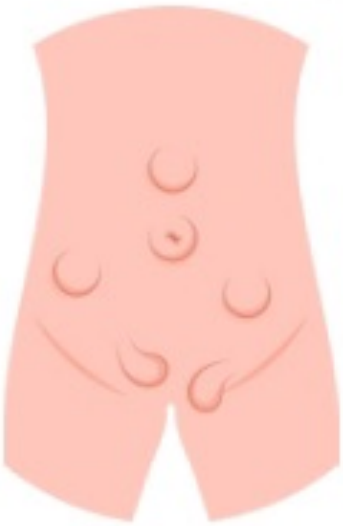
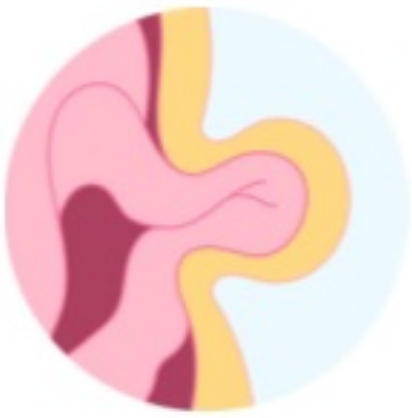
ABDOMINAL WALL HERNIAS

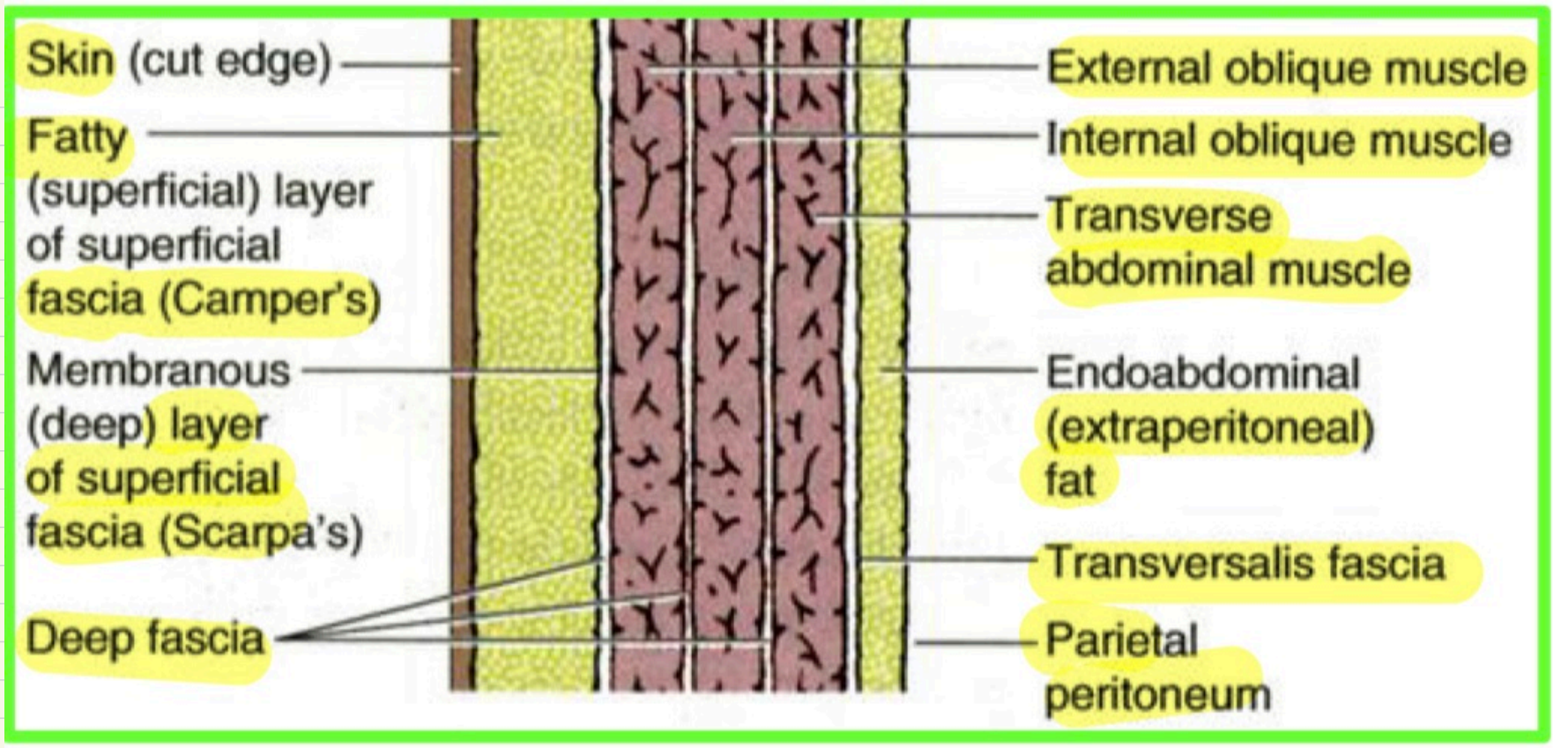
DR.ALI JAD

DONE BY :

لجنة الطب و الجراحة







Abdominal wall layers inorder

1) skin
2) camper
3) scarpa
4) External oblique m.s (Above umbicus) and Aponeurosis (Bellow umblicus)
5) internal oblique m.s
6) Transverse Abd m.s } → union of these m.s form Conjoint Tendon
7) fascia transversalis
8) Extra peritonial fat
9) peritoneum (parital then vicera etc....)

Lets talk About m.s points (4/5/6) !-

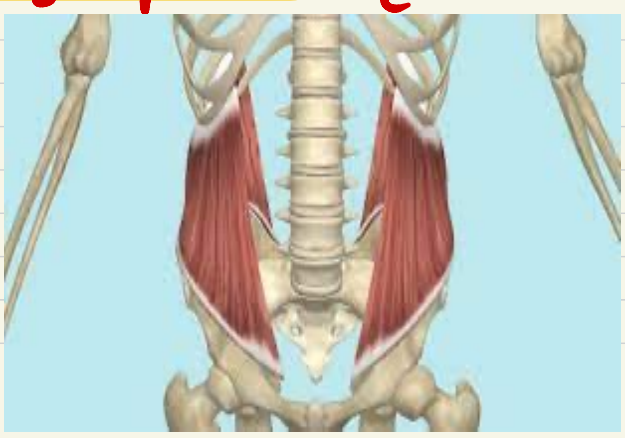
4) External oblique m.s

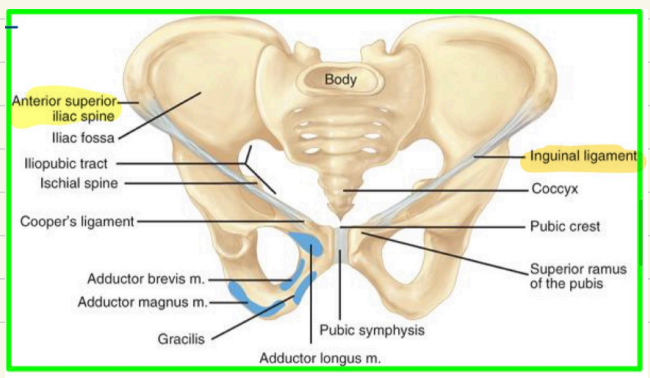
- **orgin !-** 5th - 12th Rib (lower 8 Rib)
- **insertion !-** linea alba and pubic tubercle

Note :- inferior margin will fold on itself and make abridge BTW ASIS and pubic tubercle to form inguinal ligment

- Always Remember That fibers of Ext. oblique m.s Runs inferio-Medially

eg:- put your hands in your pocket وكنك حاطت ايدك بجيبك الله يسهل عليك يا دكتاتيري ♡

