

Inguinal Hernias

Lecture Overview

- Basic Science and Classification of Inguinal Hernias
- Anterior Repairs-Bassini, Shouldice, Anson-McVay, Lichtenstein, Plug+Patch, etc.
- Pre-peritoneal approach-Kugel patch, Laparoscopic techniques
- Other Abdominal wall hernias

History

- Egyptian Papyrus of Ebers (1552 BC) is the earliest reference to hernias that is known.
- Herophilus of Chalcedon and Erasistratus of Keos (300 BC) both performed hernia repairs at the Museum of Alexandria in Egypt. More humane methods than European surgery in middle ages and early Renaissance.

History

- This description includes anatomic detail and description of hemostasis with ligature of vessels.
- Galen of Pergamum (129-199 AD), most prominent Graeco-Roman physician, is credited with the concept of "rupture."
- Galen thought herniation was the result of rupture of the peritoneum and overstretching of the overlying fascia and muscles.

History

- Galen recommended operation which consisted of ligature of the sac and cord with amputation of the testicle.
- The Alexandrian surgeons had espoused preservation of the testicle.
- All of the advances of Graeco-Roman and Alexandrian surgery were lost during the Dark Ages (476 AD to 1400's).

History

- Surgery during Middle Ages is done by barbers, cutters, and incisors. These people were ignorant and often illiterate.
- Hemostasis was done via cautery rather than ligature of vessels and there was no anaesthesia. Alexandrian surgeons used the juice of mandragora as anesthetic.

History

- Antonio Scarpa (1752-1832) wrote *Treatise on Hernias*. Scarpa accurately described the sliding hernia.
- Astley Paston Cooper (1768-1841) was the most distinguished pupil of John Hunter.
- He wrote *Treatise on Hernia* (1804) and *The Anatomy and Surgical Treatment of Abdominal Hernia*

History

- Cooper described the superior pubic ligament which now bears his name and the transversalis fascia. He was the first to recognize the role of the transversalis fascia in the pathogenesis of hernias.

History

- Edoardo Bassini (1844-1924) revolutionized the surgical treatment of hernias. He felt that the high incidence of early failure and recurrence associated with the methods of the day was due to the inadequacy of ligation of the hernia sac without reconstruction of the inguinal canal. He is credited as the creator of the modern hernia repair.

History

- Marcy, Halstead and Ferguson were all U.S. surgeons who published techniques similar to Bassini around the same time.
- Marcy was the first to indicate the importance of high ligation of the hernia sac and closure of the dilated inguinal ring.
- Marcy was also the first to describe a transabdominal approach.

History

- Halsted was the first to describe the relaxing incision of the rectus fascia.
- Georg Lotheissen (1868-1935) was the first to describe the Cooper's ligament repair. Anson and McVay popularized this technique in their 1949 paper.

History

- Harvey Cushing was the first to perform hernia repairs under local anaesthesia but Halsted was the first to do most of his repairs under local anaesthesia.
- Shouldice, Obney and Ryan espoused the Canadian repair which was described in the late 1960's and was done using local anesthetic.

History

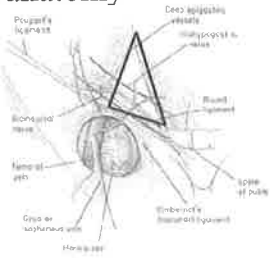
- In 1989, Lichtenstein and his colleagues introduced the concept of tension-free hernia repairs using prosthetic mesh.

History

- The most recent advances have been the introduction of Laparoscopic techniques.
- TAPP-transabdominal preperitoneal repair
- TEP-totally extraperitoneal repair
- TEP is now the most commonly performed laparoscopic technique.

Hernia anatomy

- Hesselbach's triangle
 - Inferior epigastric vessels
 - Inguinal ligament
 - Lateral rectus border
- Direct: through Hesselbach's triangle
- Indirect: lateral to Hesselbach's triangle
- Femoral: below Hesselbach's triangle



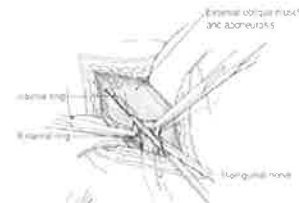
Anatomy

- In women, the superficial inguinal ring is protected by the external oblique aponeurosis. Direct hernias are, therefore, rare in women.
- In men, the external oblique aponeurosis is perforated and weakened at the superficial inguinal ring.

