Inguinal Hernia Repair

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No disease of human body, belonging to the province of surgeon, requires in its treatment, a better combination of accurate anatomical knowledge with surgical skill than hernia in all its varieties.

Sir Astley Paston Cooper
INGUINAL HERNIA

Hernia is a protrusion of visceral contents through the inguinal canal.

- Defect – size & location of the fascial opening
  - Direct
  - Indirect
- Hernial sac – Protrusion of peritoneum through defect
INCIDENCE

5-10 % life time incidence
80 % Inguinal
2/3 – indirect (M:F = 7:1)
1/3 – direct
ANATOMY

Inguinal canal

• Ant:- Ext. oblique aponeurosis
• Sup:- Int. oblique + Trans. Abdominis
• Inf:- Inguinal + lacunar ligaments
• Post:- Transversalis fascia
• Hesselbach’s triangle
• Cooper ligaments
• Nerves (Ihg, Iig, Genital-Gfn, Lfcn)
FIGURE 35.2. The left inguinal canal with the external oblique aponeurosis incised and reflected.
INDICATION

All hernias should be repaired unless specific contraindications are present. This is on the basis of presumptions that complications of incarceration, obstruction & strangulation are greater than risk of operation.
Mortality – 9-10 fold in elderly if obstruction occurs

- Incidence of life threatening complications is low
  - 18 years – 0.272 %
  - 75 years – 0.34 %

- Postop Pain (groin)
  - 10 - 12%
Treatment of Inguinal Hernia is surgical unless a serious medical conditions precludes repair. Because of the ease of local anesthesia, very few conditions preclude surgery.

- If surgery is impossible – truss can be used
REPAIR APPROACHES

- Anterior
  - Marcy
  - Bassini
  - McVay (cooper ligament)
  - Shouldice
  - Lichtenstein

- Preperitoneal
  - Nyphus
  - Stoppa

- Laparoscopic
  - TAPP
  - TEP
  - IPOM
BASIC CONCEPT

- Division of ext. oblique aponeurosis
- Differentiation between direct & indirect hernia
- Ligation & removal of sac at deep inguinal ring +/- reduction of direct hernial sac.
- Oblique construction of inguinal canal with ant. & post. wall and internal & external ring
Anterior Approach

Marcy repair  1871
- High ligation of sac and closure of internal ring

Bassini repair  1887
- Floor reconstruction with approximation of internal oblique, transverses abdominis and transversalis fascia with shelving edge of inguinal ligaments.
Anterior Approach (cont..)

McVay repair 1939

- Approximates the transversis abdominous arch to cooper ligament, iliopubic tract and inguinal ligament.
- Relaxing incision in the anterior rectus sheet.
- Extensive dissection and slow recovery
Anterior Approach (cont..)

Shouldice repair 1953

- The transversalis fascia is divided from internal ring to pubic tubercle and lifted from peritoneum. Fascia is overlapped with two rows of running sutures. Two further rows of sutures are applied to bring tranversis abdominous to shelving edge of inguinal ligament.
- Low recurrence rate
Development in the later half of the 20th Century

- Routine use of prosthetic mesh
- Tension free concept
- Pre-peritoneal concept
- Therapeutic laparoscopy
Anterior Approach (cont..)

Lichtenstein repair 1986

- Classic hernia repairs has sutures under tension led to high recurrence
- Prosthetic mesh to reinforce the transversalis fascia. Polyprolene mesh is fixed to the inguinal ligament inferolateraly and lateral edge of rectus sheet and conjoint tendon superiorly.
- Modified by Gilbert for the use of mesh and plug
MESH

- Polypropylene
  - Monofilament (merlex prolene)
  - Polyfilament (surgipro)
- Dacron (Mersilene)
- Expended polytetrafloroethylene (PTFE)
Preperitoneal Approach

Nyphus 1960

- Periperitoneal repairs with or without mesh.
- Transverse incision
- The anterior rectus sheet is divided and rectus muscle retracted medially
- The muscles divided and the fascia tranversalis exposed and the access to preperitoneal space
- Indirect hernial sac ligated
- The defect is closed over by approximating the conjoint tendon to iliopubic tract and inguinal ligament
Preperitoneal Approach (cont..)

Stoppa 1969

- Joint prosthetic reinforcement of visceral sac
- Large sheet of unsutured polyester mesh is placed into the preperitoneal space after all the hernial sacs are reduced
- Good for recurrent and bilateral hernias
TEP REPAIR

- Creating the pre-peritoneal space
- Creating the pneumo pre-peritoneum
- Identifying the inguinal sac
- Deploying & anchoring the mesh
- Testing the fixation of mesh
- Completing the repair
TEP REPAIR
TAPP REPAIR

- Entering intrabdominal cavity
- Pneumo peritoneum
- Creating the peritoneal flaps
- Identifying the anatomical landmarks
- Disserting the hernia sac
- Deploying & anchoring of mesh
- Closing the peritoneum
TAPP REPAIR
Advantages of laparoscopic repair

- Bilateral hernia
- Recurrent hernia
- Reduced postop pain
- Early recovery for work & activity
- Tensionless repair
- Avoids potential injury to cord
Disadvantages of laparoscopic repair

- General Anesthesia
- Learning curve
- Costly
- Technical skills
- Injury to bowel
- Adhesion to mesh
- Injury to vessel
- Longer time
- Long-term results unknown
TAPP
- Easier technically
- Better view of anatomy
- Equipment - same as laparoscopy

TEP
- Less pain
- Reduced potential of anatomy for intraabdominal complication
- Technical difficult
Complications

- Recurrence
- Neuropathy
- Testicular ischemia/vas injury
- Bowel obstruction- mesh adhesion
- Vascular injury
- Visceral injury
- Wound infections & hematomas
Conclusions

- The surgical community is slow to replace conventional repairs with laparoscopic approach. Multiple types of hernia repairs especially lichtenstein and shouldice have long standing and well proven results, are associated with low morbidity and mortality. Most of the repairs can be done under local anaesthetic.

- It is difficult to endorse new approach which requires general anaesthetic and takes longer time to perform, cost more and has a potential of abdominal complications although rare.
Conclusions

- Currently there is a consensus that laparoscopic approaches are indicated for bilateral and recurrent hernias. It provides access to both groins from the same approach with no additional incisions. It shares the same benefits as the open preperitoneal approach in the recurrent hernia repair by avoiding scarred anterior tissue planes and potential cord injuries.

- With further control of costs, the benefits of a more rapid convalescence may take laparoscopic approaches to be the possible gold standard in the future.