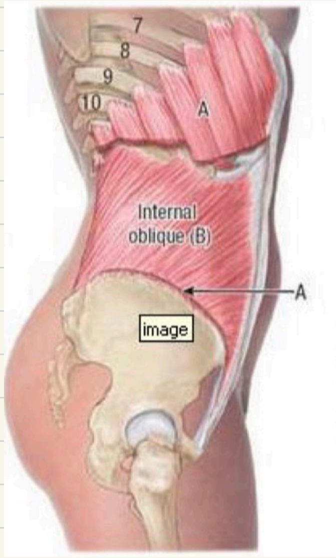




5) internal oblique m.s

- **Orgin:-** Lalteral 2/3 of inguinal ligmeul
- **insertion:-** 10th - 12th Ribs / Linea Alba / Conjoint Tendon (الي بتحمل مع Transver m.s)
  ↳ الدكتور حكا هاي بسبب انو هدول Ribs بسموهم Floating Ribs الي ما بمسكو بـ sternum

- Alaway Rember fiber of int. oblique m.s Runs **supperio-medially**
  eg:- your **Hands placed over your chest** ← زي تحية العلم ع نحط ايدك على صدرك (الله يسهل عليك مرة ثانية)



Note:- لاحظ انو m.s بتكون فوق ميدبالي ووحدة تحت ميدبالي
فبتستنتج انو:-
(Running of these fiber of int. and Ext. oblique are **perpendicular** (متعامدات))

6) Transverses Abd m.s

- **orgin:-** medial 1/3 of inguinal lig / illiac crest / Thoracolumber facia / internal surface 7th to 12th Rib (lower 6 Rib)
- **insertion:-** Linea Alba / Conjoint TEndon

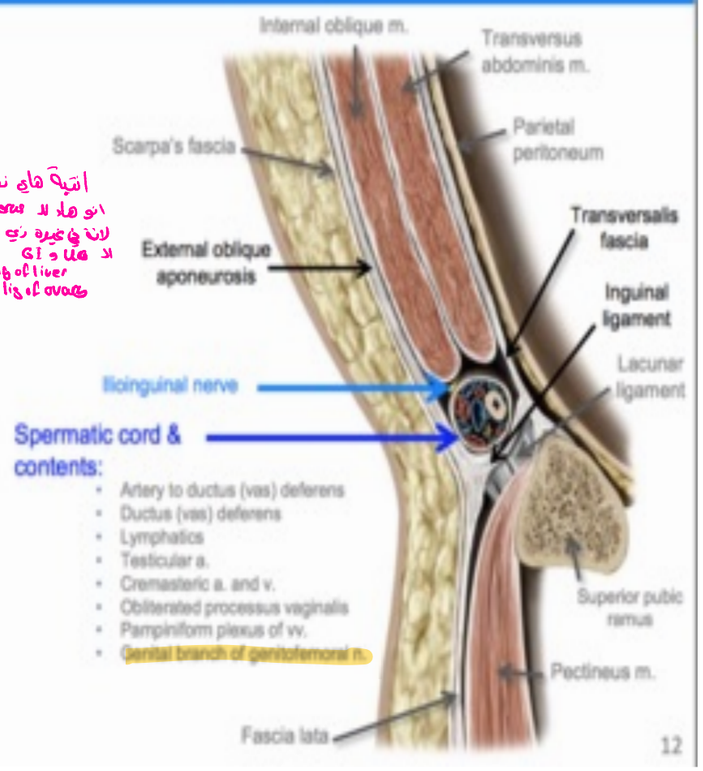
- Always Remember that fibers Runs **transversaly from post. to Ant.**
  eg:- لما نحط ايديك فوق بعض عشان **تصلي** (الله يسهل عليك مرة ثالثة)

Inguinal Canal: Contents

- **The inguinal canal passes obliquely and is approximately 4cm long**

- **Females** (narrower canal):
  - Round ligament of the uterus
  - Ilioinguinal nerve
  - Genital branch of genitofemoral nerve
  - Blood and lymphatic vessels

- **Males** (wider canal):
  - Spermatic cord
  - Ilioinguinal nerve
  - Genital branch of genitofemoral nerve
  - Blood and lymphatic vessels



Boundaries of inguinal canal

Boundary	Level of deep ring	Middle	Level of superficial ring
Anterior wall	Internal oblique External oblique	External oblique aponeurosis	External oblique aponeurosis (crura)
Posterior wall	Transversalis fascia	Transversalis fascia	Conjoint tendon
Roof	Transversalis fascia	Arching fibres of internal oblique and transversus abdominis	Medial crus of external oblique
Floor	Inguinal ligament	Inguinal ligament	Lacunar ligament

Structures of the Spermatic Cord

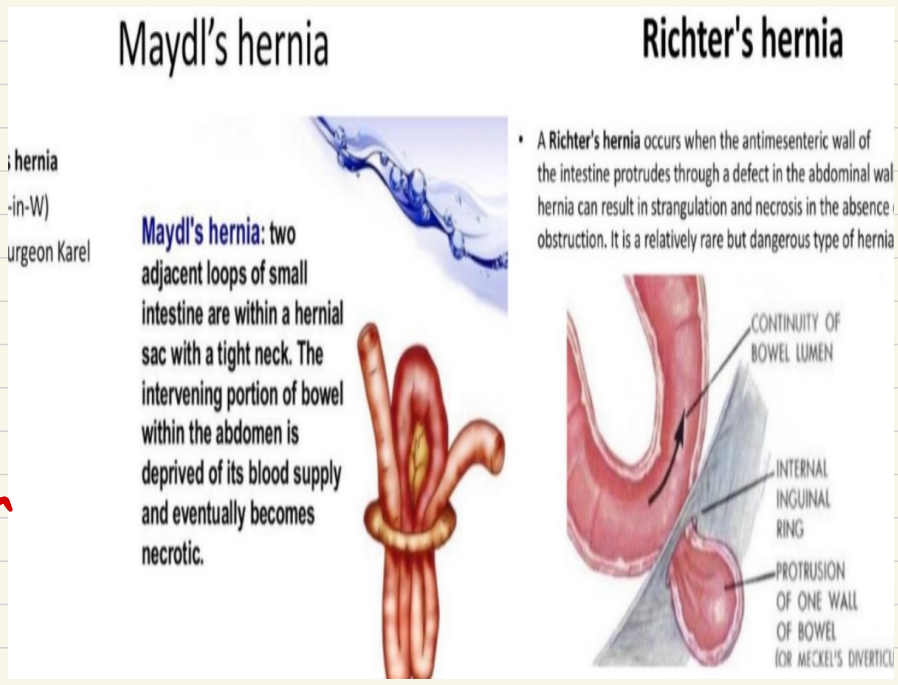
- *Vas deferens*
- *Testicular artery*
- *Testicular veins (pampiniform plexus)*
- *Testicular lymph vessels*
- *Autonomic nerves*
- *Remains of the processus vaginalis*
- *Genital branch of the genitofemoral nerve, which supplies the cremaster muscle*

genital Branch of genitofemoral N.
found inside inguinal canal
And inside spermatic cord

Tricky Question in Exams

Hernia :-

- its protusion part of organ (with its cover) in Defective wall (All organ can Herniate Except pancerase)
- Hernia of **Mecnel Diverticulitis** → Littre Hernia (Role of 2)
- Hernia of **Appendix** in (indirect inguinal Hernia) → Amyand Hernia
- **infalmed Appendix** in (indirect inguinal hernia) → De Garengeot Hernia
  - Appedectomy ب 4 Ys
- Hernia of intestine
  - (Maydls Hernia or W Hernia)
  - (Richeter Hernia)



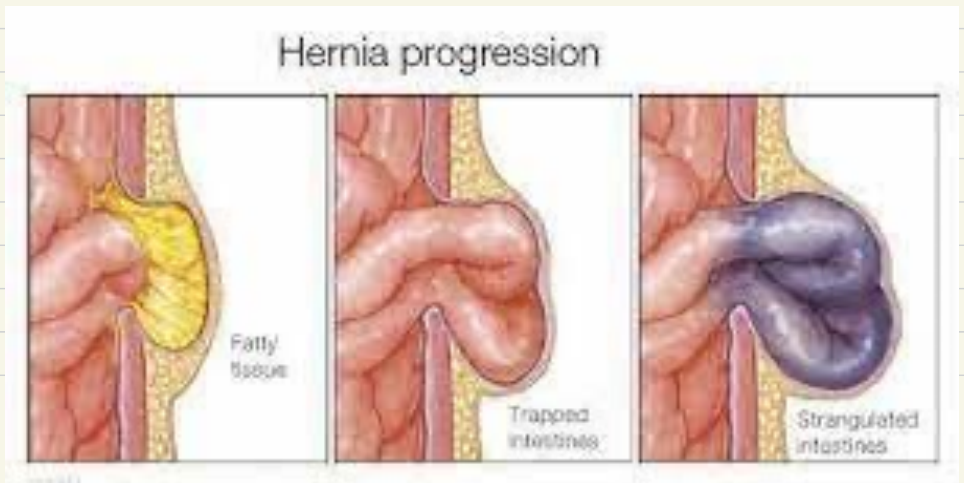
Quote: if you Do surgery for Maydls' Hernia and you just push The content and Then suturing → P.t Die (بشوف لافين عبده)

