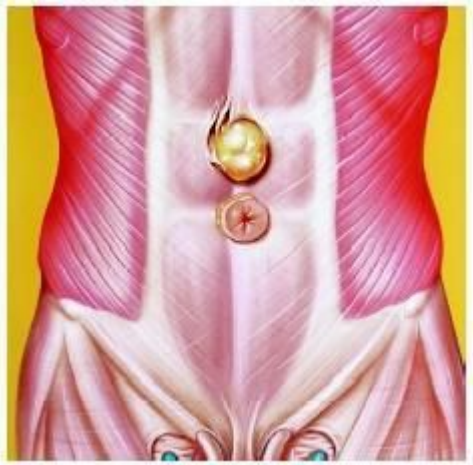
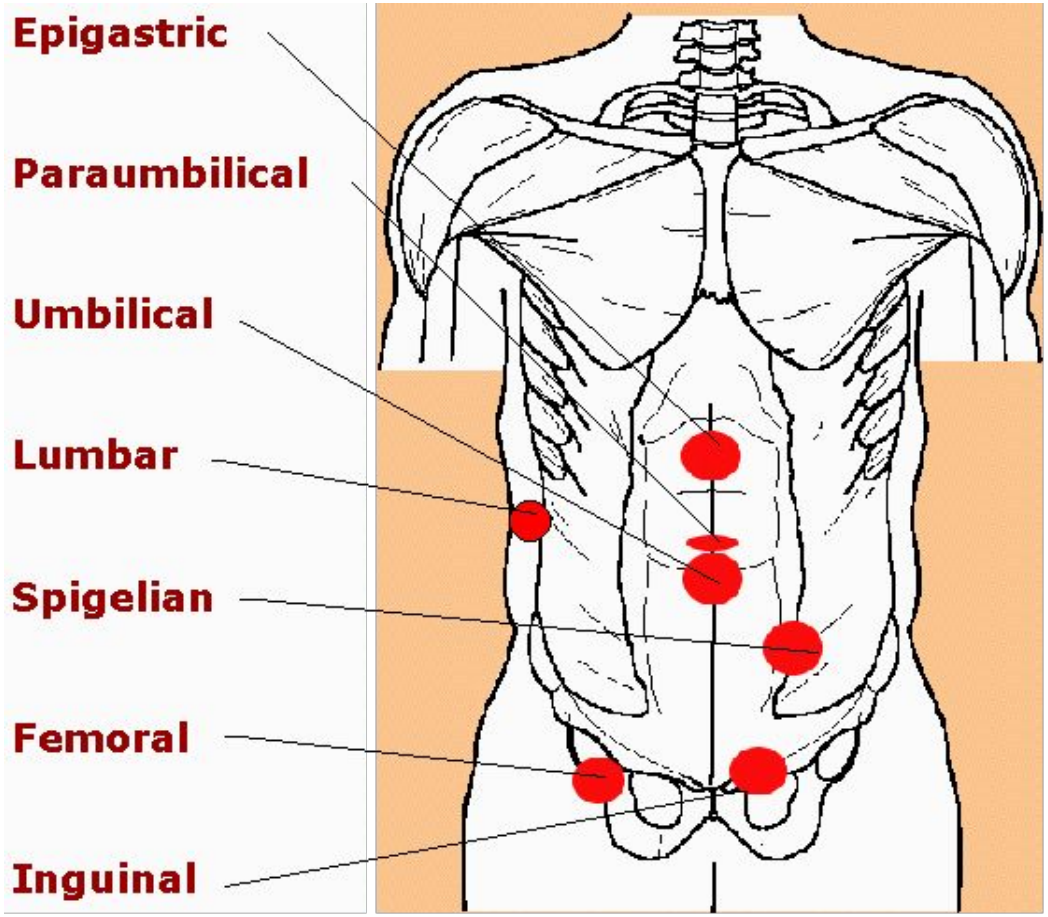
Crimean state medical university named after S.I. Georgievsky.
Department of surgery № 2.
Head of the department prof. Ilchenko F.N.

Abdominal Wall Hernias



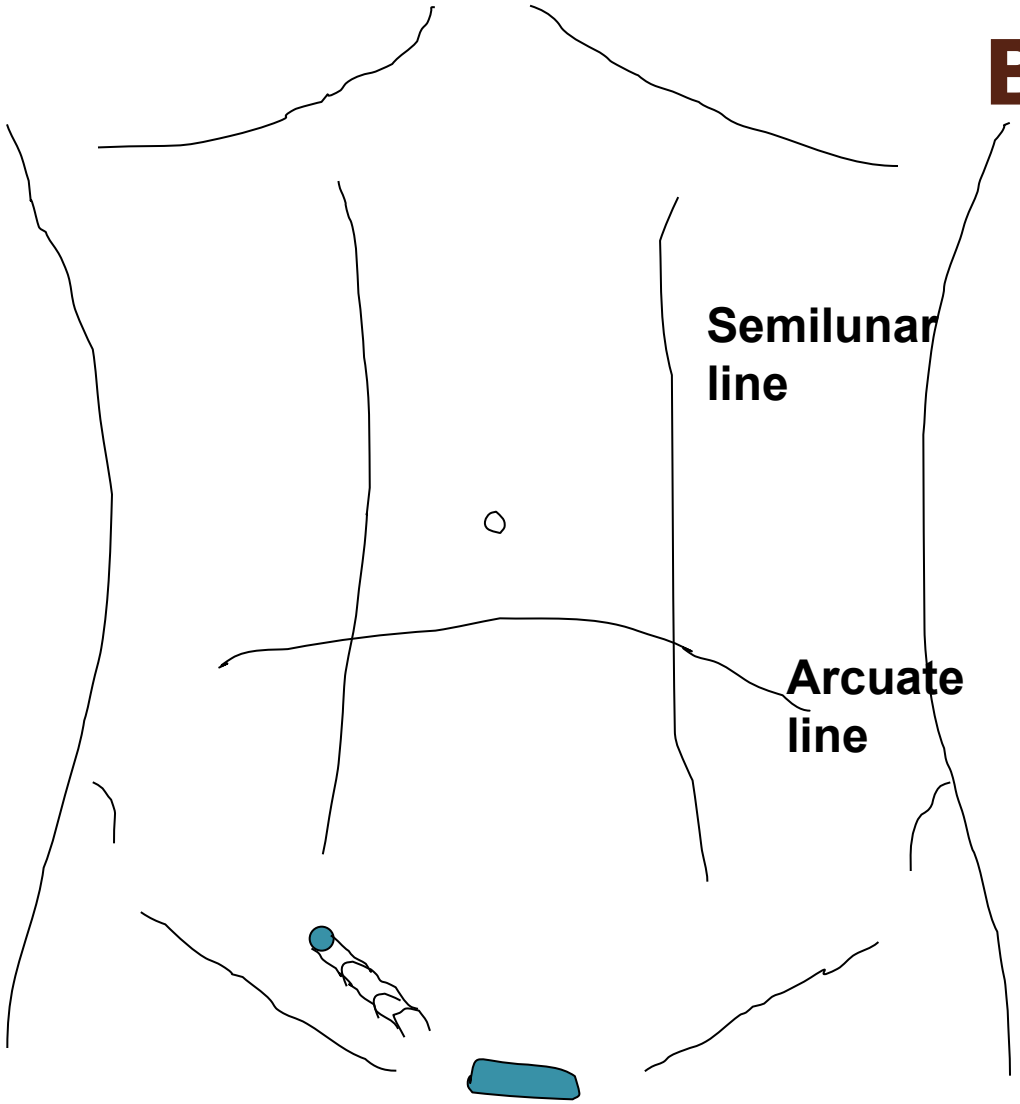
Lecturer - Yuri G. Baranovsky, PhD

Hernia: **The protrusion of tissue through a defect in fascial and/or muscular layer(s) that normally contain it.**

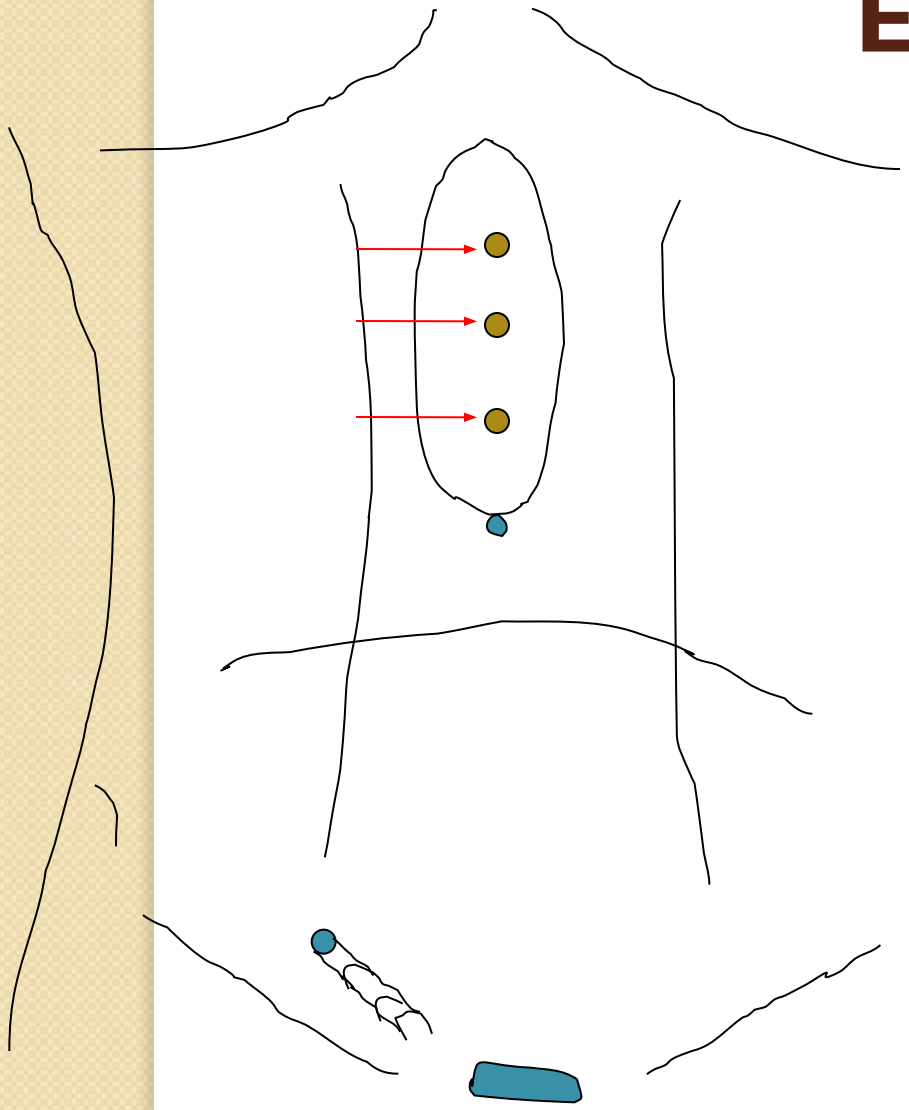


Types of abdominal wall hernia	Location	Congenital	Acquired
Epigastric	**Upper midline**		*
Umbilical	**Umbilicus**	*	?
Inguinal/femoral	**Groin**	*	*
Incisional	**Anywhere**		*
Lumbar	**Petit's Δ**		*
Interparietal	**Lateral hypogastric**		*
Obturator	**Obturator foramen**		*
Spigelian	**Arcuate *x* semilunar lines**	?	?
Traumatic	**Anywhere**		*
Diastasis	**Upper midline**	**Not a hernia**	**Not a hernia**