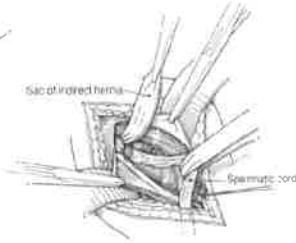
Anatomy

- The so-called cord lipoma that is usually seen in acquired hernias in the elderly, is actually sliding preperitoneal fat.
- Coughing, obesity, straining to defecate and straining to urinate are all activities that are associated with exacerbation of inguinal hernias and all of them represent strain on the extraperitoneal compartment not the intraperitoneal compartment.

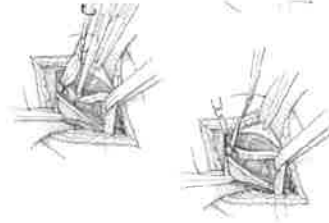
Dissection



Dissection



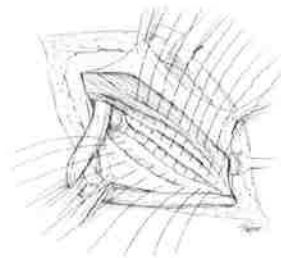
Dissection



Dissection

- Once the identification, dissection, amputation and high ligation of the indirect hernia sac has been performed, the repair of the hernia is ready to begin.
- Direct hernias will be covered by transversalis fascia and lie adjacent to the spermatic cord.

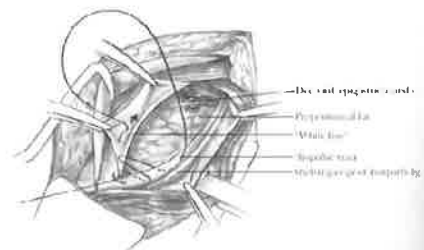
Bassini Repair



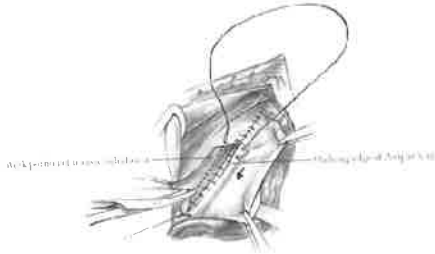
Shouldice Repair

- Can be considered a Bassini variant but was so popularized by the Shouldice clinic in Canada that it is treated separately.
- It can be performed under local anesthesia with inguinal nerve block
- It was classically described using stainless steel wire.

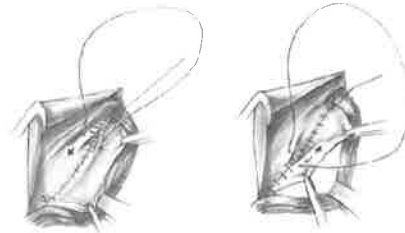
Shouldice Repair



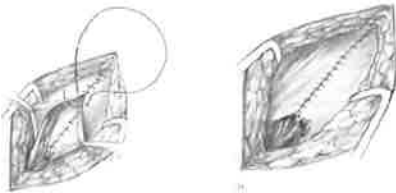
Shouldice Repair



Shouldice Repair



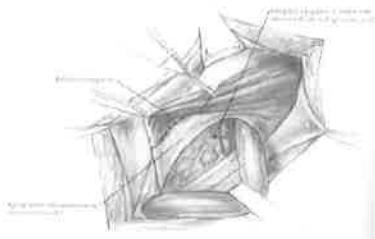
Shouldice Repair



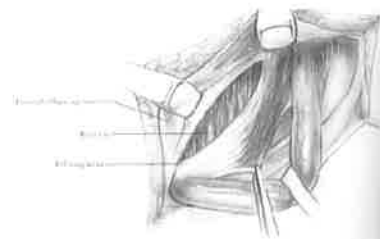
Anson-McVay Repair

- AKA Cooper's Ligament Repair
- Used only when a posterior inguinal wall reconstruction is needed: Direct hernias; Large, indirect hernias; and femoral hernias.
- Not indicated for small and medium indirect hernias.