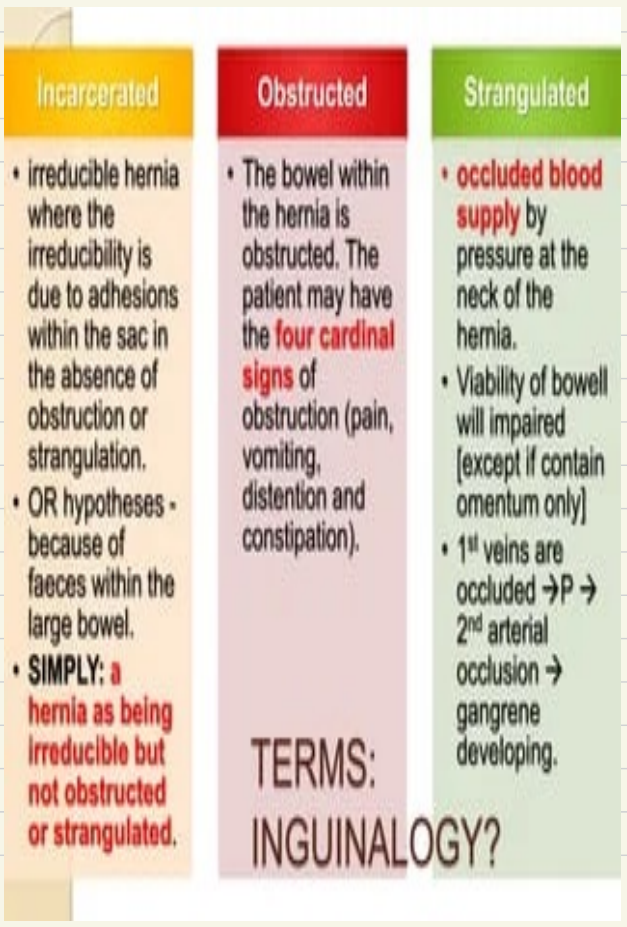
Causes of Hernia

- Congenital :- patent process vaginalis / umblical Hernia
- Aquired
  - weakness of Abdominal wall (multiple surgery / Defect on collagen syn Disorder like EDS and osteogensis imperfecta / Ageing)
  - ↑ intra-abdominal pressure (Normal pressure of Abdomin is 5-7 mmHg)
    - (Tumor / Asiti's / pregncy / portal HTN / Heavy lifting / prostat Hyperplasia — اي اي بزيد الpressure مش شرط هدول)

Complication of Hernia

1) intestinal obstruction
   - pain
   - Distends
   - constipation
   - vomiting
2) infection
3) inflammation
   - incarcerated
   - strangulated





Examination

- most common Herniation is omentum
- 2ed Most comon 2ed small Bowell

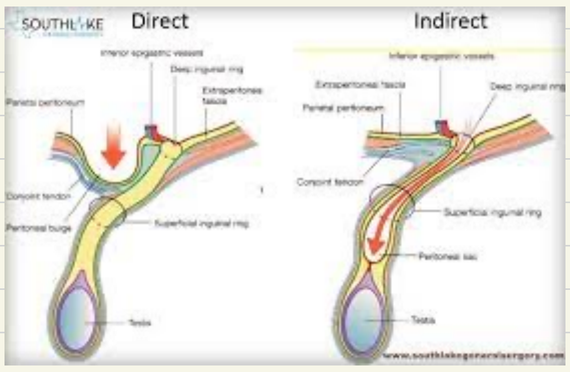
How to Diffrenate BTW Omentocele or enterocele ??

1) palpation → soft (enterocele)
   → Duphy (omentocele
2) percussion → Tympanic (enterocele)
   → Dull (omentocele)
3) sound → gurguling (enterocele)
   → Nothing (omentocele)
4) touch → فوت (enterocele)
   → ما فوت (omentocele)
5) Reduction → Difficult only At start (enterocele)
   → Difficult from Bigning to End (omentocele)

---

clinically

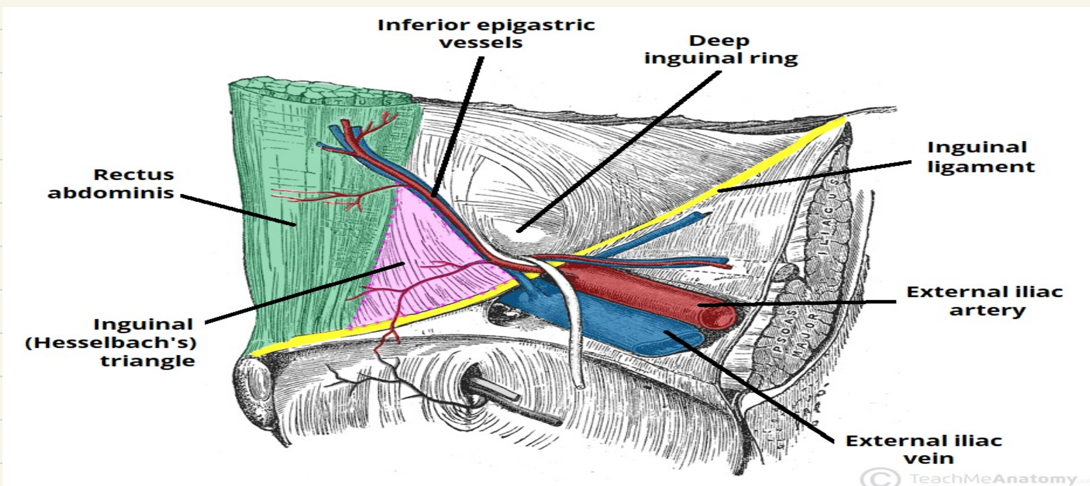
- indirect hernia → بتلف و بتدور يعني دخلت من ال canal
- Direct Hernia → دغري بتخرق ال wall وبتعمل Herniation
  ما بتدخل ال canal



Hesselbach triangle

هو المثلث اللي جاي medial وهو مكان اللي بصير فيه ال Direct Hernia

Boundary :- [1] inferiorly → inguinal lig
[2] superiorly → inf. epigastric vessle
[3] medially → Rectus Abdominis m.s



بعدها

Tests

Note!- Mid inguinal point → BTW ASIS and Symphysis Pupi's
Mid inguinal lig → BTW ASIS and pubic Tubercle

Deep Ring Test → Compress By 1 finger on Mid inguinal point

- ما عليه (inDirect)
- عليه (Direct)

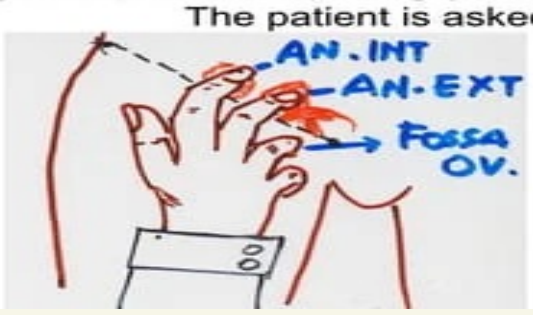
superfical Ring Test → Compress 2cm above and Medialy of pubic Tubcle

- Medilly جنبية (Direct)
- جنبية برا (inDirect)

Note!- Femoral canal present 2cm Bellow and latterally to pubic tubercle

zieman Test →

5-Three finger test / Zieman's technique
Index finger; deep inguinal ring (indirect hernia)
Middle finger; superficial ing. Ring (direct hernia)
Ring finger; saphenous opening (femoral hernia)
The patient is asked to cough.