Basic Anatomy

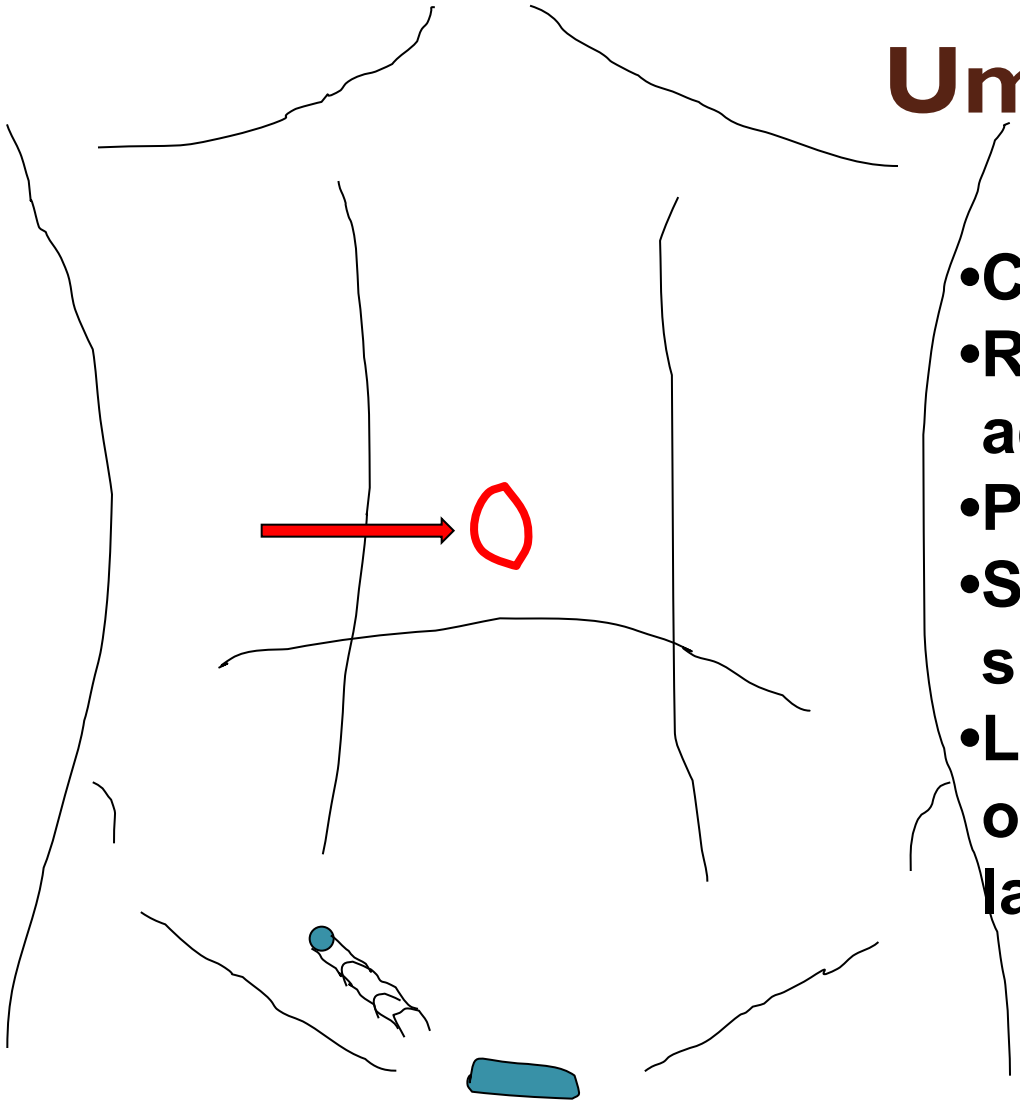


Epigastric hernia



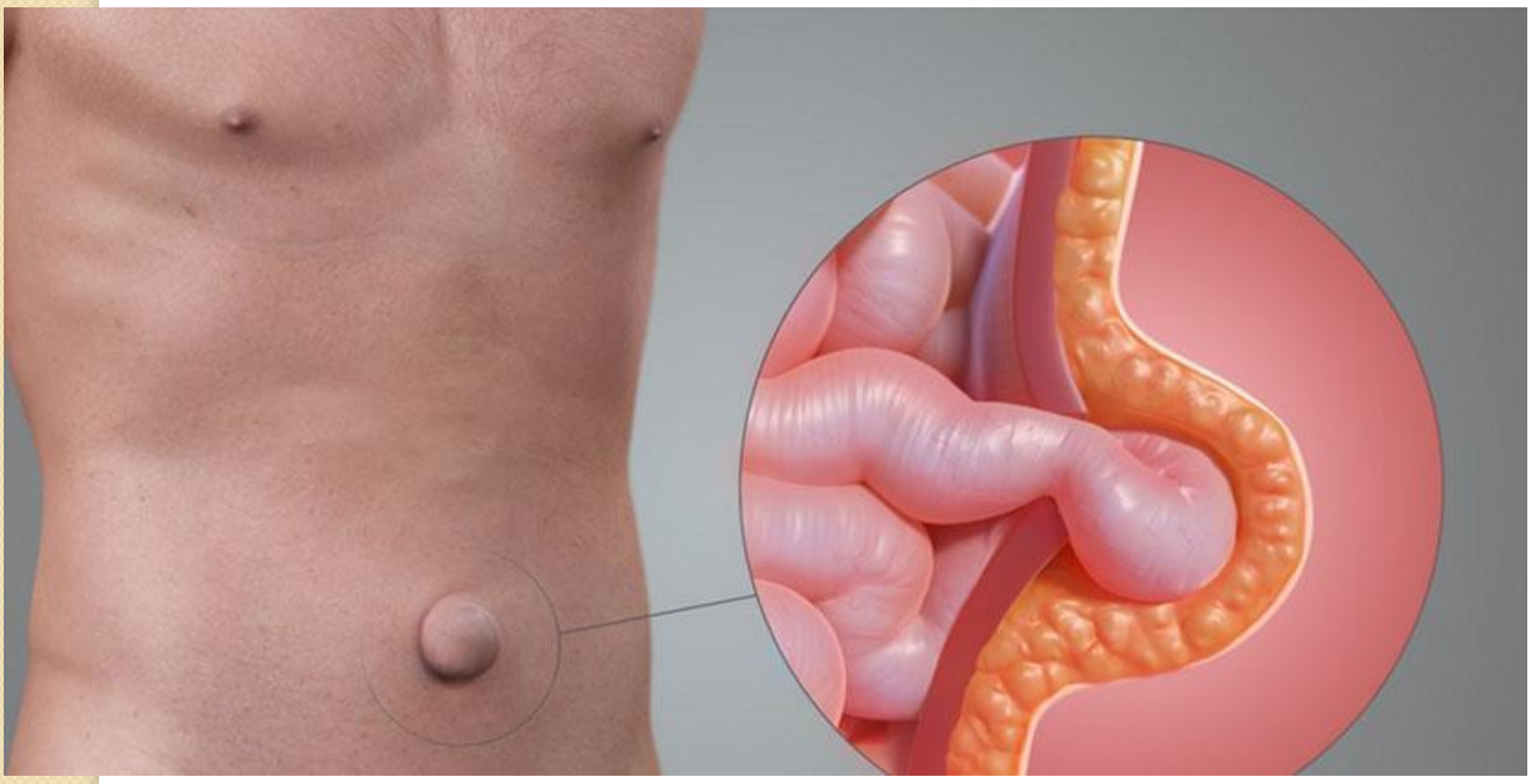
- Very common
- In midline between umbilicus and xiphoid
- May be multiple
- Small fascial defect (<1 cm)
- Tongue of preperitoneal fat through interlacing fibers of linea alba
- Peritoneal sac present only if very large.

Umbilical Hernia



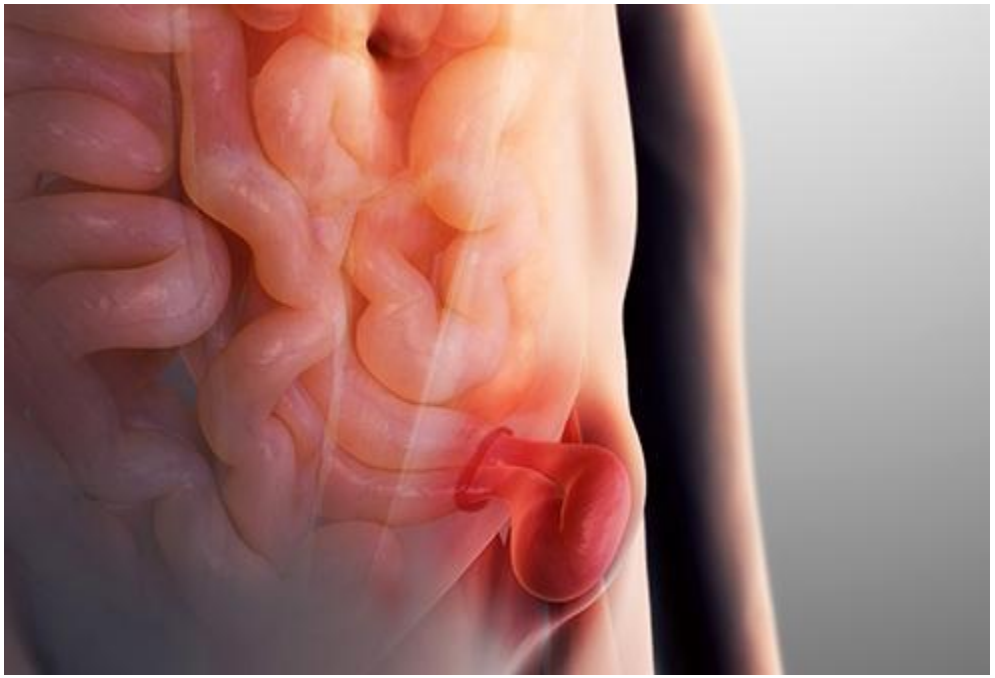
- Common in infancy
- Reacquired during adulthood
- Peritoneal sac
- Small ones of no significance
- Large ones contain omentum, small or large bowel

Typical Umbilical Hernia

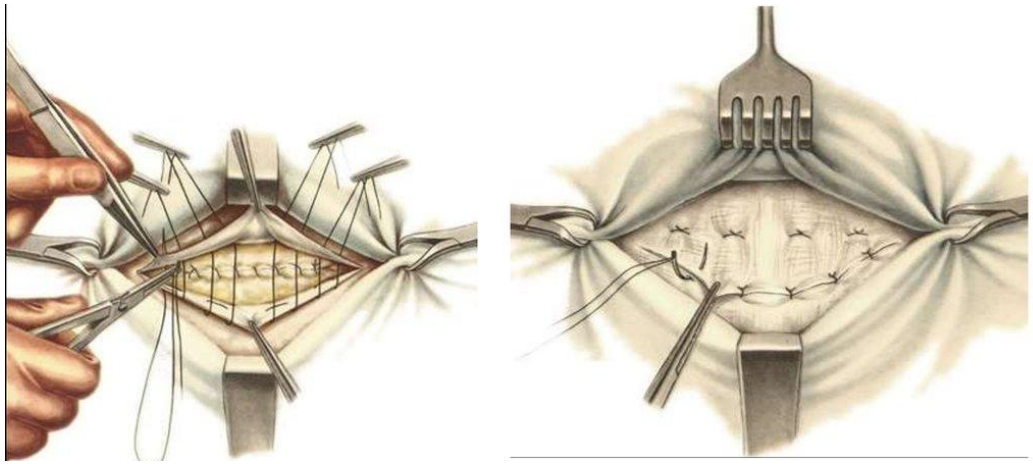


Umbilical hernia

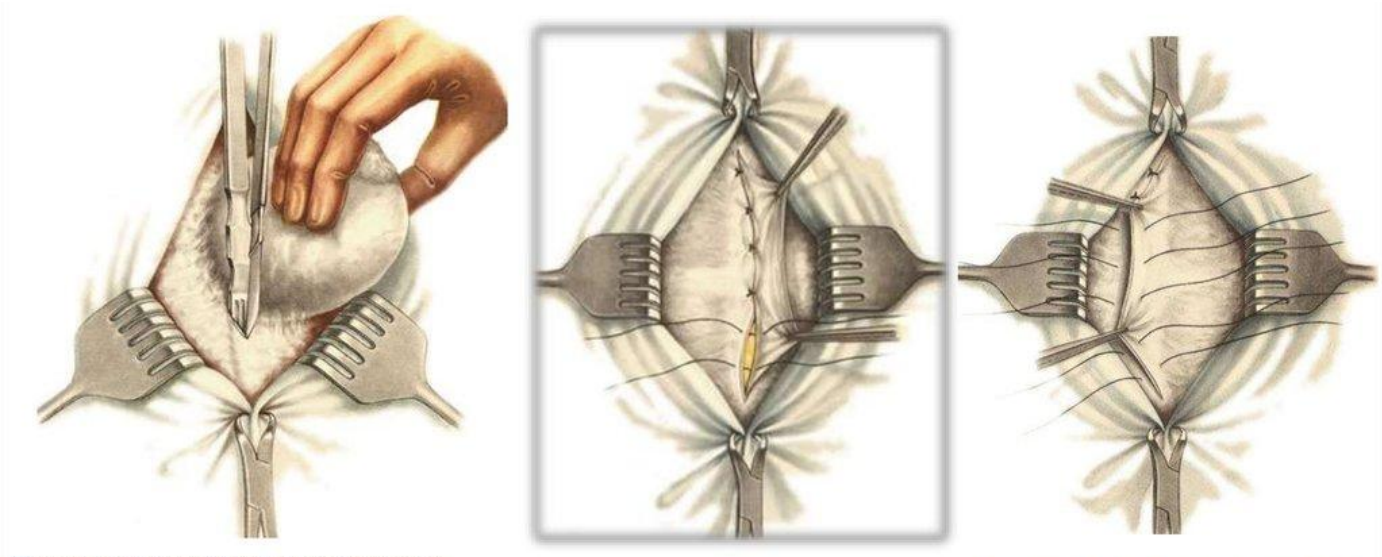
Umbilical hernia is often found in childhood. However, it often manifests in adulthood.