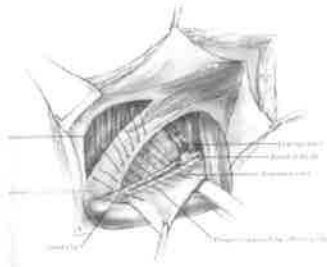
Anson-McVay Repair



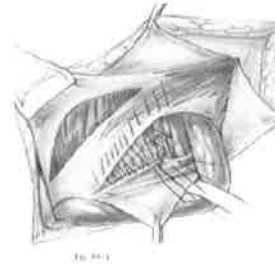
Anson-McVay Repair



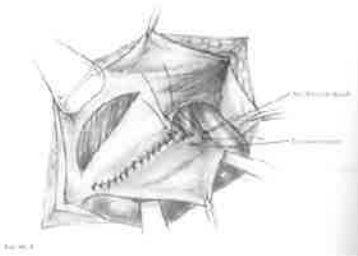
Anson-McVay Repair



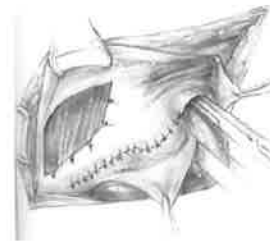
Anson-McVay Repair



Anson-McVay Repair



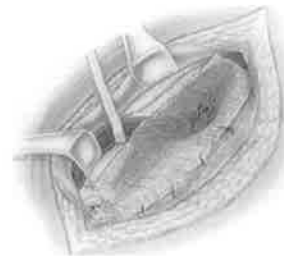
Anson-McVay Repair



Lichtenstein Repair

- The Lichtenstein group coined the term "tension-free hernioplasty" and began routinely using polypropylene mesh.
- Can be performed under local anesthetic.
- A standard hernia incision is made.
- The external oblique aponeurosis is incised and the upper leaf is dissected from the underlying internal oblique and aponeurosis for approx. 3 cm.

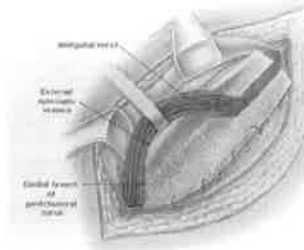
Lichtenstein Repair



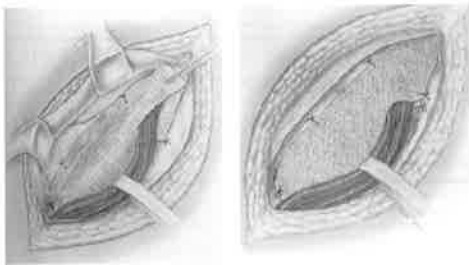
Lichtenstein Repair

- A slit is made in the end of the mesh to create two tails. The wide one (two-thirds) is brought superiorly while the narrow one (one-third) stays inferiorly.
- The wide tail is brought underneath the spermatic cord

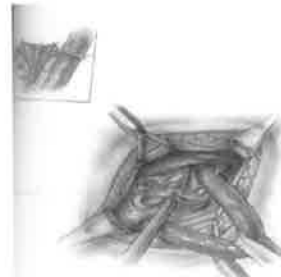
Lichtenstein Repair



Lichtenstein Repair



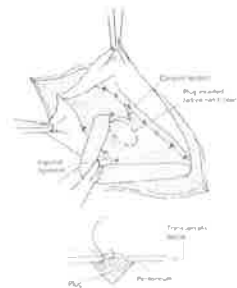
Mesh Plug Repair



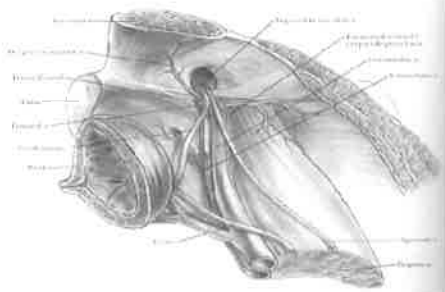
Mesh Plug Repair



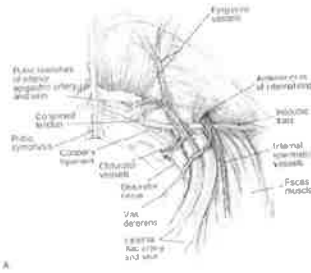
Plug and Patch



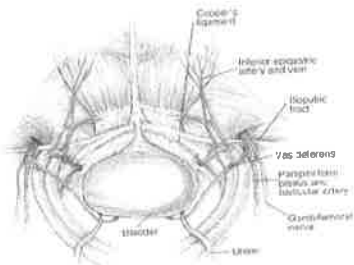
Pre-Peritoneal Anatomy



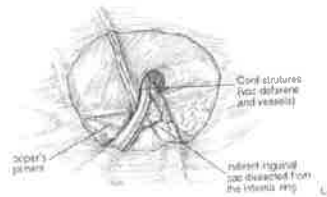
TEP



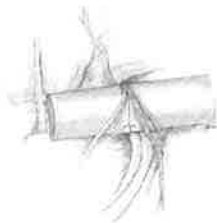
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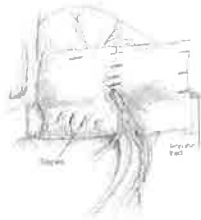
TEP



TEP



TEP



Abdominal Wall Hernias

- Incisional Hernias
- Umbilical Hernias-infantile, acquired (ascites from CHF, cirrhosis, or nephrosis), paraumbilical, or adult.
- Epigastric Hernias
- Spigelian-Spigelian aponeurosis is between semilunar line and the lateral edge of the rectus.

