portion of the lumbar aponeurosis(fascia) near the crest.

The fleshy fibers of the muscle are directed mostly in an oblique direction upwards, forwards and medially.

Insertion :

By an aponeurosis into the lower six costal cartilage, xiphoid process, linea alba, pubic crest and the pectineal line.

The lower fibers of the muscle form an arch from the origin to the insertion. These arching fibers are inserted into the pubic crest and pectineal line where they are fused with the fibers of the transversus abdominis to form the conjoint tendon.

Inferiorly and laterally the internal oblique originates from deeper structures derived from transversalis fascia, iliac crest and the inguinal ligament.

The medial margin of this insertion forms an arch over the internal inguinal ring. From this points fibers of the muscle arch downward and envelop the spermatic cord as it issues from the internal ring. These fibers

form the cremasteric muscle. This muscle is important in hernia repair only in that it should be completely removed to expose the internal ring.

Transversus Abdominis Muscle

This is the most internal of the three flat muscles of the abdominal wall.

Origin :

- 1- Lateral one - third of the inguinal ligament.
- 2- Anterior two - thirds of the inner lip of the iliac crest.
- 3- Lumbar fascia.
- 4- The inner surface of the lower six costal cartilages, by fleshy slips which interdigitate with the slips of the costal origin of the diaphragm. The fibers of the muscle run almost in a horizontal direction.

Insertion :

The fleshy fibers of the muscle form an aponeurosis which is inserted into the xiphoid process, linea alba,

pubic crest and pectineal line.

The lower free margin of this muscle arches with the internal oblique from lateral origin of that muscle over the internal inguinal ring to form a free edge over the ring and above the floor of the inguinal canal medial to the ring. The arch, called the transversus abdominis aponeurotic arch, occasionally fuses with the arch of the internal oblique aponeurosis to form a "conjoined tendon" or falx inguinalis but in only 5 of cases. The common finding is that the transversus aponeurosis joins the internal oblique at the rectus sheath.

The arch forms the upper margin of the area through which inguinal hernias of all types protrude.

The arch itself forms a basic component of the anatomic repair of all inguinal hernias.

Conjoint tendon :

This is the fused lower part of the aponeurosis of internal oblique and transversus abdominis. It is inserted into the pubic crest and pectineal line. It is the most important part of the posterior wall of the inguinal canal.

Endoabdominal Fascia

The endoabdominal or transversalis fascia is the most important layer in the prevention of groin and other abdominal wall hernias. This fascial layers form a bag that hold the abdominal viscera within, and separate them from the muscular and bony layers of the abdomen without.

The various portion of the bag are known by different names according to the external structure at that point. Thus, the endo-abdominal fascia underlying the transversus abdominis and its aponeurosis is known as the transversalis fascia.

Hesselbach's Triangle

Boundries :

- 1- Superiorly : conjoined tendon.
- 2- Laterally : inferior epigastric vessels.
- 3- Inferiorly : Inguinal ligament.

Transversalis Fascia Analogus :

It is a condensation of the fascia in the endoabdominal fascia at points of insertion of various muscle group or attachment of other fascial or aponeurotic structure into the fascial sac itself.

There are four important fascial analogus :

- 1- Transversalis fascial sling.
- 2- Transversus abdominis aponeurtic arch.
- 3- Ilio pubic. tract.
- 4- Cooper's (ilio-pectineal ligament).

Transversalis Fascial Sling

It reinforce the medial margin of the internal ring.

Transversus Abdominis Aponeurtic Arch

It form the superior border of the floor of the inguinal canal and aponeurosis of the transversus abdominis with the transversalis fascia.

Ilio Pubic Tract

It arises from the iliopectineal arch, which is a fibrous condensation of endoabdominal fascia, spanning the ilio psoas muscle as they exit from the pelvis. Via the arch the tract gains insertion on the anterior iliac spine and inner lip of the wing of the ilium.

It arches over the femoral vessels forming the anterior portion of the femoral sheath, then medial boundary of the femoral canal.

Cooper's Ligament

The periosteum of the pelvis along the iliopectineal line fused with condensation of transversalis fascia and iliopubic tract to form Cooper's ligament.

Extra peritoneal Fatty Tissue :

This is a layer of areolar fatty tissue of variable thickness which lies between the fascia transversalis and peritoneum.

Peritoneum :

Deep to preperitoneal fat. It is thin elastic membrane. It does not act in the prevention of the hernia.

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==) { { INGUINAL CANAL } } (==

- ≡ The inguinal canal is the passage between the deep and superficial inguinal ring.
- * It is well develop in males than females.
- ≡ It run obliquely between muscle, aponeuroses and fascia of the anterior abdominal wall it is about 1½ inches (4 cm) in length it's internal end is the deep inguinal ring the external end is the superficial inguinal ring.

The deep inguinal ring :

It is an opening in the transversalis fascia. It lies about ½ inch (1 cm) above the mid inguinal point (which is a point midway between the anterior superior iliac spine and pubic tubercle).

The superficial inguinal ring :

It is a triangular aperture in the external oblique aponeurosis.