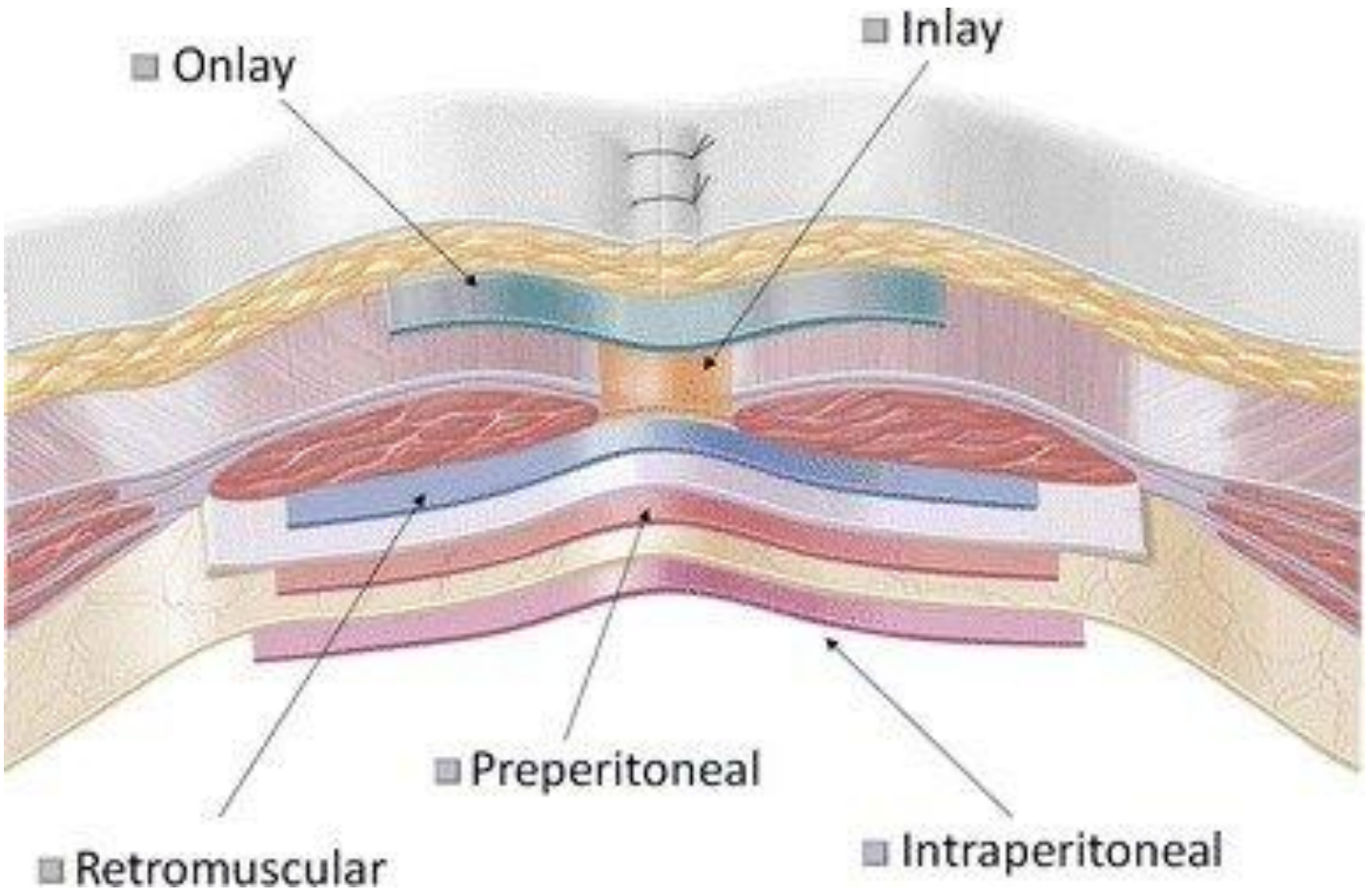
MAYO REPAIR



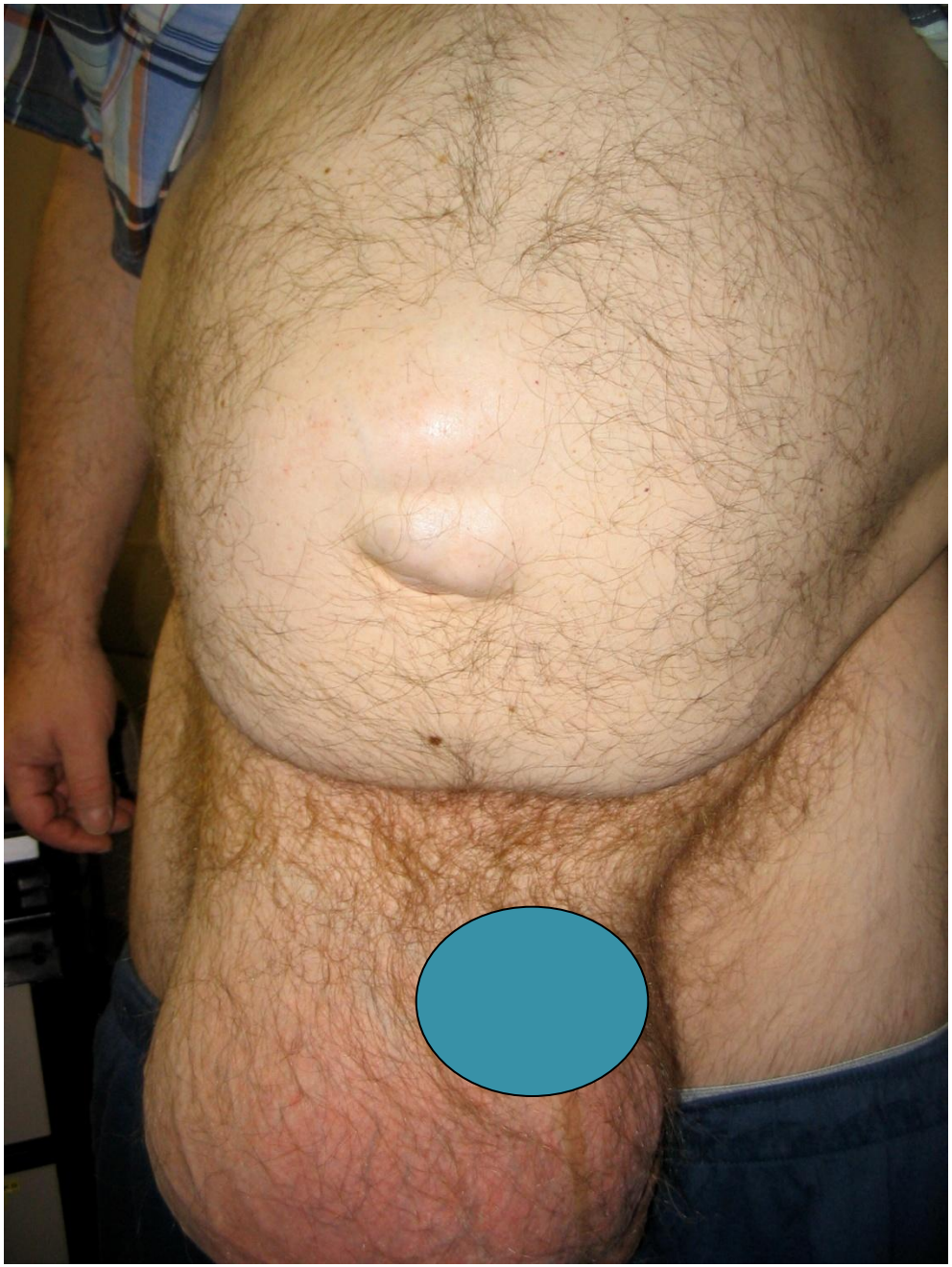
SAPEJKO REPAIR



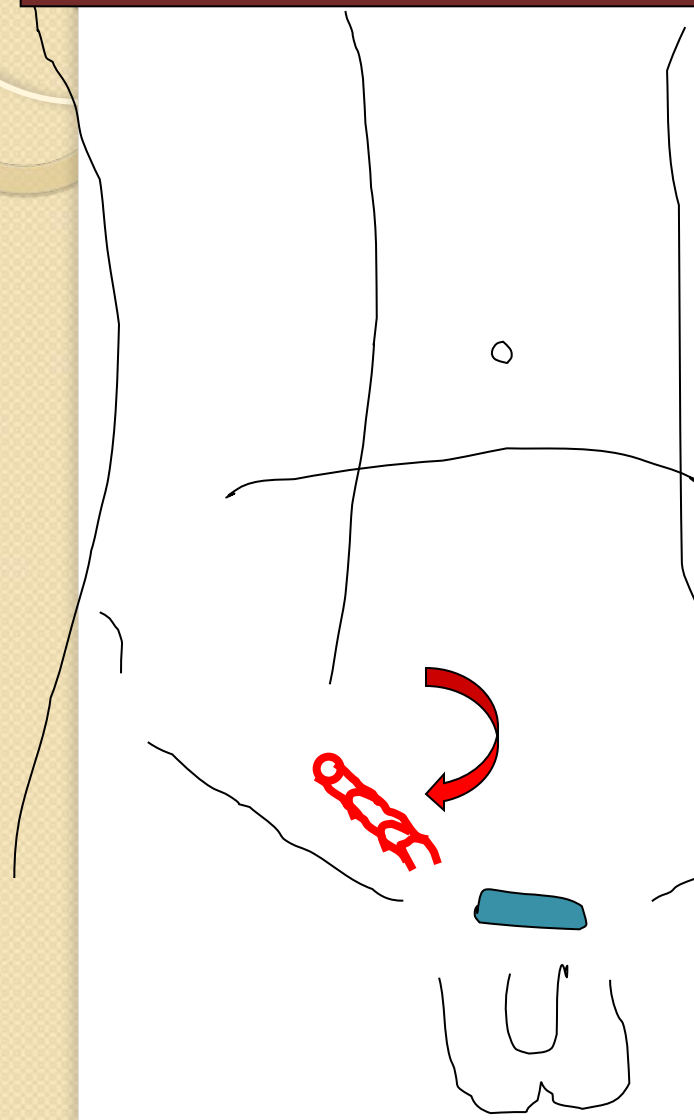
TERMINOLOGY OF MESH POSITIONS DURING VENTRAL HERNIA REPAIR



Umbilical & Inguinal Hernias



Inguinal hernia



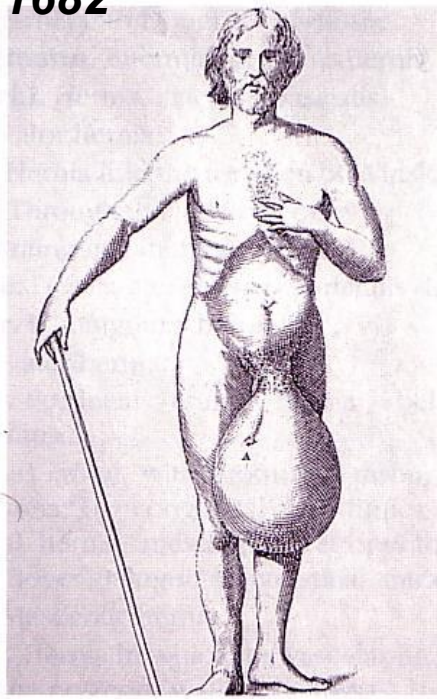
- **Most common**

- **Congenital ~ indirect**
- **Acquired ~ direct or indirect**

- *Indirect Hernia*
  - **has peritoneal sac**
  - **lateral to epigastric vessels**

- *Direct Hernia*
  - **usually no peritoneal sac**
  - **through Hasselbach triangle, medial to epigastric vessels**

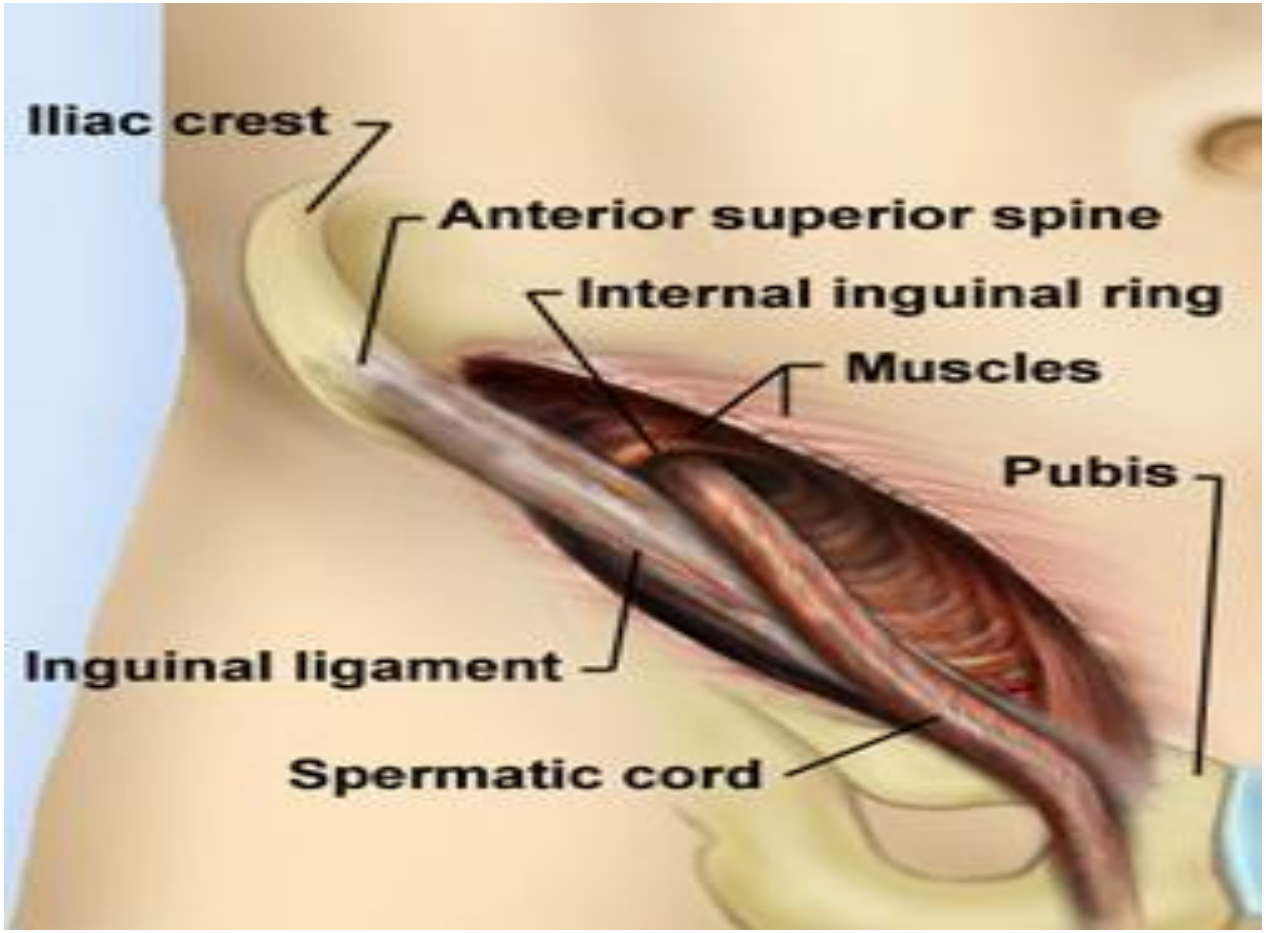
Scrotal hernia, 1682



Hernia strap, 1758

16th century hernia repair

Mention of hernias in painting


Iliac crest
Anterior superior spine
Internal inguinal ring
Muscles
Pubis
Inguinal ligament
Spermatic cord

Typical scrotal hernia

Giant scrotal hernia

Note scaphoid abdomen

The basic feature of all hernias

Occur at a weak spot .

Reduce on lying down ,or with direct pressure.

Have an expansile cough impulse

A hernia consist of 3 parts:

1. Sac:

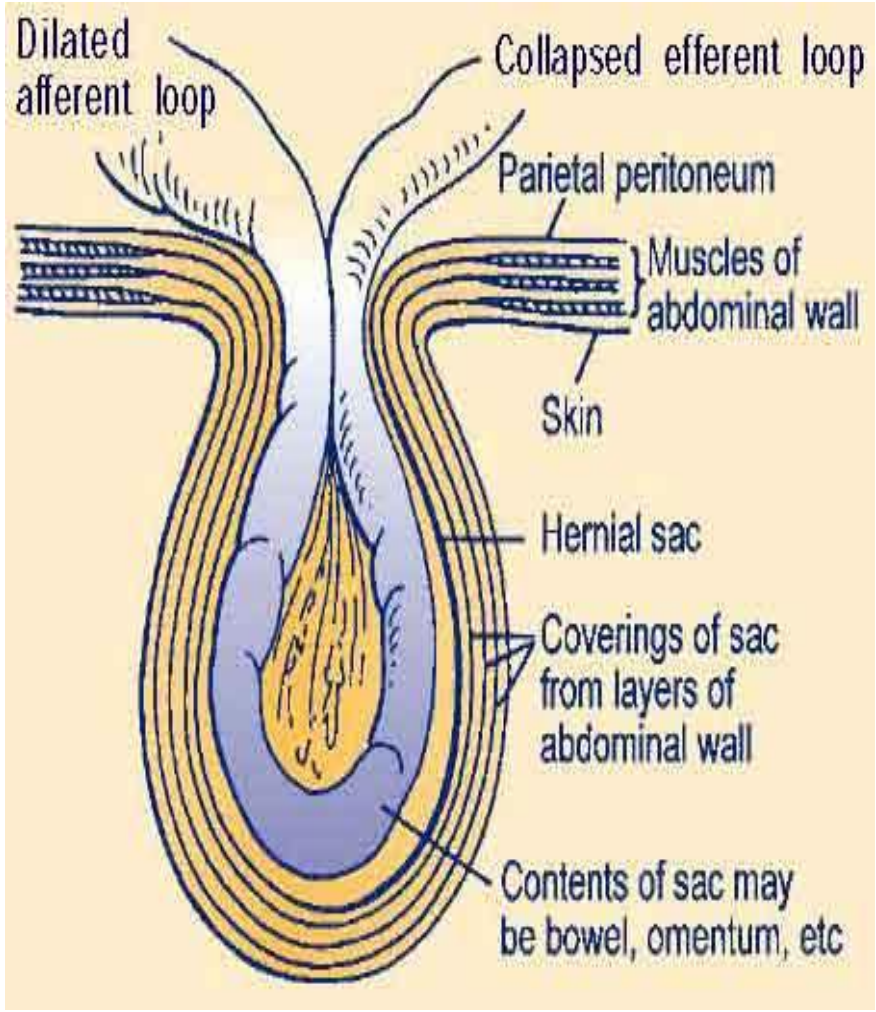
consist of a diverticulum of peritoneum.

2. Contents:

Omentum, small or large intestine, urinary bladder, Omentum, ovaries malignant nodules or ascetic fluid.

3. Gate:

weak spot of abdominal wall.



Complications of hernias

Irreducible

the hernia contents cannot be manipulated back into the abdominal cavity.

Incarcerated

the contents of the sac are literally impression in the sac of Hernia.