Age
- old Age → Direct (weak m.s)
- child → inDirect (Not will Developed)

shape
- Round → Direct
- sausage → indirect

How to confirm Diagnosis ??

look for inferior epigastric Art in surgery
if it was Medialy → Direct
if it was latteraly → indirect

- most common Hernia in Both sex is inguinal Hernia
- Femoral Hernia is more common in Female (But Not Most common)
- indirect inguinal Hernia more common in children
- Direct inguinal Hernia more common in old Age
- umblical Hernia more common in child Bellow Age of 2 may childhood
  (may occur in Adult Female Due to ↑intraabdominal pressure pregnancy or Acsitis)
- Epigastric Hernia more comon in MEN (multiple Hernia + omentum prolaps)
  Tr with simple sulture cause Reccurance 10%

- most Comon type of incisional Hernia is ventral Hernia + Reccurence
- Obturator Hernia more common of old lady (Needs High index of susspetin
  only come with obstruction (Due to old friable fragile lesion)
  cause pain on obtrutor n. → Howship-Romberg sign
- Lumbar Hernia → superior (Grynfeltt's)
  → inferior (petit's)
- perinal Hernia comon After Abdomino perineal Reseetion
- parastomal Hernia its Hernia Beside stoma
- spigelium Hernia on Arcuate line (similunar line of Douglas)

اعادة

- Hernia of MecNel Diverticulitis → Littre Hernia (Pole of 2)
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  Appedectomy يا ولاد
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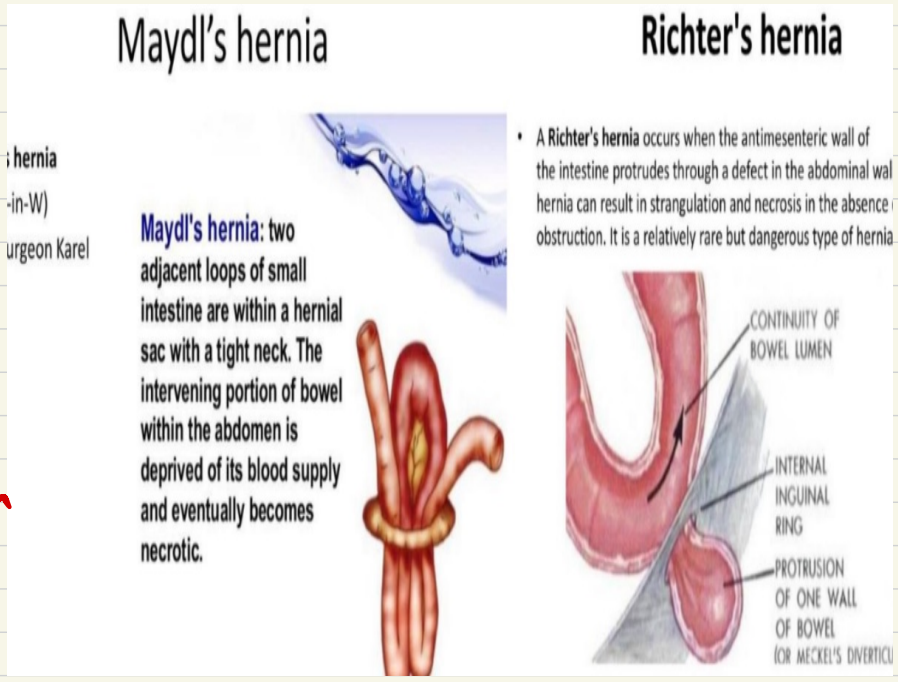
(جريمة لا تغتفر)



Sliding Hernia :- colon or Bladder (Retroperitoneal organ Herniate)

Complication :- ① Obstruction → sepsis
② strangulation → electrolyte imbalance → 3 → Death
③ perforation

obstructed Hernia :- intestinal obstruction with No cut of supply

strunglated Hernia :- cut off supply 

Neck → strangulate → femoral / paraumbilical hernia
→ No Actual Neck → Direct inguinal / incisional Hernia

irreducibility without other symptoms → omentocele → more in femoral and umbilical Hernia

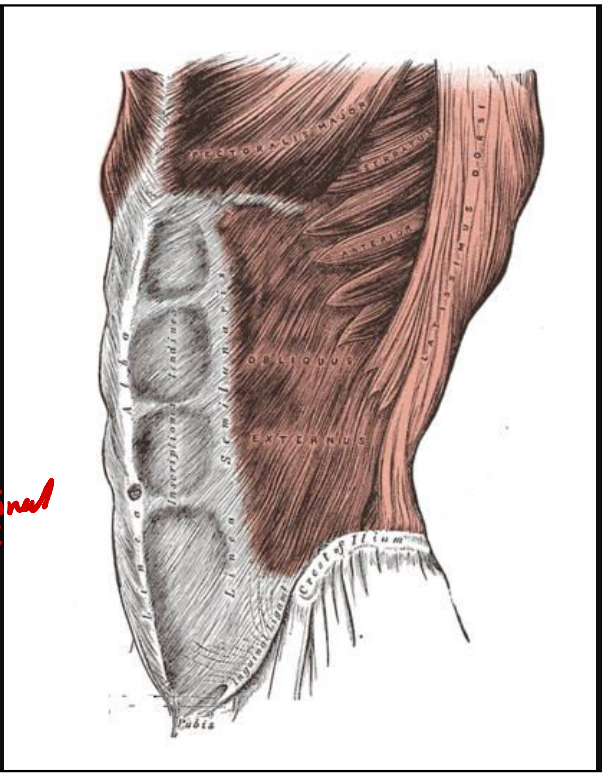
Abdominal Wall Hernias

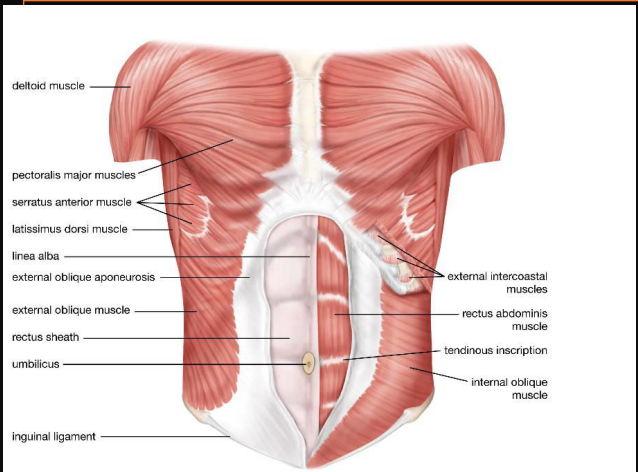
Dr. Ali Jad Abdelwahab

Functions of the Abdominal Wall

1. **Protects** the abdominal viscera from injury.
2. **Supports** and moves the trunk.
3. **Compresses** the abdominal viscera to maintain or increase intra-abdominal pressure (expiration, coughing, urination, defecation, childbirth)

Normally:- 5-7 mmHg intraabdominal pressure



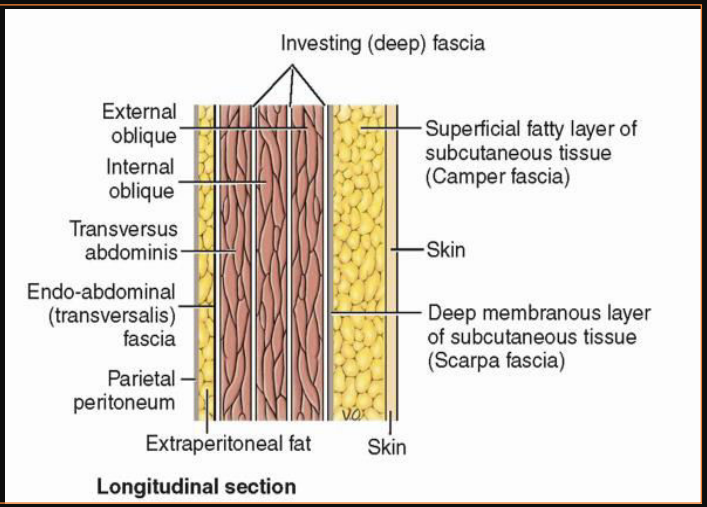


Anatomy of the abdominal wall

* من الأسئلة المتكررة ↓

What are the structures from inside to the outside? (or from outside to inside)

