

Surgery Abdominal Herniae

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Hernia

- Definition
- History
- Anatomy
- Patho-physiology
- Clinical features
- Treatment

Definition

An abnormal protrusion of an organ through the walls of the cavity that normally contains it

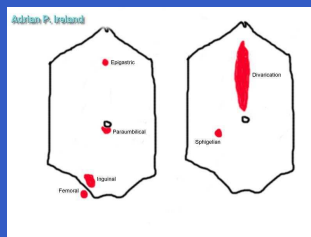
- Greek Hernios for a bud
- Prevalance Inguinal hernia; Lifetime risk 27% for men, 3% for women
- 8% of surgical operations in the United Kingdom
- 20% colostomies 10% ileostomies

Surgery Final Med. Hernia - p.155

Surgery Final Med. Hernia - p.256

Surgery Final Med. Hernia - p.355

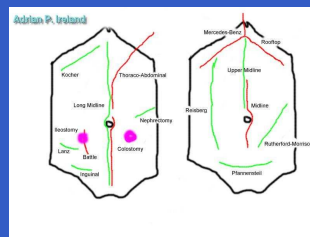
Primary Herniae



- Inguinal
- Femoral
- Epigastric
- Para-umbilical
- Spigelian

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Incisional Herniae



- Whatever incision
- Parastomal

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History

- Ancients
- Barber-Surgeons
- Anatomists
- Modern Era

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History - Ancients

- 1700 BC; Hammurabi of Babylon describes an inguinal hernia
- 1600 BC; Ebers papyrus - trussing and bandaging
- 25 AD; Celsus - (transillumination) surgery especially in children (sack and testes)
- 125; Heliodorus - twisting off sack and preserve testes
- 200; Galen - Concept of 'Ruptured' peritoneum
- 476; Fall of Rome - Christian and Muslims interdicted surgery

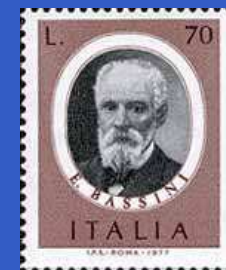
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History - Barber-Surgeons Anatomists

- Barber-Surgeons;
 - 1412; Gerald of Metz; fil d'or
 - 1556; Franco of Berne; Divide neck in strangulation
- Surgeon Anatomists;
 - 1700; Littre describes Meckel diverticulum in a sack
 - 1724; Heister describes resection of gangrenous intestine
 - 1785; Richter describes partial enterocoele

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History - Modern Era



- 1846; Anaesthesia
- 1865; Anti-sepsis (Lister, Glasgow)
- 1884; Edoardo Bassini
- 1973; Glasgow reports on 18,400 repairs with Shouldice technique (1% recurrence rate)

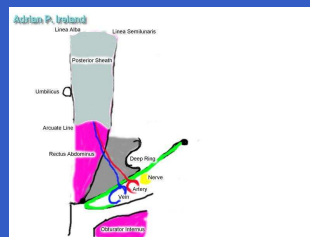
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History - Evolution of Adult inguinal hernia repair

- 1700 BC; Truss and bandages
- 25 AD; Herniotomy with sacrifice of testes
- 125; Herniotomy with preservation of testes
- 1412; Wiring deep ring
- 1884; Bassini
- 1973; Shouldice
- Lichtenstein; Meshs from anterior approach
- Stoop; Preperitoneal approach

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Anatomy of the groin - From the Inside



- NAVEL
- Hasselbach
- Femoral Ring

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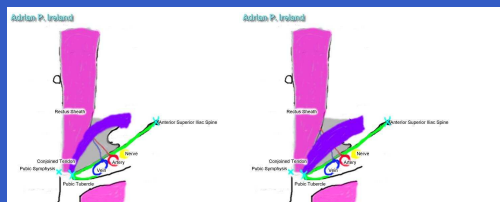
Anatomy of the groin - From the Outside