Obstruction

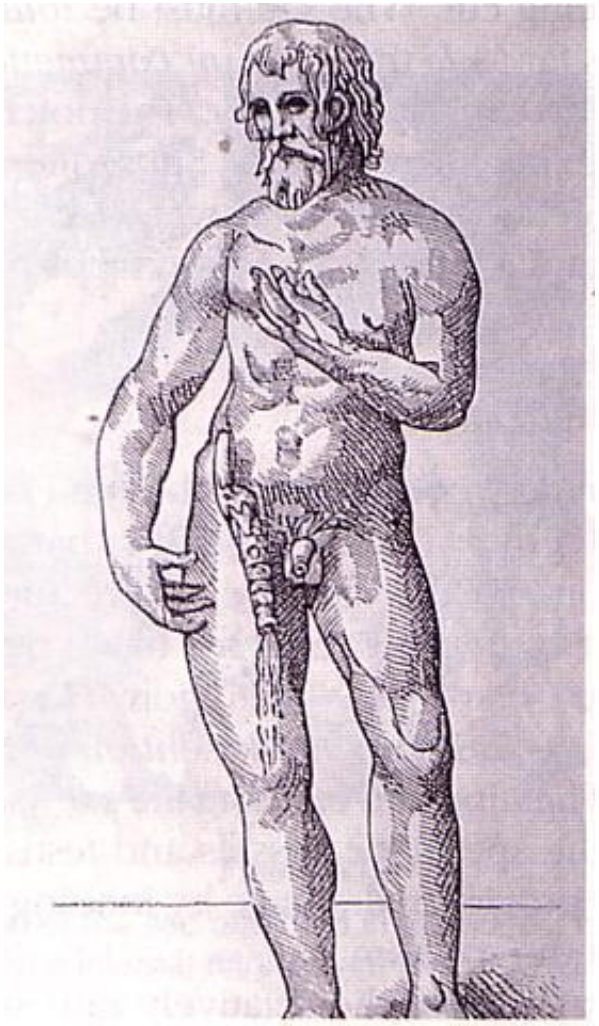
the loop of the bowel become non functioning with normal blood supply .

Strangulated

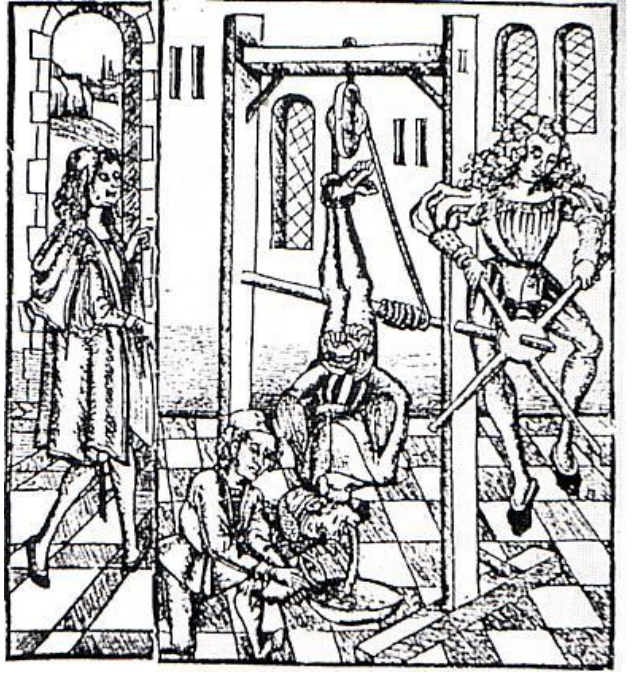
cut off the blood supply to the content sac (tender).

Sliding Hernia

- Hernia consisting of retroperitoneal fat and/or large bowel (cecum on the right, sigmoid on the left) that ‘slide’ through an enlarged internal ring, rather than into and out of an existing peritoneal sac.
- Always comes through internal ring lateral to the cord, rather than antero-medial.



Hernia surgery Circa 1300



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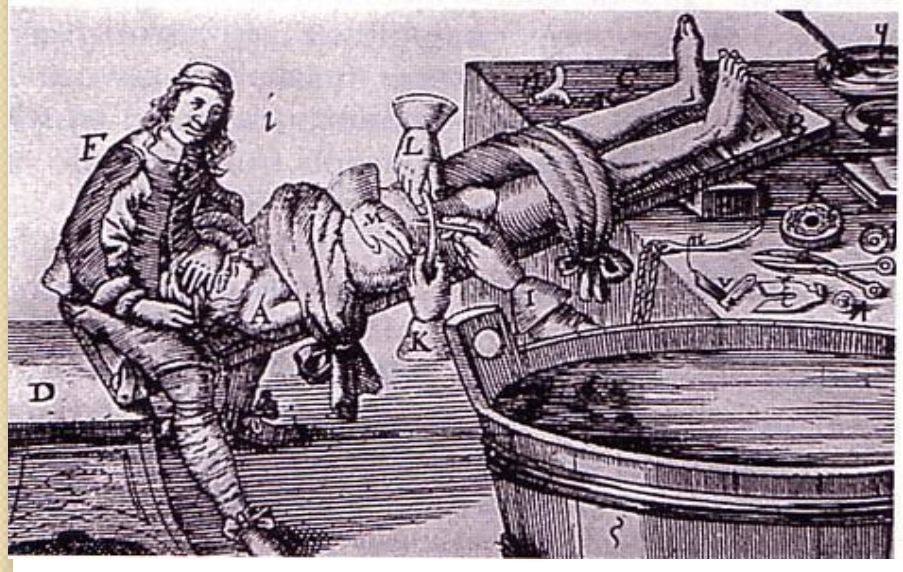
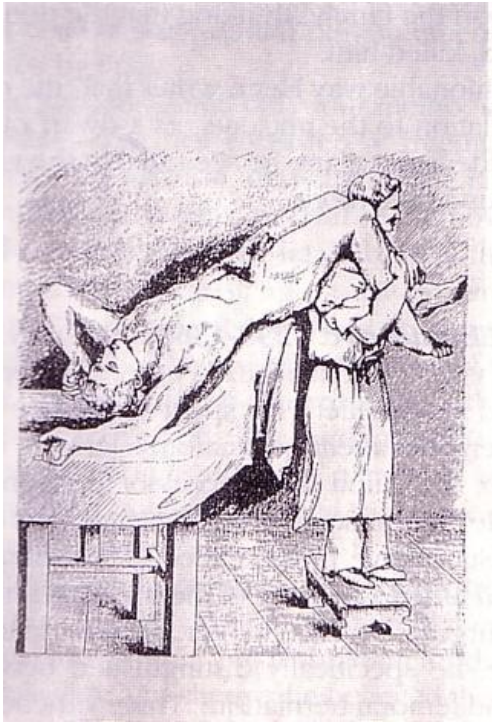


17th century

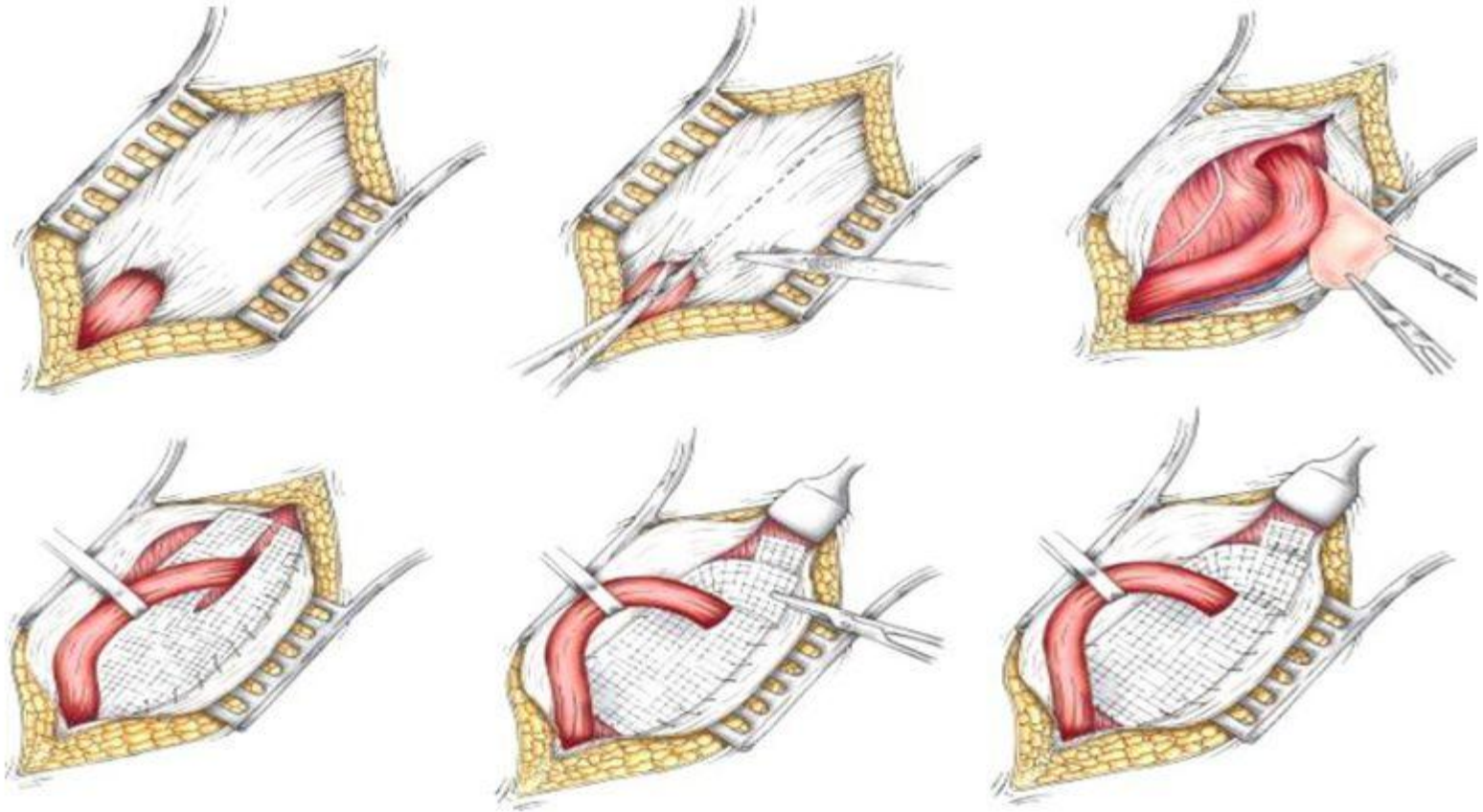


Giant Scrotal Hernia (1/2 of small bowel + right colon)

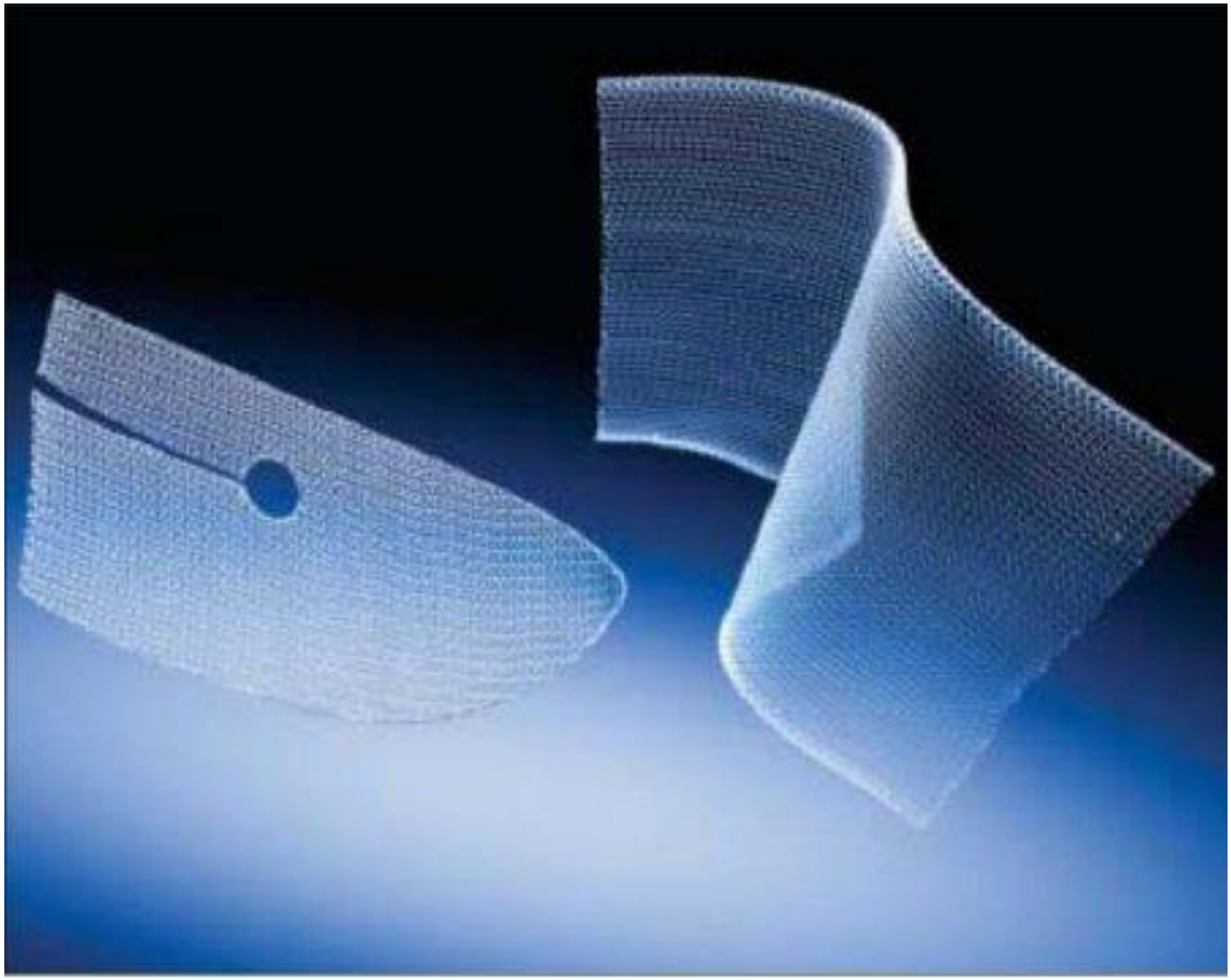
Incarcerated Inguinal Hernia with Bowel Obstruction