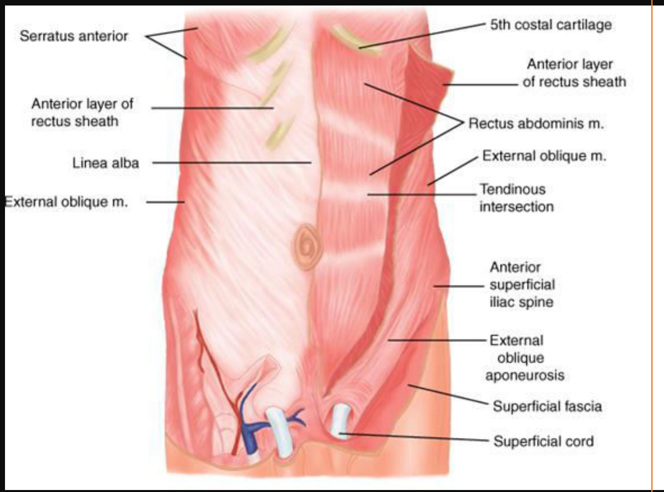
- 1. Skin (Camper's fascia / Scarpa's fascia)
- 2. Subcutaneous tissue
- 3. External oblique muscle
- 4. Internal oblique muscle
- 5. Transversus abdominus muscle
- 6. Transversalis Fascia
- 7. Peritoneum



Longitudinal section

External Oblique Muscle

The most superficial muscle.

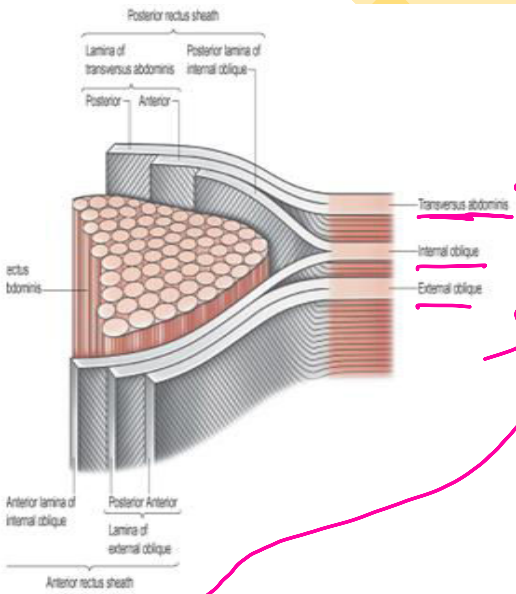


• origin ⇒ lower 8 ribs

• insertion ⇒ ASIS (anterior superior iliac spine)

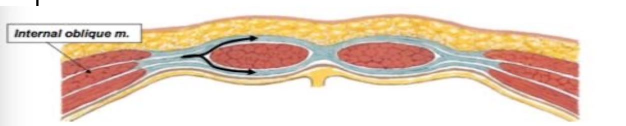
and forms the inguinal ligament by rolling under ↩ هذه أهميتها

- In the upper abdomen, its aponeurosis fuses with half of the ant. aponeurosis of the internal oblique muscle at the lateral margin of the rectus abdominus to form the anterior rectus sheath

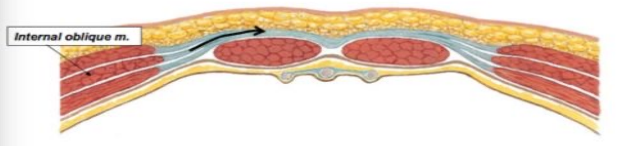


Line of Doglus هاد الحكي فوق الـ

Anterior تحته بصير كله

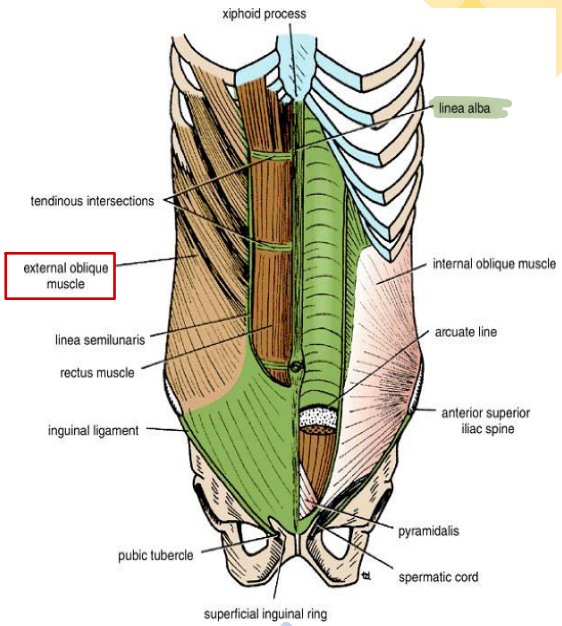


Rectus sheath *below* the arcuate line (all tendons pass anterior to rectus abdominis muscles). Below the arcuate line is an area of potential weakness.



- Lower in the abdomen, this fusion occurs near the midline.

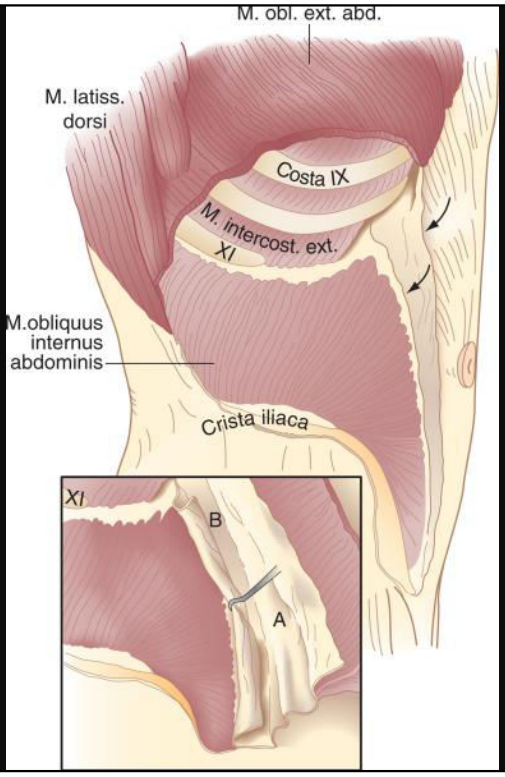
to form the linea alba



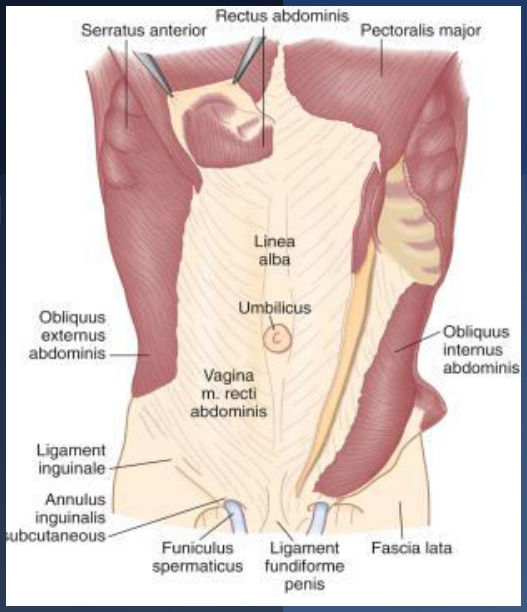
abdomen
- Central portion
- Lateral portion → muscles are fleshy here

Internal Oblique Muscle

- **Forms a broad aponeurosis that fuses in the midline and contributes to the anterior rectus sheath throughout the abdomen and the posterior rectus sheath in the upper abdomen.**