- ASIS
- Tubercle
- Mid Inguinal Point
- Mid Point of Inguinal Lig-ament

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Pathophysiology



Relaxed

Contracted

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Pathophysiology

- Shutter mechanism; When the transversus abdominus and internal oblique muscles contract they cover the posterior wall.
- Closure mechanism; Contraction of the transversus abdominus results in narrowing of the deep ring

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Cause

- Unknown (predisposed anatomy and physical stress)
- Testicular descent
- Patent processus vaginalis in all animals except primates
- Upright posture not only cause, hernia common in infants
- Removal of sack alone results in high recurrence rate
- Defective shutter (eg, post appendisectomy)

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Cause - Post appendisectomy

- Right sided hernia x3 post appendisectomy

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Cause - Physical Stress

- CAPD, hernia in up to 30% of patients
- Cirrhosis and ascitis

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Clinical Features

- Reducible
- Irreducible
- Obstructed
- Strangulated

Avoid the term Incarcerated - It means different things to different people

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History

- Lump comes and goes
- Pain
- Associated urinary problems, cough, constipation
- Previous surgery
- Medical co-morbidities, Drug history
- Family History
- Problems with anaesthetics

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Examination - Groin hernia

- Scrotal; Can you get above? Reducible?
- Not scrotal; Check Reducibility
 - Irreducible; Check pubic tubercle
 - Reducible; Check pubic tubercle and then control by pressure over the deep ring
- Do not forget to examine the patient standing and check the other hernial orifices

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Hernia - Differential diagnosis

- Hydrocoele
- Lymph node
- Aneurysm
- Sarcoma
- Carcinoma
- Cold Abscess
- Ectopic breast tissue

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Inguinal Hernia - Features

- Commonest groin hernia
- Commoner in men than in women
- Commoner on the right hand side
- Commoner post appendisectomy
- Indirect type has highest prevalence

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Surgical Treatment - Inguinal Hernia

- Herniotomy - Remove the sack
- Herniorraphy - Repair the hole
- Hernioplasty - Reinforce the area

Paediatrics - Herniotomy

Adults - Herniotomy, Herniorraphy, Hernioplasty

Approach - Anterior transinguinal, Posterior pre-peritoneal, laparoscopic

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Surgical Treatment - Antibiotics

- 280 patients undergoing Lichtenstein repair
- Patients randomised to ampicillin / sulbactam or Placebo

Wound infection rate	
Placebo	9%
Antibiotics	0.7%

Ann Surg. 2001 Jan;233(1):26-33.

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Inguinal Hernia repair - Orientation, Left Groin



- Head to the right
- Feet to the left
- Left hip to the bottom
- Midline to the top

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Inguinal Hernia repair - Incision



- Classical - Parallel and above inguinal ligament
- Transverse

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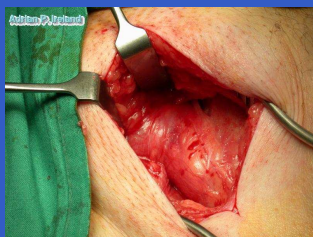
Inguinal Hernia repair - External Oblique



- Approach laterally
- Beware of cord on medial side
- Note fibres

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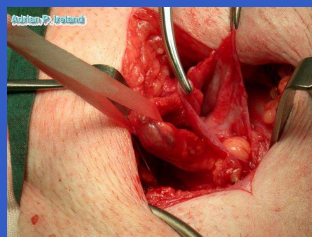
Inguinal Hernia repair - External oblique opened



- Bulky cord
- Ilio-inguinal nerve

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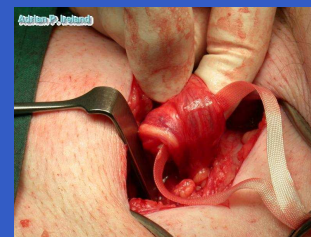
Inguinal Hernia repair - Cremaster divided



- Cremaster resected in part
- Internal spermatic fascia split
- Heral sack open with omentum visible
- Vas and Pampiniform plexus held by tape