More typical inguinal hernia

Lichtenstein Hernia Repair



Polypropylene Hernia Mesh

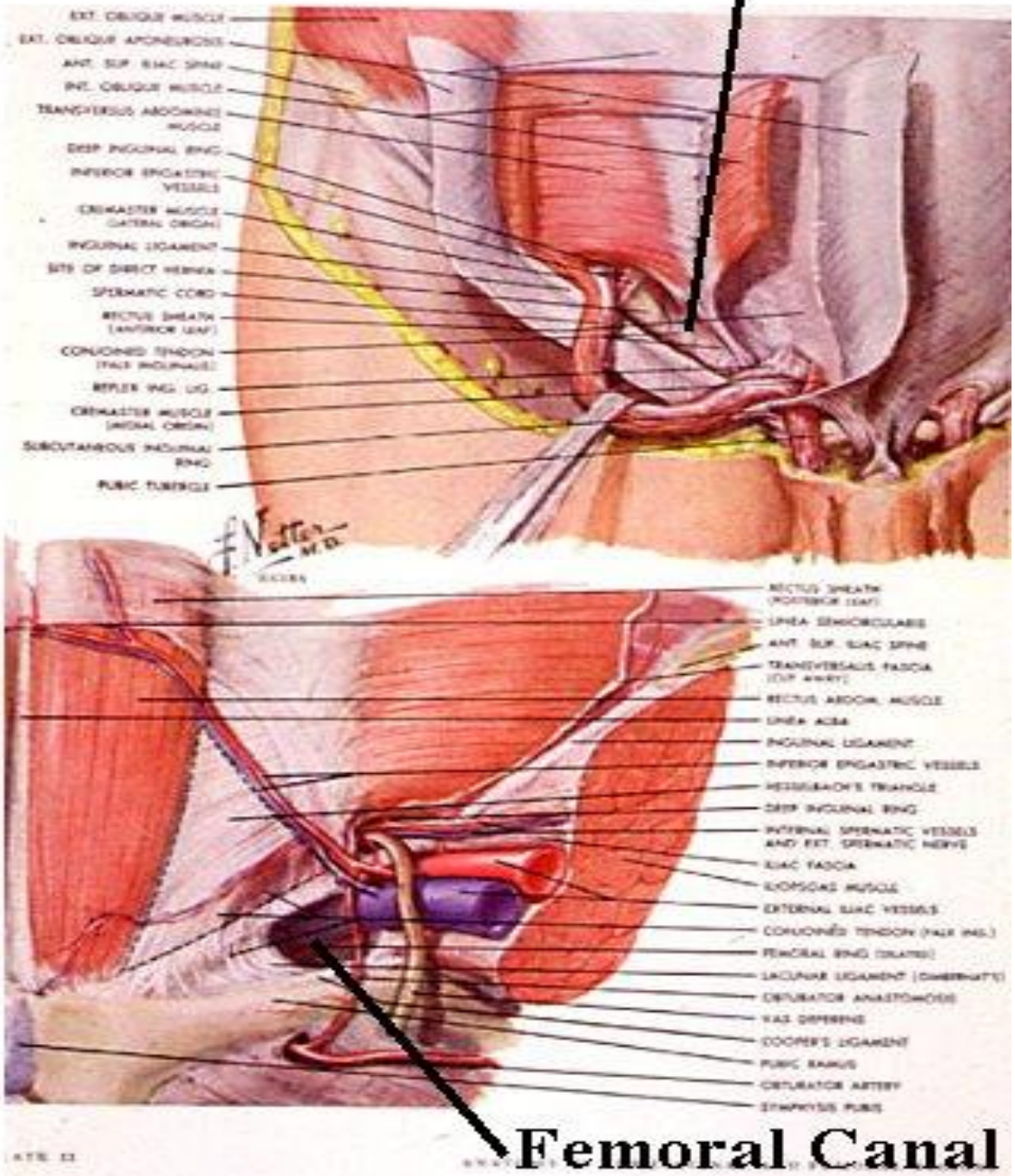


Polypropylene Hernia System

Femoral Hernia

- Develops in femoral canal, medial to femoral vein, below the inguinal ligament
- Occurs mainly in slender women, young or old
- Often has peritoneal sac
- Frequently presents with incarceration or strangulation
- Can cause bowel obstruction

Hesselbach's Triangle

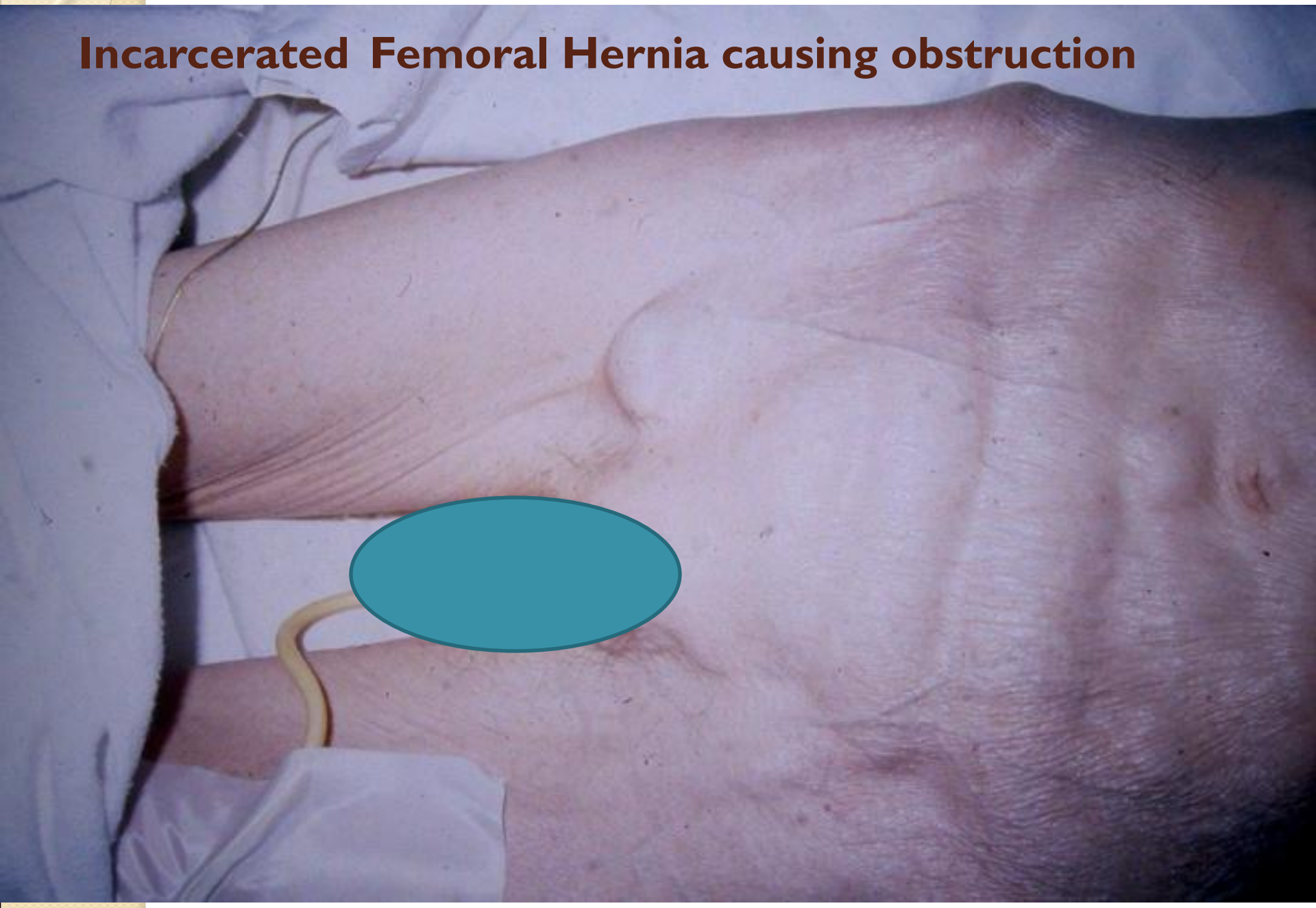


Femoral Canal

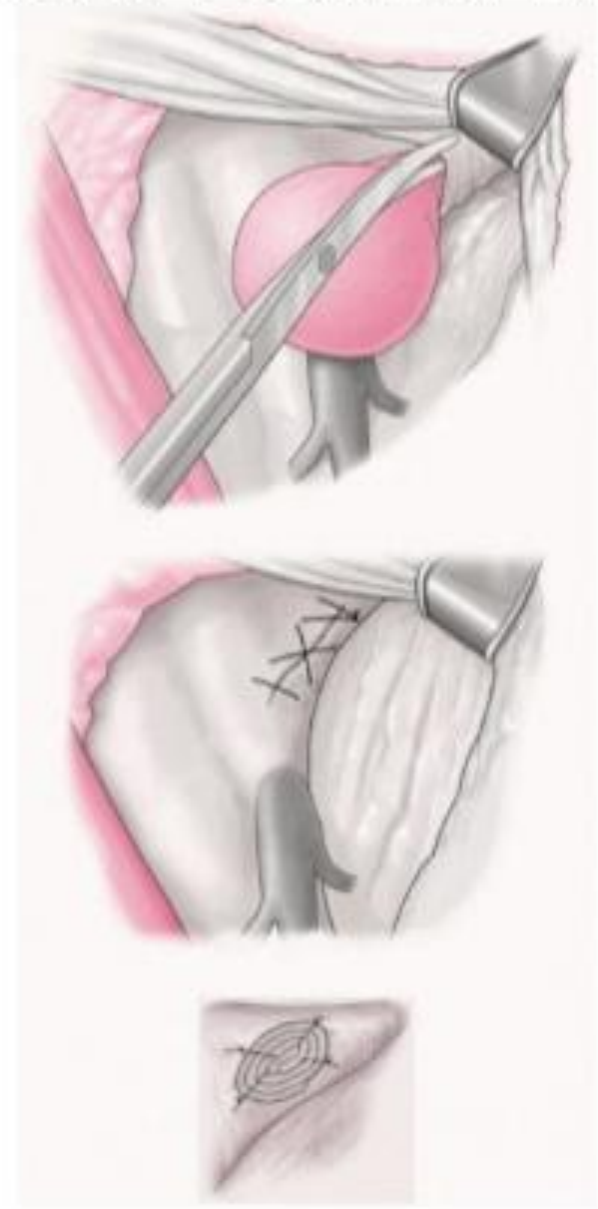
Femoral hernia versus inguinal hernia

Inguinal hernia	Femoral hernia
more common in male -1	more common in females -1
pass through the inguinal canal -2	pass through the femoral canal -2
neck of the sac is above and -3 medial the pubic tubercle	neck of the sac is below and -3 lateral the pubic tubercle
less common to be strangulated -4	more common to be -4 strangulated
have to be treated surgically -5	must be treated surgically -5
the two diagnostic signs of hernia -6 +	the two diagnostic signs of hernia -6 -
the sac mainly contain ; bowel -7	the sac mainly contains ; -7 omentum

Incarcerated Femoral Hernia causing obstruction



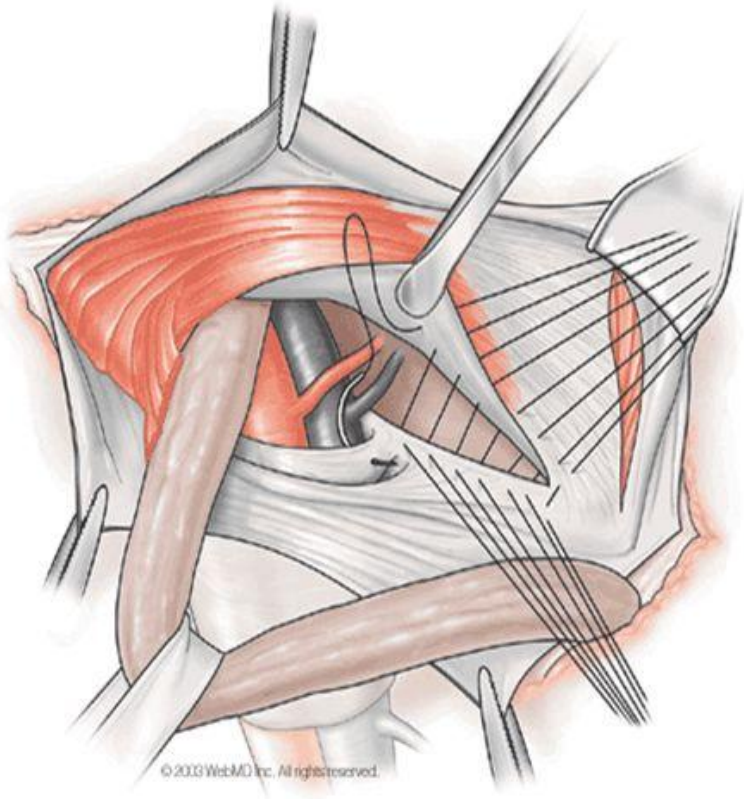
Non-Mesh Hernia Repairs



Bassini Repair

McVay Repair

- Similar to the Bassini repair,
- Except that it uses Cooper's ligament instead of the inguinal ligament
- Interrupted sutures are placed from the pubic tubercle laterally along Cooper's ligament, progressively narrowing the femoral ring
- Treatment of Femoral Hernia
- The last stitch in Cooper's ligament is known as a transition stitch and includes the inguinal ligament.
- Relaxing Incision



Polypropylene Hernia Mesh

Incisional hernia

Can occur ANYWHERE an incision has been made, no matter how small.

Incisional Hernia

- Can develop in the original incision site because of dehiscence or failure of wound healing, or can develop at the sites where sutures are passed through the tissue during closure (Swiss cheese-type hernia), or both.

Incarcerated incisional hernia

Causes of Incisional Hernia

- **Technical failure or fascial dehiscence:**
  - **Sutures rip through, are placed improperly, or break**
  - **Weak tissue ("ppp"), tension, infection**
  - **Occurs within days or weeks after operation**

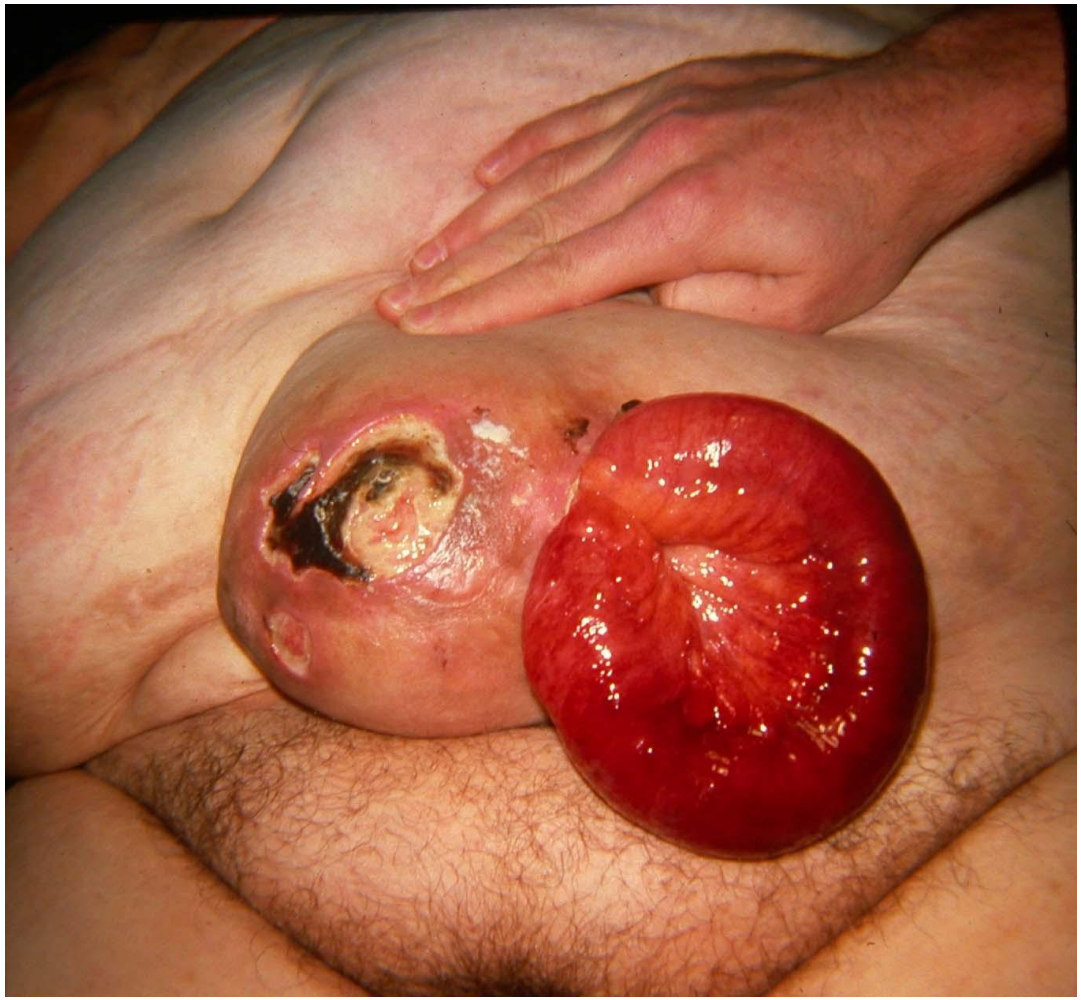
- FAILURE OF WOUND HEALING
  - **Most common cause**
  - **Seen 6-12 months after operation**