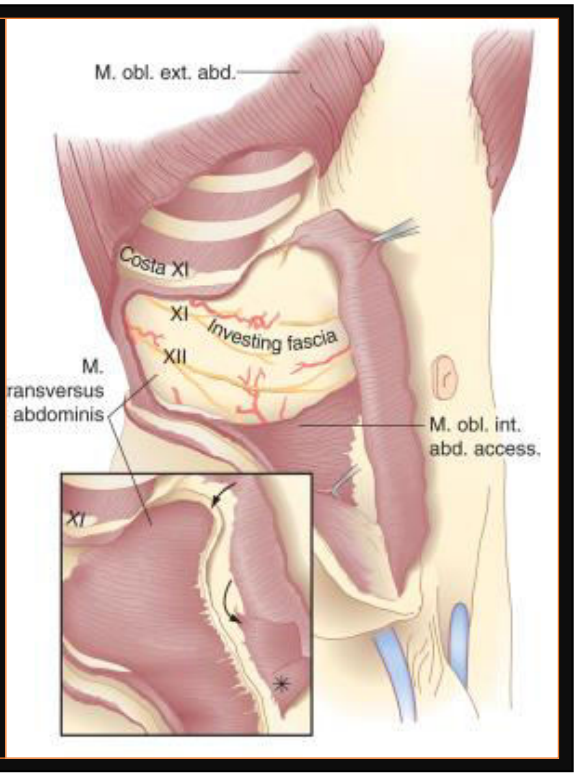


- **It remains muscular in the groin, where it has no attachment, and its fibers continue onto the spermatic cord as the cremasteric muscle.**



Transversus Abdominus Muscle

Fuses <u>medially</u> to form the rectus sheath and linea alba

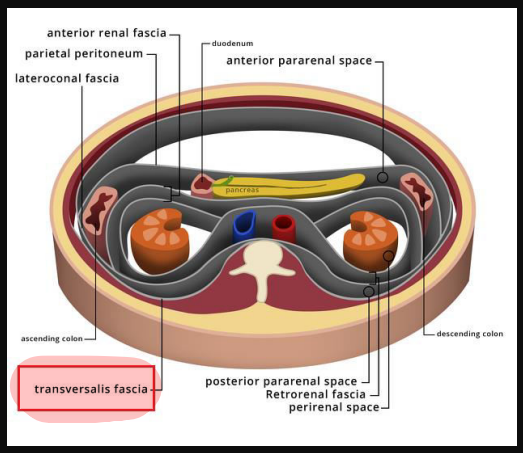


أهم طبقة

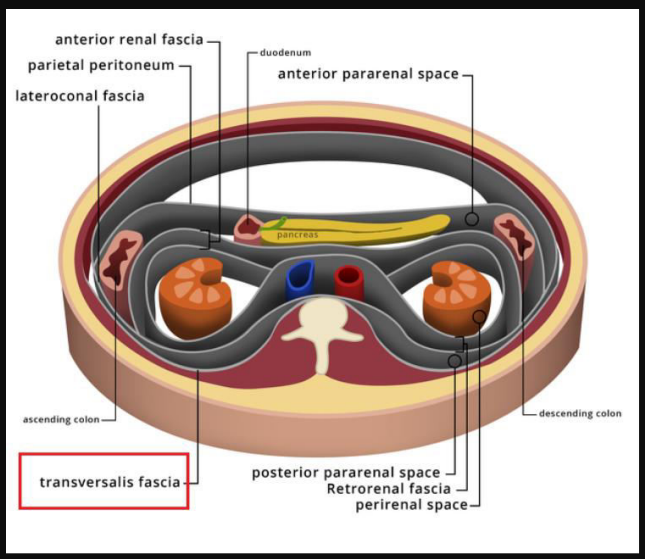
* true fascia
* Smart fascia → بتكون موجودة لمكان انك ما بتوقع فيه بشرحي بالوقت يلي انك جاهز له تستقدم عشان ياني جيبها ما تضيع

Transversalis Fascia

- It is through this layer that all groin hernia pathology develops الوحيدة اللي بتلف البطن كامل
- It forms a complete continuous envelope of fascia around the interior of the abdominal wall



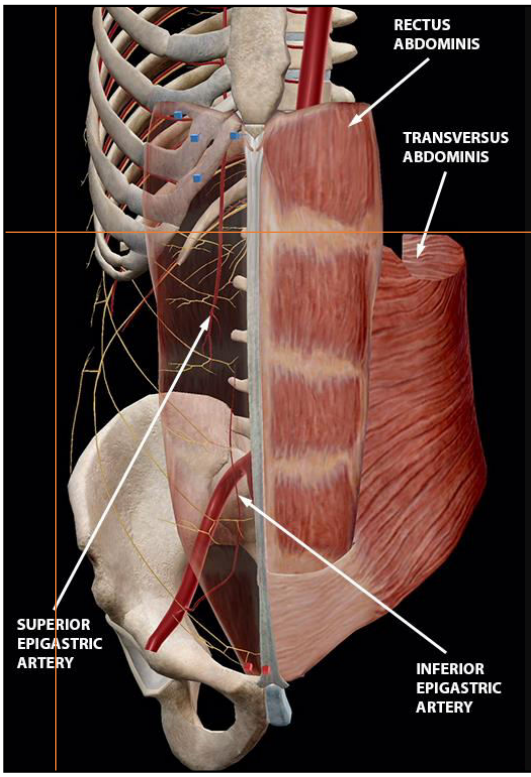
to Develope Hernia must Be defect in Trasverse fasc.



- It is a true fascial layer, so it has little intrinsic strength
- Through its fusion to aponeurotic layers, it establishes continuity among such seemingly unrelated areas.

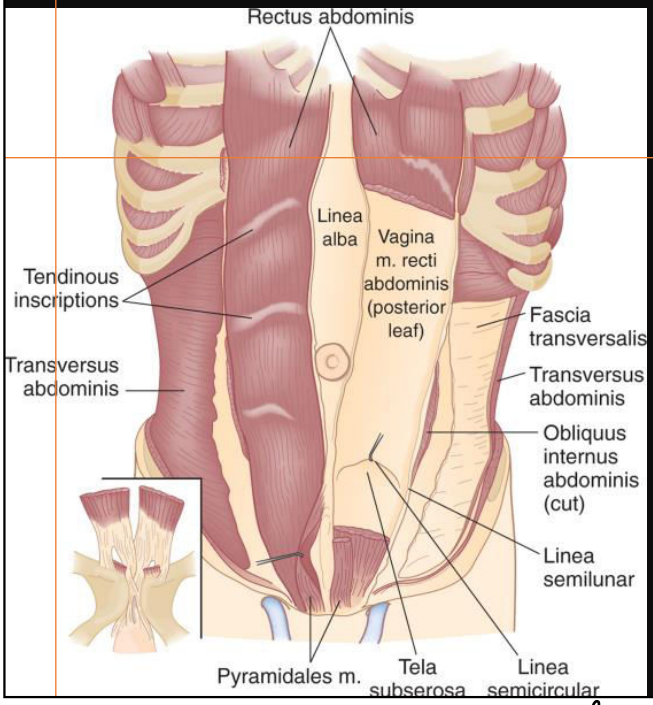
* هل مثلاً لو دلك تشد على الناحية اليمين حتى ترفع بشكلة، بتوقع يصير rupture in spleen or hematoma of abdominal wall in the left side ؟

this is due to unrelated structures faraway & enveloped by transversalis fascia



Midline structures

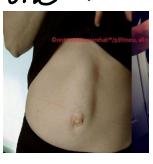
1. Rectus abdominus muscle
2. Umbilicus
3. Umbilical cord remnants



Rectus Abdominus Muscle

- Consists of narrow, thick bands of muscle that parallel the midline from the costal cartilages to the pubic symphysis.
- Above the umbilicus, they are separated in the midline the linea alba.

No a- { * Weakness without perforation ⇒ diversecation of the recti.
* with perforation ⇒ Epigastric Hernia.