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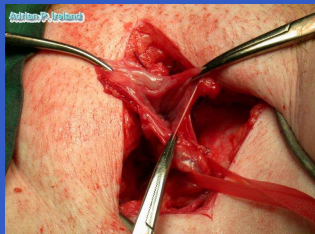
Inguinal Hernia repair - Vas demonstrated



- Proximal sack excised (Herniotomy)
- Whip cord like structure
- Vas deferens makes a vast difference

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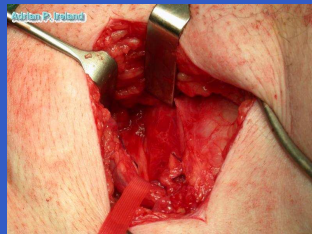
Inguinal Hernia repair - Distal sack



- Not removed
- Checked for bleeding

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Inguinal Hernia repair - Posterior Wall



- Above Internal Oblique and Transversus
- → Conjoined tendon (medially)

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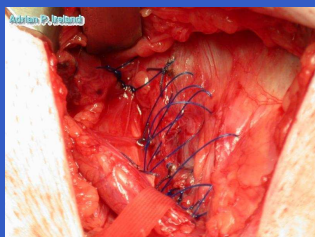
Inguinal Hernia repair - Deep ring repair



- Interrupted non-absorbable
- Finger tip
- Beware inferior epigastric vessels

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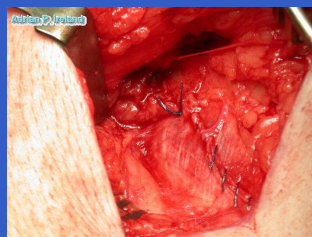
Inguinal Hernia repair - Posterior wall repair



- Maloney Darn (non absorbable)
- Shouldice
- Mesh - Lichtenstein

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Inguinal Hernia repair - External Oblique closed



- Absorbable or non absorbable

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Inguinal Hernia repair - Complications

- Early
- Intermediate
- Late

Early

- Haematoma
- Urinary retention
- Wound infection

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Inguinal Hernia repair - Intermediate and Late Complications

Intermediate

- Testicular atrophy

Late

- Persistent Pain 20%
mild 2% severe
- Recurrence (1% with Mesh)

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Inguinal Hernia repair - Controversies

- Hernia center
- Mesh (routine?)
- Laparoscopic approach
- Fixation of mesh
- Pain

Hernia center

- Shouldice clinic (Ontario)
- Lichtenstein institute (Calif)
- British Hernia Center

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Inguinal Controversies - Use of Mesh

The Dutch

- 300 patients (11 excluded)
- Pain the same

Recurrence at 3 years	
Non Mesh	7%
Mesh	1%

Br J Surg. 2002 Mar;89(3):293-7.

Surgery, Final Med. Hernia - p.3855

Inguinal Controversies - Use of Mesh

EU Hernia Trialists Collaboration

- Meta-analysis of 5016 patients in 20 trials
- Use of mesh reduced recurrence by 50 to 75%
- Shorter stay
- Quicker return to activities
- Less persistent pain

Open mesh versus non-mesh repair of groin hernia: meta-analysis of randomised trials based on individual patient data [corrected].

Hernia. 2002 Sep;6(3):130-6. Epub 2002 Jul 26.

Surgery, Final Med. Hernia - p.4058

Inguinal Controversies - Laparoscopic or Open Round 1

- Trans peritoneal (TAPP)
- Pre peritoneal (TEP)
- Size of mesh
- Fix the mesh

MRC hernia trial: Laparoscopy

- Less Pain
- Quicker return to activities
- Took longer
- More Serious complications (Trans-peritoneal)
- More recurrences

Lancet. 1999 Jul 17;354(9174):185-90

Surgery, Final Med. Hernia - p.4166

Inguinal Controversies - Laparoscopic or Open Round 2

EU Hernia Trialists Collaboration

- Meta-analysis of 7161 patients in 41 trials
- Less Pain and Numbness
- Quicker return to activities
- Took longer
- More Serious complications (rarely)
- Recurrences same as open mesh

Hernia. 2002 Mar;6(1):2-10.