Incisional Hernia

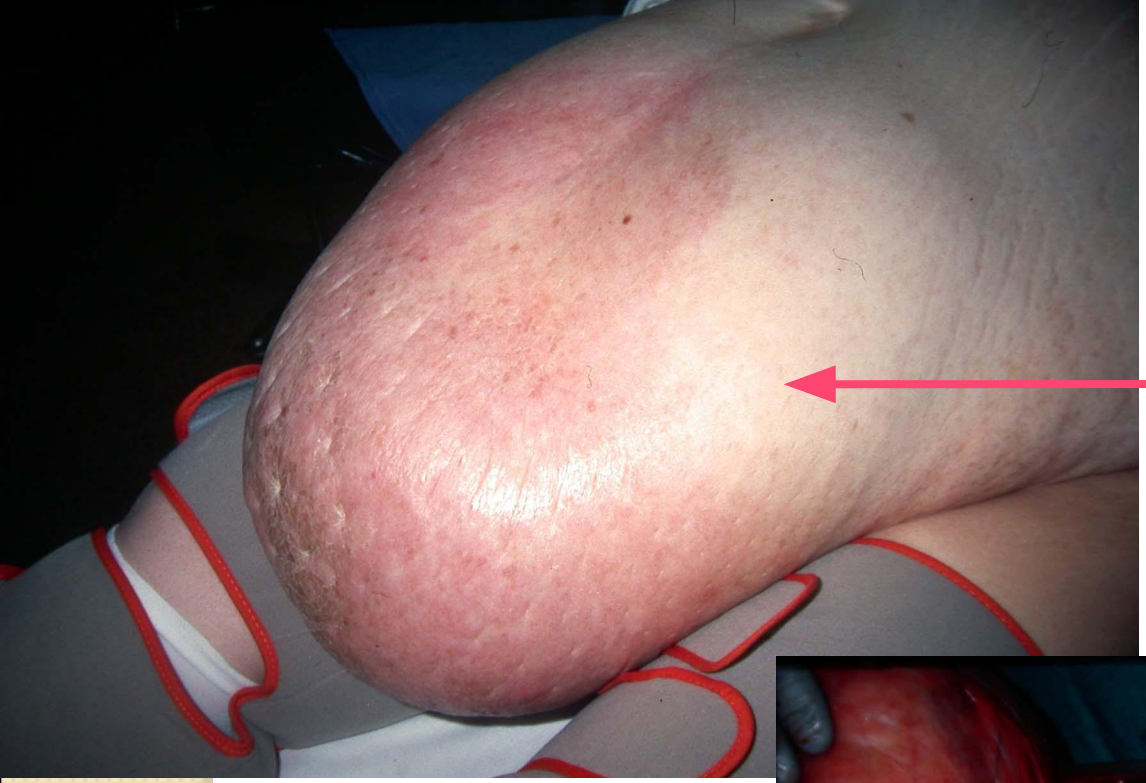
- **Pressure on skin can cause ulceration**

Incisional Hernia with Evisceration

- Note ulceration and spontaneous evisceration
- Cover with moist dressing.
- Take to operating room emergently for repair.

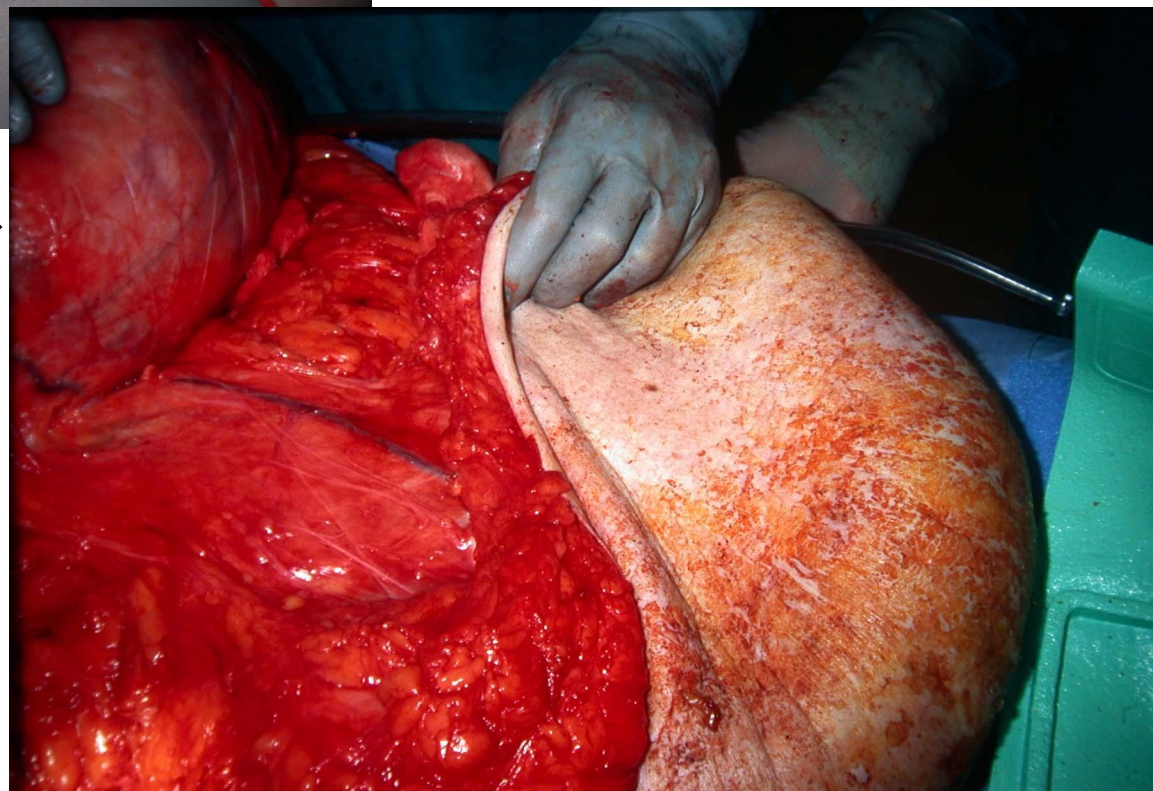


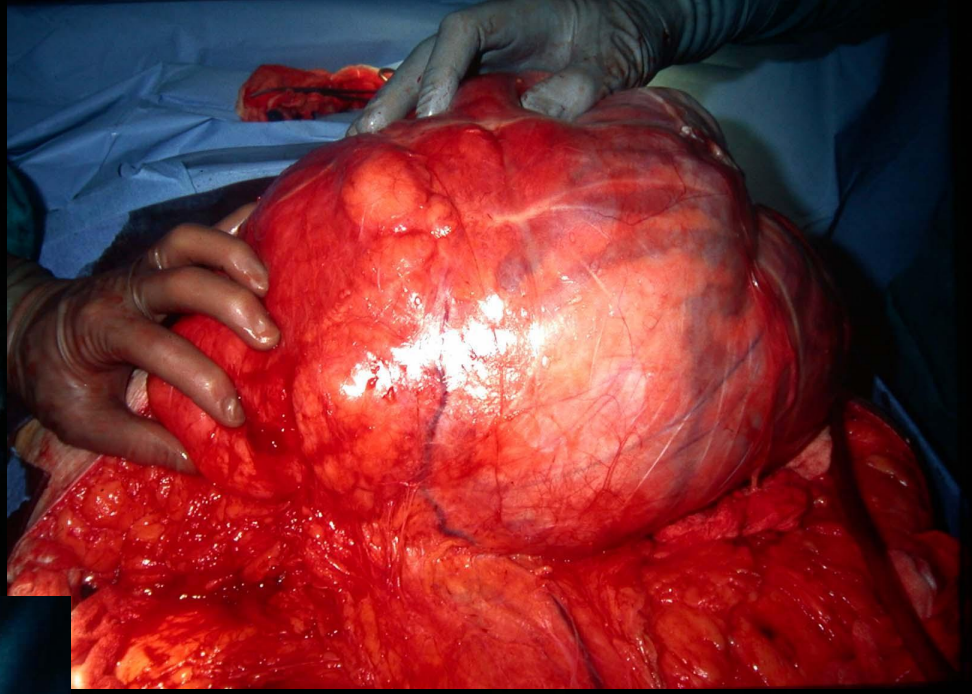
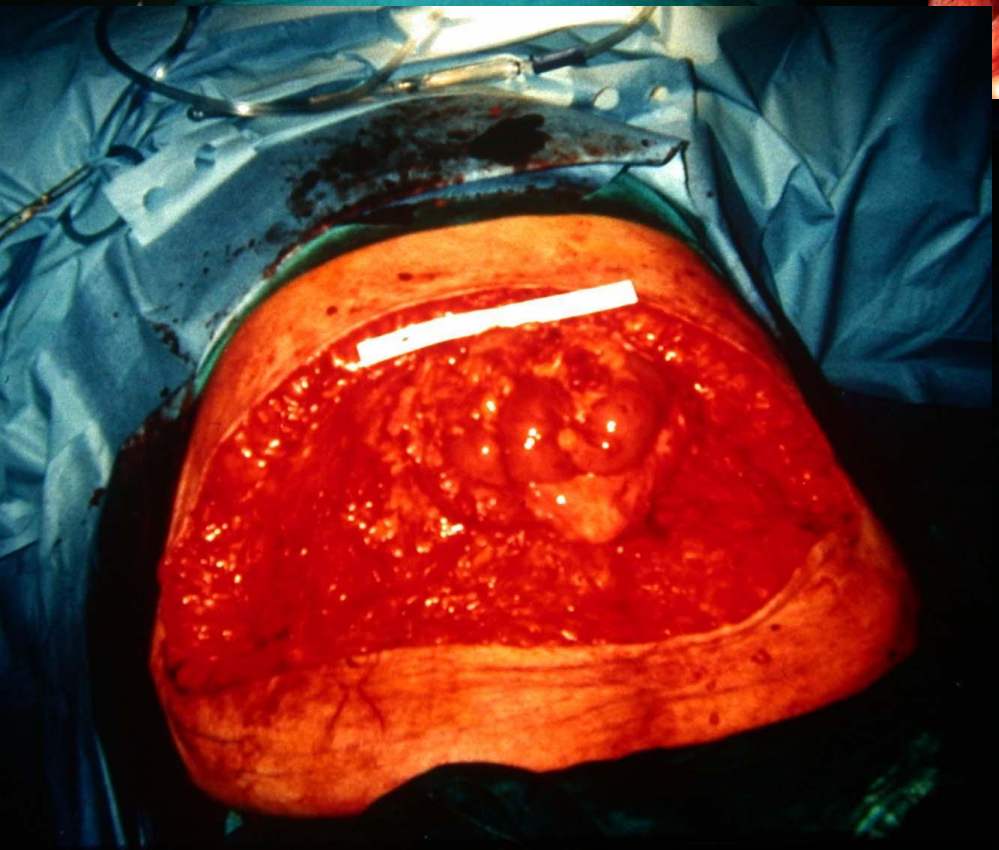
Incisional hernia with ‘peau d’orange’ (lymphedema)