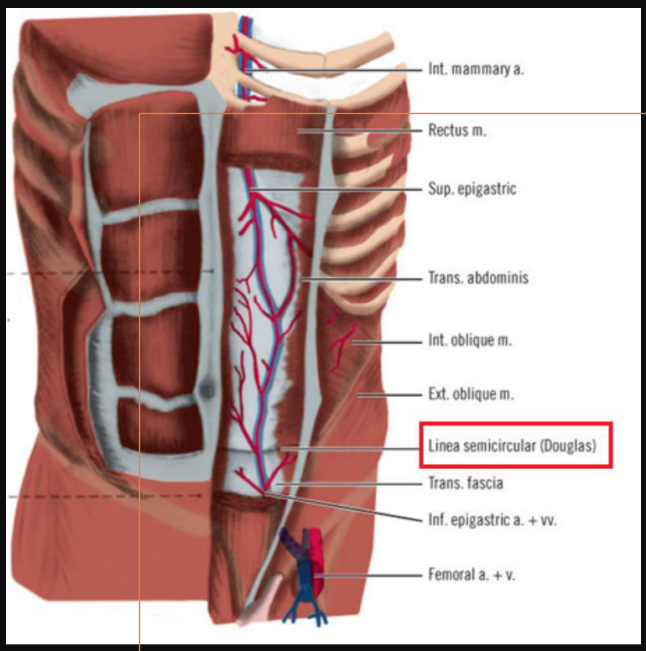
- **Midway between the umbilicus and the symphysis pubis is the semicircular line of Douglas**

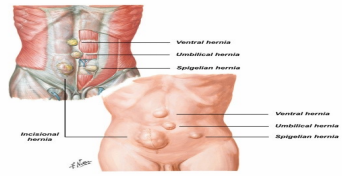
Arcuate Line

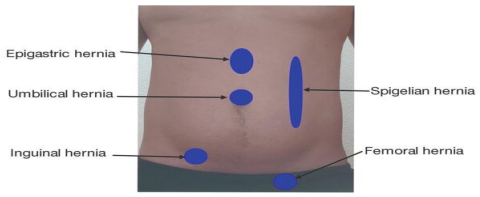
No fascia , No sheat

hernia يحدث فتق طبيعي الـ inferior epigastric vessel

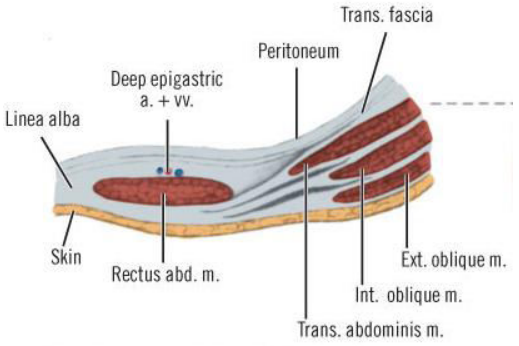
↳ Spigelian Hernia

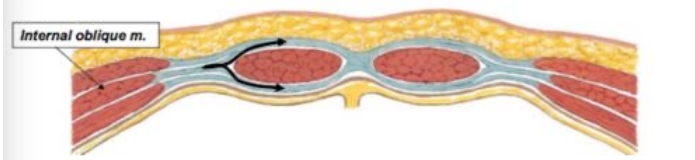




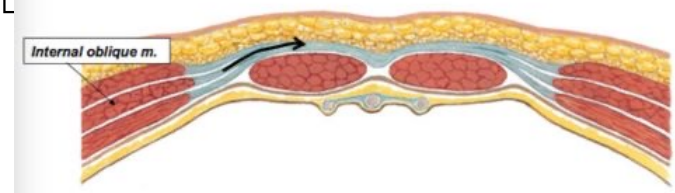


- **Below the semicircular line, all three aponeuroses cross anterior to the rectus muscle, leaving only the peritoneum and the transversalis fascia between the rectus muscle and abdominal contents.**

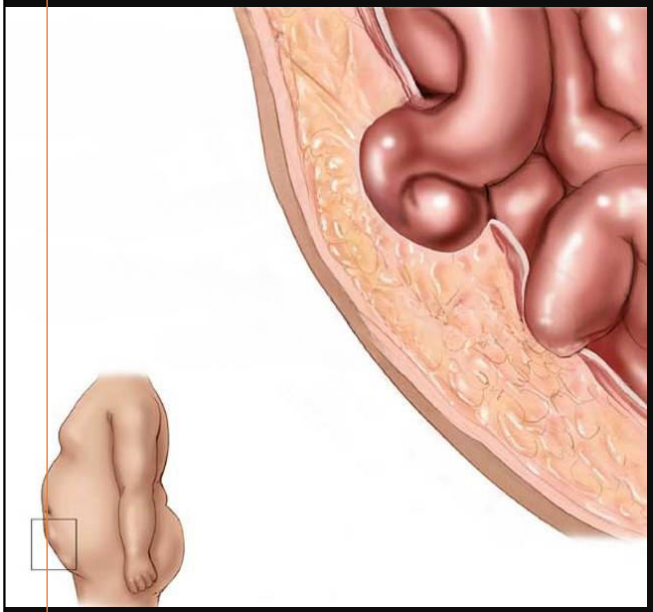




Rectus sheath *below* the arcuate line (all tendons pass anterior to rectus abdominis muscles). Below the arcuate line is an area of potential weakness.



- **No fusion of these aponeuroses occurs along the inguinal canal; therefore, the conjoined tendon normally (95% of cases) does not exist.**



Definition

- Hernia (L)= rupture
- A hernia is a **protrusion** of a viscus or part of a viscus through an abnormal **opening** in the **walls** of its containing cavity.

Types of Abdominal Wall Hernias

Groin	Ventral	Pelvic	Posterior
• 1.Inguinal • Indirect • Direct • Combined • 2.Femoral	• 1.Umbilical • 2. Epigastric • 3.Spigelian • 4.Incisional *	• 1.Obturator • 2.Sciatic • 3.Perineal	• 1.Lumbar • A. Superior triangle (Ant (Green) / post (Plit)) • B. Inferior triangle

- most common Hernia in Male and Female is inguinal hernia (أعلى فتق عند الرجال والنساء)
  But
- Femoral Hernia more common in Female But Not The most common one
- Most common Hernia in old Age is Direct inguinal Hernia
- Most common Hernia in children is indirect inguinal Hernia

Frequency

Abdominal wall hernias are common, affecting 1.7% of people of all ages and 4% of those over 45.

- **Inguinal: 75- 80%**
- Incisional : 8-10%
- Umbilical: 3-8%

Etiology

A. Congenital defects: as in the indirect inguinal hernia.

B. Loss of tissue **strength** and **elasticity**:

1. aging

2. Debilitating illness such as chronic renal failure

3. repetitive stress as in hiatal hernia.

4. matrix metalloproteinase (MMP) abnormalities

5. Collagen vascular disease (a diminished collagen type I/III ratio).

- Ehlers-Danlos syndrome.
- Marfan syndrome
- osteogenesis imperfecta

C. **Trauma**:

1. Operative trauma

2. Accidental trauma

3. Wound infection * the most common cause.

Etiology
- Conginital → patent process vaginalis / umblical Hernia
- Aqauired
  - weak Abd wall
    - Aging
    - EDS
    - Marfan
    - osteogenesis imperfecta
  - ↑ intrabdominal pressure
    - Heavy load
    - mass
    - pregnancy
    - prostatic hyperplasia (BPH)
    - Acsitis
    - peritoneal Dialysis
  - Trauma
    - wound infection
    - operative Trauma
    - Accidental Trauma
  - Metabolic
    - DM
    - Smoking
    - Hiatus Hernia
    - Ageing

D. Increased intra-abdominal pressure (Controversial):
1. Heavy lifting
2. Coughing, asthma, and COPD
3. Bladder outlet obstruction (BPH)
4. Prior pregnancy
5. Ascites and abdominal distention → umbilical hernia.
6. Obesity
7. Peritoneal dialysis لانك بتضل تخرم بال Sheath

E. Metabolic factors: Defective collagen ultrastructure: ← more scientific
- Increased age
- Diabetes
- Smoking
- Lower body-mass index
- Hiatus hernia
- Sleep apnea

- Hernia its protrusion of part of organ with its covering and contents in a Defective wall
- Fascia transversalis is Defected in All hernia (Thats why its important)

Hernia Composition

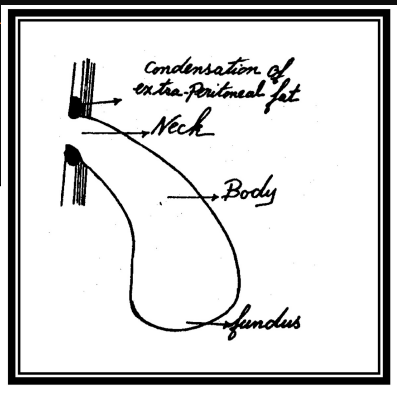
1. The **sac**. ← peritoneum
2. The **coverings** of the sac. ← كل شي فوق ال peritoneum
   - muscle
   - aponeurosis
   - sc fat
3. The **contents** of the sac.