Abdominal Wall Hernias

- Peristomal Hernias-first choice is to resite stoma.
- Gastroschisis-Neonatal abdominal wall defect. No covering over intestines. Not associated with other birth differences.
- Omphalocele-Hernia through umbilical cord. More commonly associated with birth differences.

Diaphragmatic Hernias

- Congenital
- Sliding Hiatal
- Paraesophageal
- Traumatic

Review

Dartos muscle in scrotum is subcutaneous tissue.
Internal spermatic fascia is from transversalis fascia.
External spermatic fascia is from external oblique.
Cremasteric muscle is from internal oblique
Obliterated processus vaginalis is parietal peritoneum.

Questions

Which of the following is true?

- a. Surgery is the only option for hernias
- b. Rest will heal a hernia
- c. Exercise will prevent a hernia
- d. Symptoms of a hernia include a slight abdominal bulge or groin discomfort
- e. Losing weight will heal a hernia

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Questions

All of the following are potential complications of an untreated hernia except:

- a. Bowel incarceration
- b. Bowel obstruction
- c. Bowel strangulation
- d. Bowel intussusception
- e. Sepsis and death

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Questions

- Which of the following is/are true regarding the iliopubic tract?
 - A. Extends from the ASIS to pubis
 - B. Is a condensation of the transversalis fascia.
 - C. Is of anatomic interest but has little clinical significance.
 - D. Is synonymous with the shelving edge of Poupart's ligament
 - E. None of the above

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Questions

Which of the following statements is/are true regarding Hesselbach's triangle?

- A. Defines the boundaries of a low lumbar hernia.
- B. Defines the inguinal floor in the region of a direct hernia.
- C. Is found in a single plane of the inguinal floor and is bounded by the inferior epigastric artery, inguinal ligament and rectus sheath.
- D. Is bounded medially by the inferior epigastric vessels
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Questions

• Which of the following statements is/are true regarding the incidence of abdominal wall hernias?

- A. The indirect hernia is the most common hernia in either gender.
- B. Femoral hernias are more common in females than in males.
- C. Direct hernias are unusual in females
- D. Hernias generally occur with equal frequency in males and females
- E. None of the above.

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Questions

• Which of the following statements is/are true regarding direct inguinal hernias?

- A. The most likely etiology is acquired wear and tear.
- B. Direct hernias should be repaired promptly because of the risk of incarceration.
- C. A direct hernia may be a sliding hernia involving a portion of the bladder wall.
- D. A direct hernia may pass through the external inguinal ring
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• Which of the following statements is/are true regarding recurrence after repair of groin hernias?

- A. Most indirect recurrences are attributed to an inadequate repair of the inguinal floor.
- B. Indirect hernias at any age have a lower recurrence rate than either direct or femoral hernias.
- C. Most recurrent hernias are direct.
- D. Recurrence rates are higher following bilateral simultaneous herniorrhaphy in adults.
- E. None of the above.

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Questions

- The anatomic boundaries of the orifice of the femoral canal include which of the following structures?
- A. Cooper's ligament
 - B. Inguinal ligament
 - C. Iliopubic tract
 - D. Femoral vein
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Questions

- A. Spigelian Hernia
 - B. Richter's Hernia
 - C. Littre's Hernia
 - D. Petit's Hernia
 - E. Grynfeltt Hernia
 - F. Obturator Hernia
- a. Noncircumferential incarceration of bowel wall
 - b. Latissimus dorsi, external oblique, iliac crest
 - c. Incarcerated Meckel's diverticulum
 - d. Howship-Romberg sign
 - e. Twelfth rib, internal oblique
 - f. Lateral border of rectus at linea semicircularis

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- A-f; B-a; C-c; D-b; E-e; F-d

Questions

- Which of the following items represents the optimal convalescent period required before returning to work after inguinal herniorrhaphy?
- A. 6-8 weeks
 - B. 4 weeks
 - C. 1 week
 - D. unknown

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