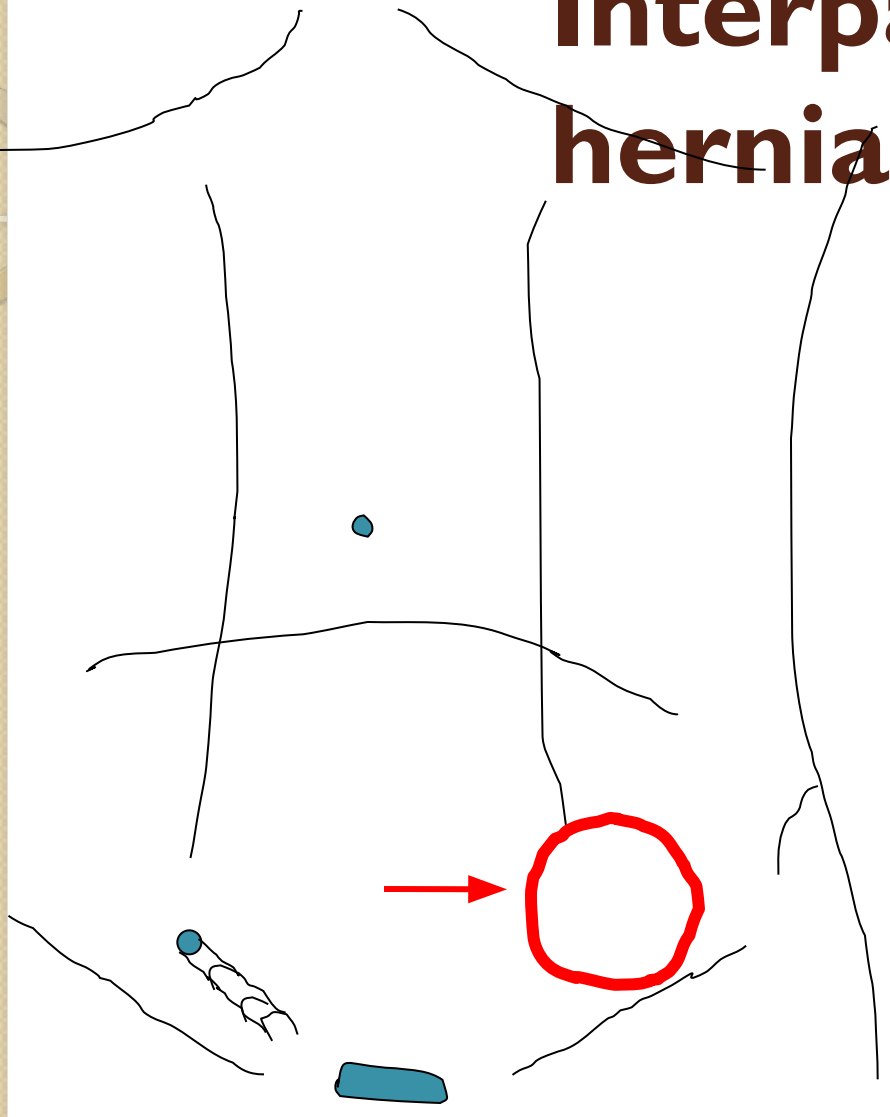
Large panniculus

Small hernia



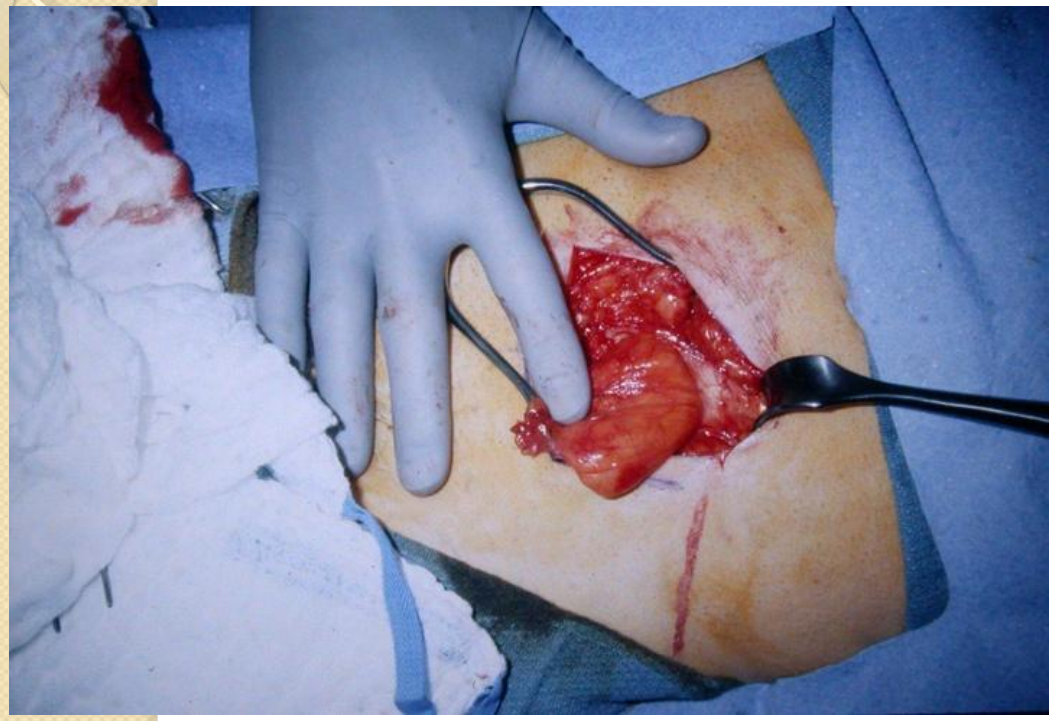

Interparietal hernia



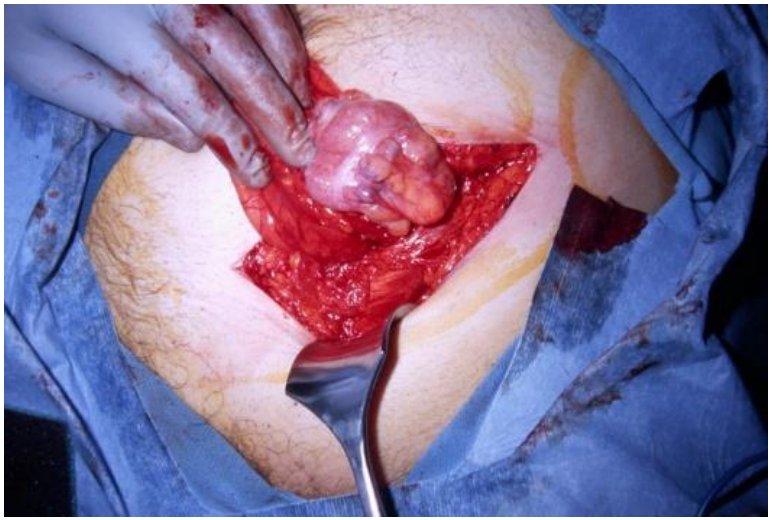
- Very rare
- Between the layers of the abdominal wall
- Lateral to inguinal canal

Interparietal hernia

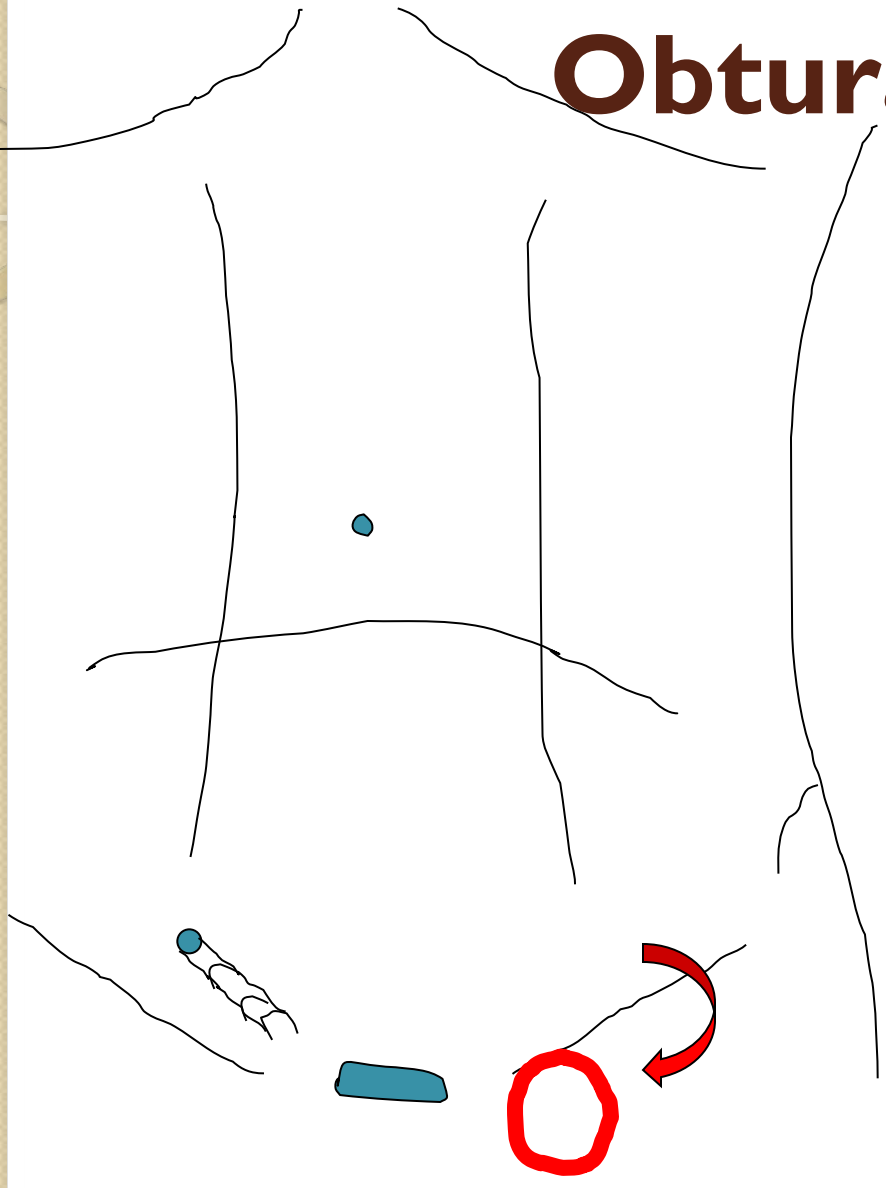
- **Beneath external aponeurosis, coming through internal oblique muscle.**



Left lower quadrant abdominal wall hernia outside inguinal canal containing sigmoid colon

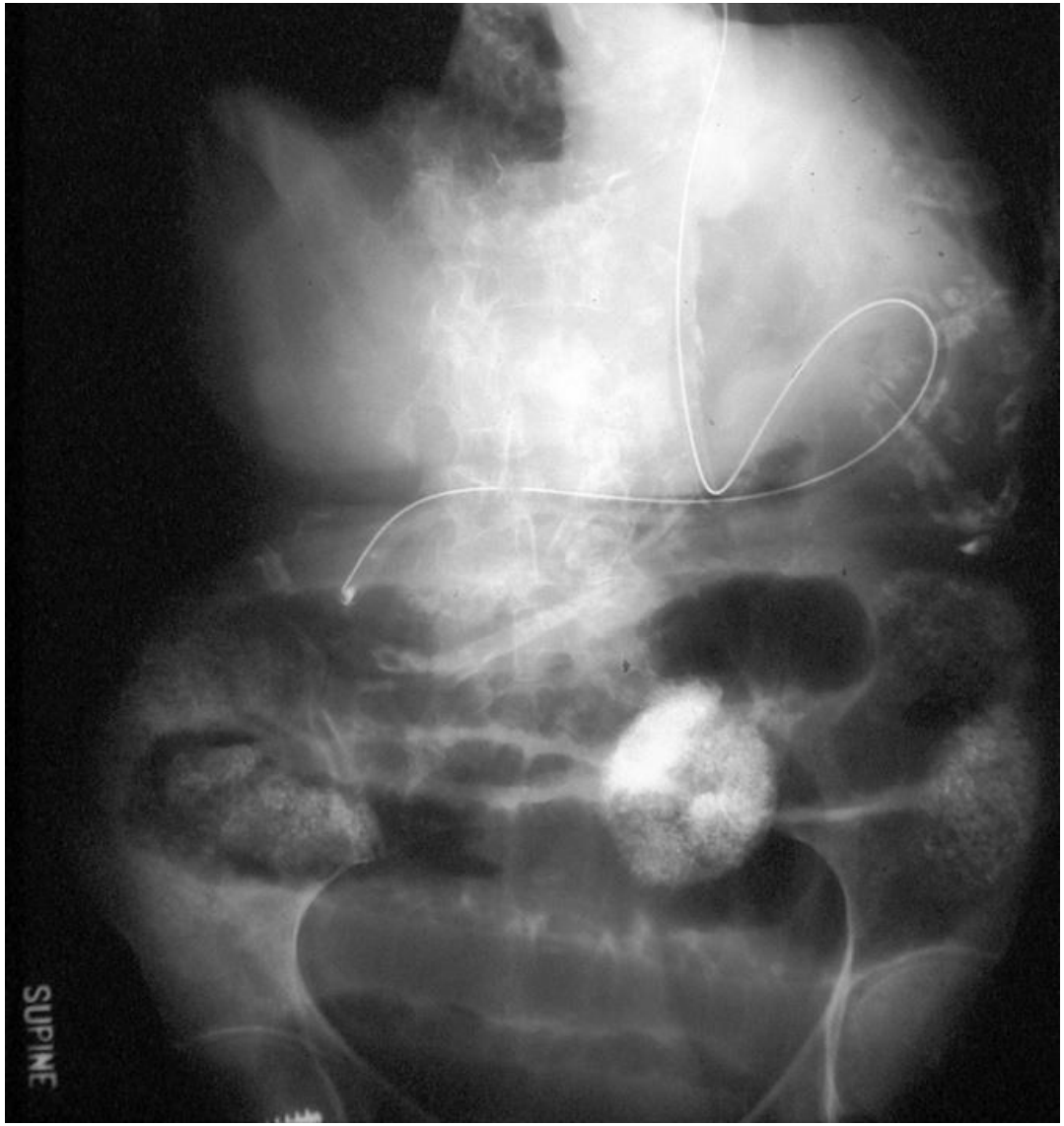


Obturator Hernia



- Very rare
- Seen in elderly, emaciated patients
- Develops in obturator fossa
- Not visible or palpable on outside
- Can strangulate, cause bowel obstruction

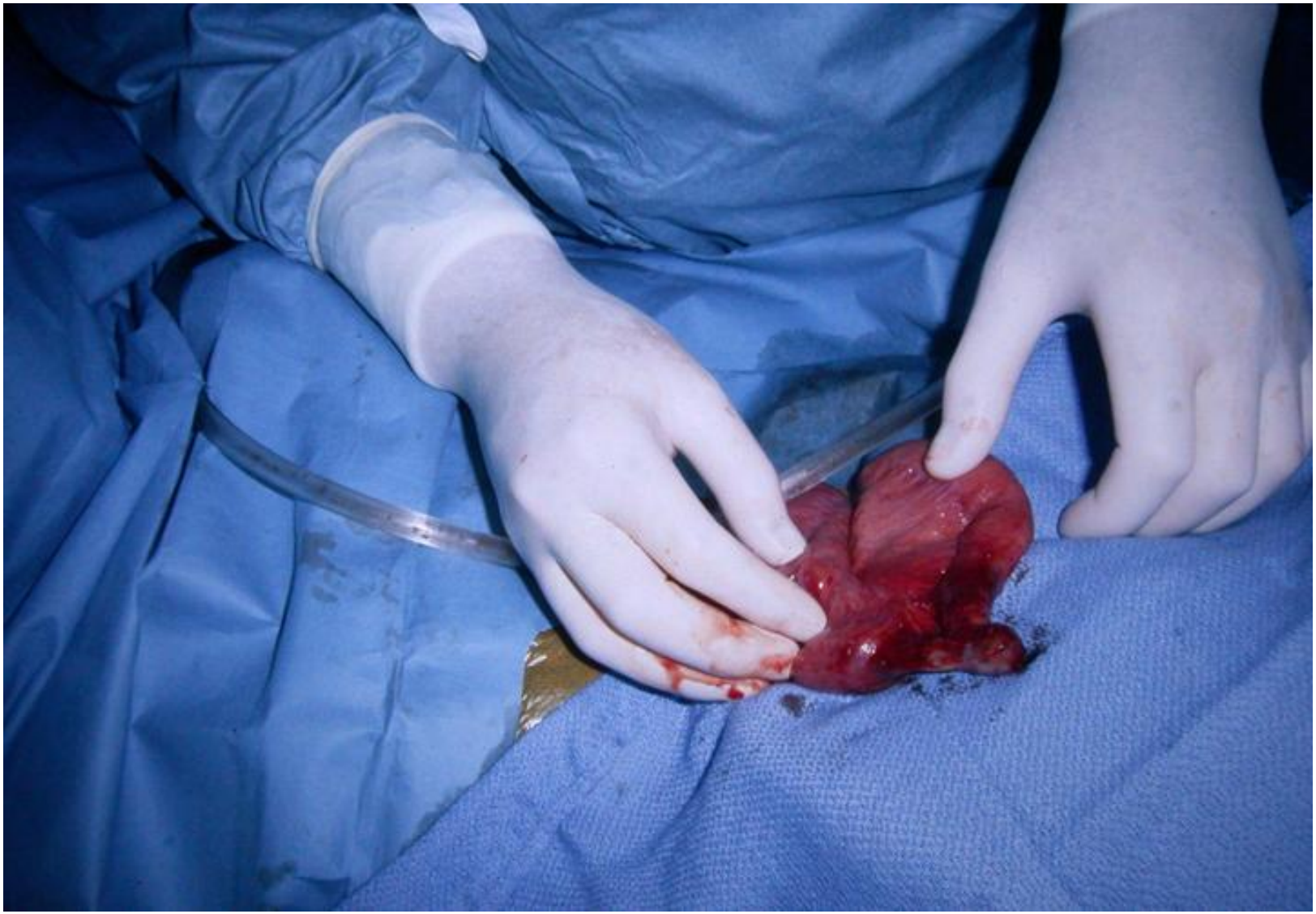
Bowel obstruction from incarcerated obturator hernia