Surgery, Final Med. Hernia - p.4058

Inguinal Controversies - Pain

- Pain at 1 year, 37% open, 29% lap

Lancet. 1999 Jul 17;354(9174):185-90

- Pain at 5 years, 10% open, 2% lap

BMJ. 2003 May 10;326(7397):1012-3.

- Mild pain in 20%, Severe in 2%

Am Surg. 2003 Oct;69(10):839-41.

- Pain clinic referrals, 1% open, 0.4% lap

Br J Surg. 2003 Sep;90(9):1152-4.

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Inguinal Controversies - Pain; The solution?

- Glue instead of suture

Hernia. 2003 Jun;7(2):80-4. Epub 2003 Jan 30.

- Lightweight mesh

- Foreign Body Feeling reduced from 43.8% to 17.2%

Br J Surg. 2004 Jan;91(1):44-8.

- Future

- Laparoscopic, Lightweight mesh, Fixation of mesh

Surgery, Final Med. Hernia - p4456

Femoral Hernia - Features

- Commoner in women, but inguinal is commoner
- ? larger femoral ring in women
- Common cause of intestinal obstruction in old ladies
- Richter's type herniae not unusual
- Lump may not be noticed unless particular care is taken

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Surgical Treatment - Femoral Hernia

Low approach

- Low (Lockwood)
- Transinguinal approach (Lothessin)
- High (McEvedy)
- Reserve for elective ? node
- Suture Inguinal ligament to Pectineal fascia and muscle
- In acute situation, no control over the bowel

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Femoral Hernia repair - Orientation, Right Groin



- Head to the left
- Feet to the right
- Right hip to the bottom
- Midline to the top

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Femoral Hernia repair - Incision

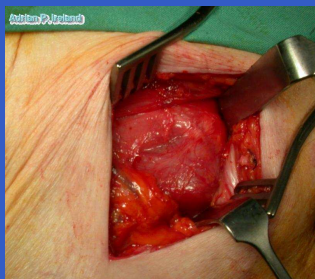


- Inguinal
- Transverse
- Verticle

Note mass below inguinal ligament

Surgery, Final Med. Hernia - p4856

Femoral Hernia repair - Pre-peritoneal space



- External oblique and rectus sheath divided
- Rectus Abdominus retracted medially
- Note inferior epigastric vessels
- See Hernia stuck into femoral ring

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Femoral Hernia repair - Hernia



- Hernia seen
- Entering femoral ring

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Femoral Hernia repair - Checking bowel



- Hernia contents reduced
- Contents checked for viability

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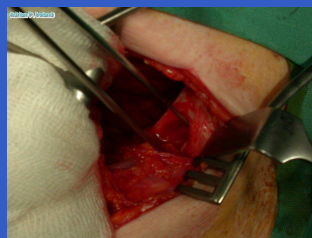
Femoral Hernia repair - Sack reduced



- Reduced sack demonstrated
- Excise this and repair peritoneum

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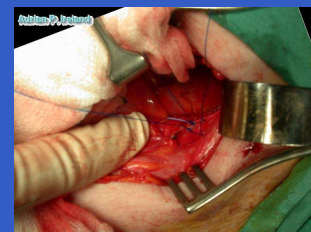
Femoral Hernia repair - Femoral Ring



- Forceps in ring
- Inguinal ligament anterior (right)
- Pectineal ligament posterior (left)
- Lacunar ligament medial (top)
- Femoral vein lateral (bottom)

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Femoral Hernia repair - Repair of Ring



- Inguinal to Pectineal ligaments
- Not too tight - Femoral Vein

Surgery Final Med. Hernia - p.54/56

Femoral Hernia repair - External oblique closed



- Pre peritoneal space closed
- External oblique repaired

Thanks

Look for the pdf download (2.2 M), and online expanded lecture at <http://elisee.hornelinux.org>



Questions please