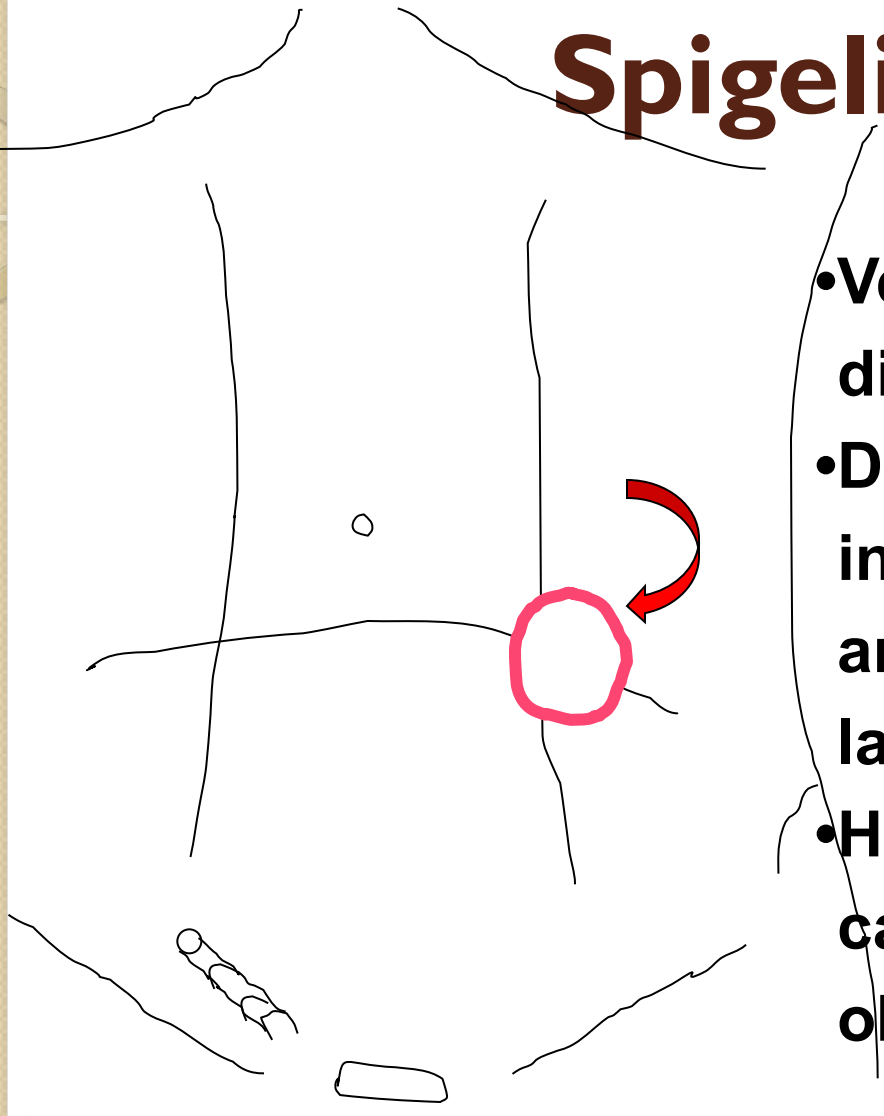
Obturator Hernia Causing Small Bowel Obstruction

Site of obstruction deep in pelvis

Infarcted small bowel from obturator hernia



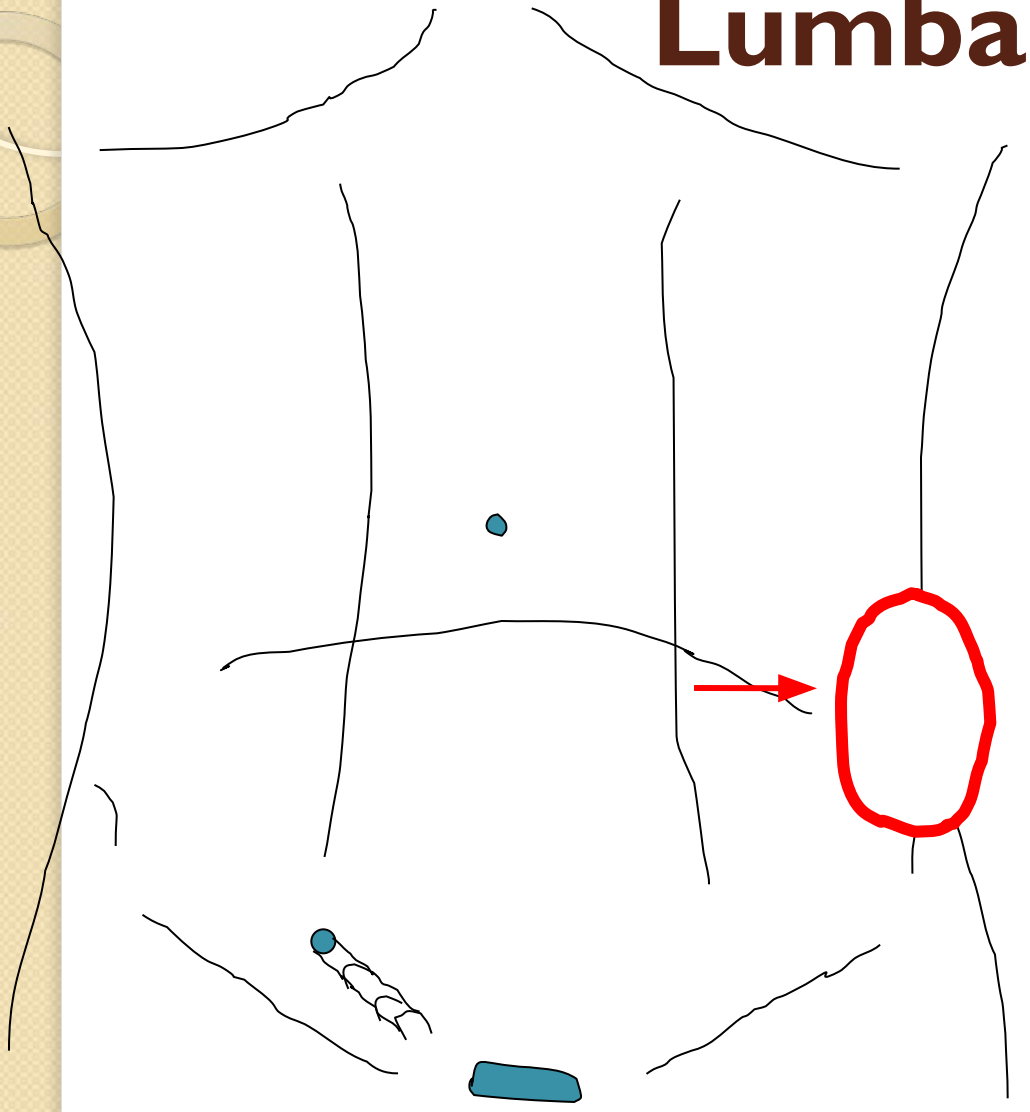
Spigelian Hernia



- Very rare, difficult to diagnose.
- Develops at or near intersection of arcuate and semilunar lines, just lateral to rectus muscle.
- Has peritoneal sac; can cause of bowel obstruction

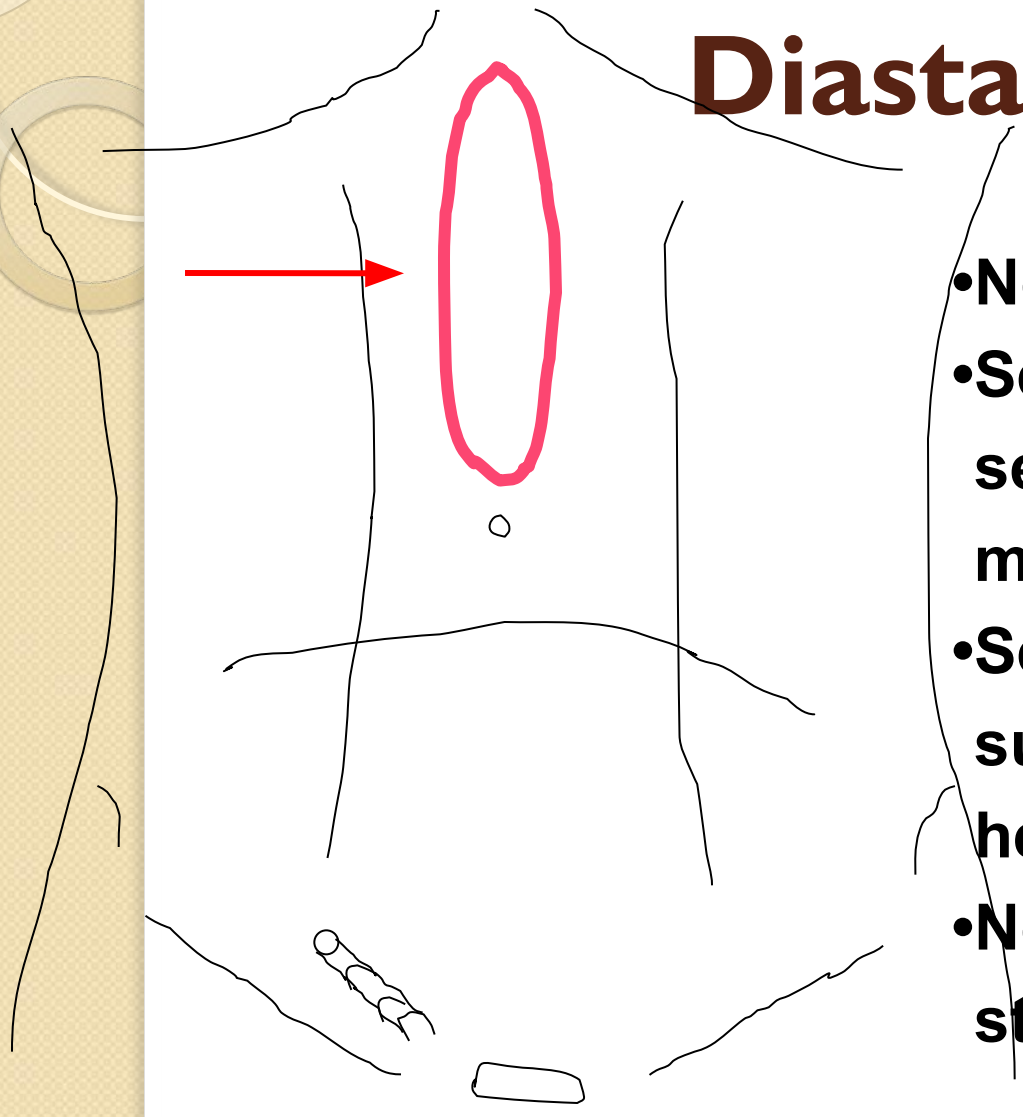
Spigelian Hernia Laparoscopic view

Lumbar Hernia



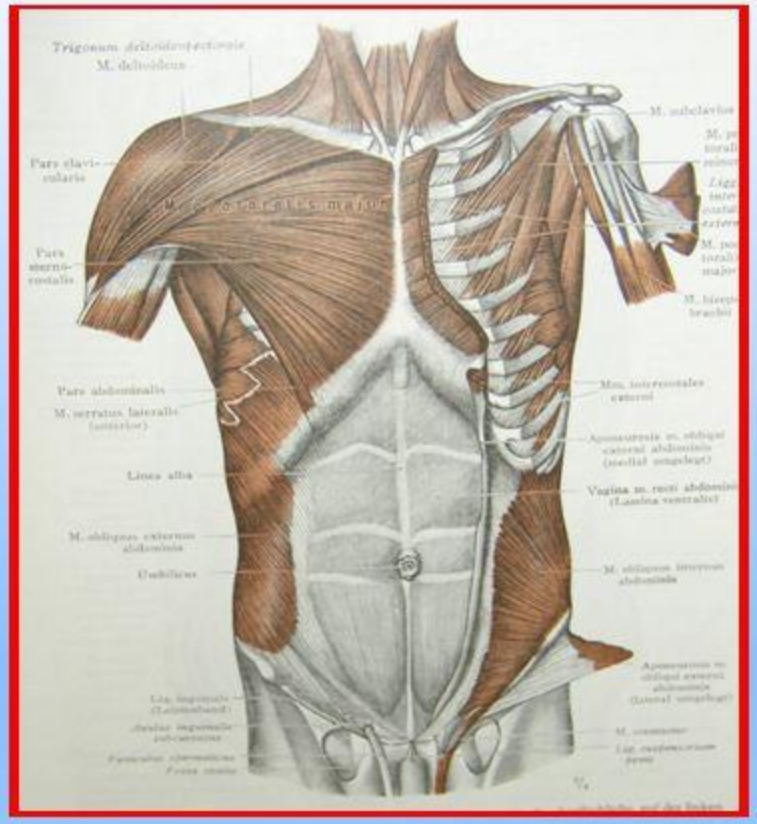
- Develops at Petit's Triangle
- Between abdominal and back muscles
- Fascia in this region is thin

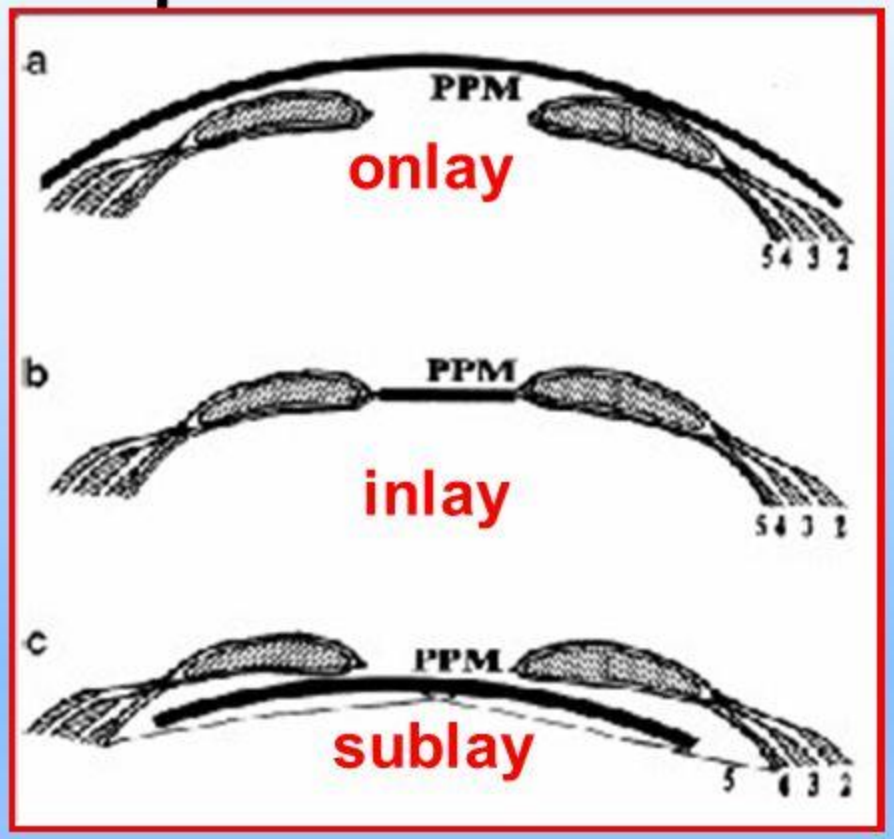
Diastasis recti



- Not a hernia!
- Seen when there is wide separation of rectus muscle in epigastrium
- Seen only when lying supine and raising one's head.
- Not seen when one is standing.

Position of surgical mesh in incisional hernia repair





Thanks for attention!