The Sac

← شو بيشبه ؟
Gall Bladder

- The sac is a **diverticulum** of peritoneum
- Parts of the sac:

1) Mouth
2) Neck
3) Body
4) Fundus



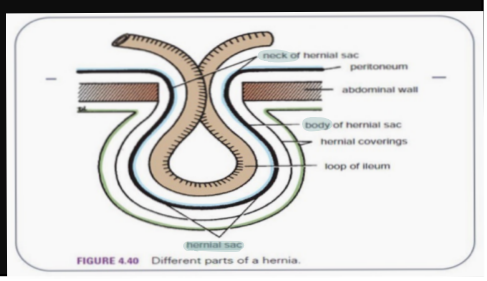
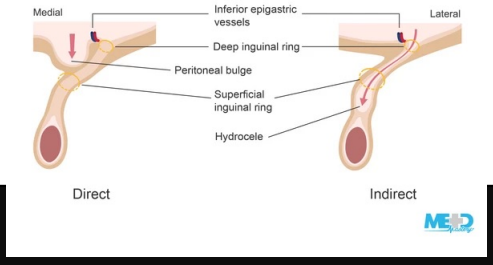


FIGURE 4.40 Different parts of a hernia.



Neck

- Usually well defined
- In some direct inguinal hernias and in many incisional hernias there is no actual neck
- **Strangulation** of bowel is a likely complication when the neck is **narrow**, as in femoral and paraumbilical hernias

لأنها منطقة واسعة جدًا

Body

- Varies in size
- Not necessarily occupied

The coverings

- Derived from the **layers of the abdominal wall** through which the sac passes
- In longstanding cases they become atrophied from stretching and so amalgamated that they are indistinguishable from each other

تدوج

The Contents

* يوم الامتحان

- Urinary bladder : cystocele
- appendix : Amyand. نادر

These can be:

- Omentum = omentocele (synonym: epiplocele);
- Intestine = enterocele
- A portion of the circumference of the intestine = Richter's hernia

- if you can feel something soft & gurgling ⇒ most likely interocele

لـ جوة القرقعة

resonant

dull

if you feel something like dough / firm without elasticity ⇒ omentum.

III) Diagnosis of the contents :

a- **Omentum** *(Omentocele)*	*b-* **Bowel** *(enterocele)*
1. Doughy or firm & slippery	1. Soft.
2. No gurgling on reduction	2. Gurgling on reduction .
3. Percussion → dull	3. Percussion → resonant
4. Easy reduction at first but difficult at the end.	4. Difficult reduction at first but easy at the end.

- A portion of the bladder (cystocele.)
- An ovary with or without the corresponding fallopian tube (Sliding hernia)
- A Meckel's diverticulum = a Littre's hernia (congenital anomaly)
- Fluid, as part of ascites (with patients with renal failure.)

appendix : Amy and hernia.

Descriptive Classification

According to physical or operative findings:

1. Reducible
2. Irreducible
3. Obstructed
4. Strangulated
5. Inflamed
6. Sliding
7. Richter's hernia

Incarcerated

- irreducible hernia where the irreducibility is due to adhesions within the sac in the absence of obstruction or strangulation.
- OR hypotheses - because of faeces within the large bowel.
- **SIMPLY: a hernia as being irreducible but not obstructed or strangulated.**

Obstructed

- The bowel within the hernia is obstructed. The patient may have the **four cardinal signs** of obstruction (pain, vomiting, distention and constipation).

Strangulated

- **occluded blood supply** by pressure at the neck of the hernia.
- Viability of bowell will impaired [except if contain omentum only]
- 1st veins are occluded →P → 2nd arterial occlusion → gangrene developing.

TERMS: INGUINALOGY?

Reducible Hernias

- Imparts an **expansile impulse** on coughing.
- Either reduces itself when the patient lies down or can be reduced by the patient or the surgeon.
- The intestine usually **gurgles** on reduction and the first portion is more difficult to reduce than the last
- Omentum is described as doughy, and the last portion is more difficult to reduce than the first.

Irreducible Hernia

once it's irreducible, it will remain irreducible unless there is surgical correction.

- The **contents cannot be returned** to the abdomen but there is no evidence of other complications
- Usually due to adhesions or overcrowding
- The other used term is **Incarcerated hernia**

انسداد أو محتجز

- Irreducibility without other symptoms is almost diagnostic of an omentocele, especially in femoral and umbilical hernias.
- **Any degree** of irreducibility predisposes to **strangulation**.

Obstructed Hernia

- It is an **irreducible hernia** containing **intestine** that is **obstructed** from without or within, but there is **no interference to the blood supply** to the bowel.

* lumen of intestine → obstructed
* lumen of the blood supply → Not obstructed.

• strangulated hernia → cut of Blood supply

+Vomiting
+ Constipation.

- The symptoms (colicky abdominal pain and tenderness over the hernia site) are less severe and the onset more gradual than in strangulated hernias
- No clear clinical distinction
- The safe course is to assume that strangulation is imminent and treat accordingly

وبشلاء

Strangulated Hernia

- The **blood supply** of the **contents** is **seriously impaired**, rendering the contents **ischemic**.
- **Gangrene** may occur as early as 5–6 hours after the onset of the first symptoms.
- A femoral hernia is more likely to strangulate because of the narrowness of the neck and its rigid surrounds

life threatening

* lumen of intestine → obstructed
* lumen of the blood supply → obstructed

Pathology

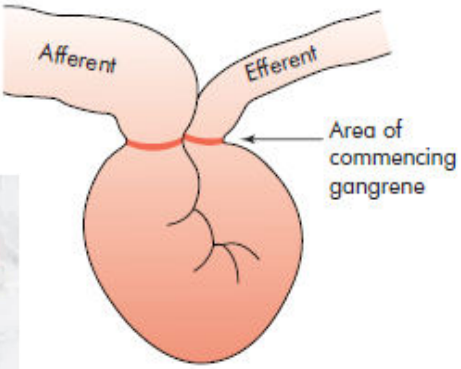
any pathology of mechanical intestinal obstruction.

- The intestine is obstructed and its blood supply impaired.
- The venous return is impeded.
- The wall of the intestine becomes congested and bright red with the transudation of **serous fluid** into the sac.

- As congestion increases the wall of the intestine becomes **purple** in color.
- As venous stasis increases, the arterial supply becomes more and more impaired.
- Blood is **extravasated** under the serosa and is effused into the lumen.

- The fluid in the sac becomes **blood-stained** and the shining serosa dull because of a fibrinous, sticky exudate.
- The walls of the intestine lose tone and become friable.
- Bacterial transudation occurs secondary to the lowered intestinal viability and the sac fluid becomes infected.

- **Gangrene appears at the rings of constriction which become deeply indented and grey in color.**



- The **gangrene** then develops in the anti-mesenteric border, the color varying from black to **green** depending on the decomposition of blood in the subserosa.
- If the strangulation is unrelieved, **perforation** of the wall of the intestine occurs.
- **Peritonitis** spreads from the sac to the peritoneal cavity.

Clinical features

- **Sudden pain over the hernia**
- **Then generalized colicky abdominal pain**
- **Nausea and vomiting**
- **On examination the hernia is tense, extremely tender and irreducible, and there is no expansile cough impulse.**

no

MCQ سؤال

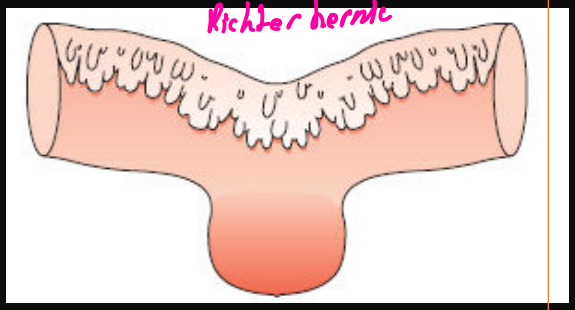
one of the signs not expected to be found ?
cough impulse.

pressure inside the sac > pressure inside the abdomen during cough.
blood supply.

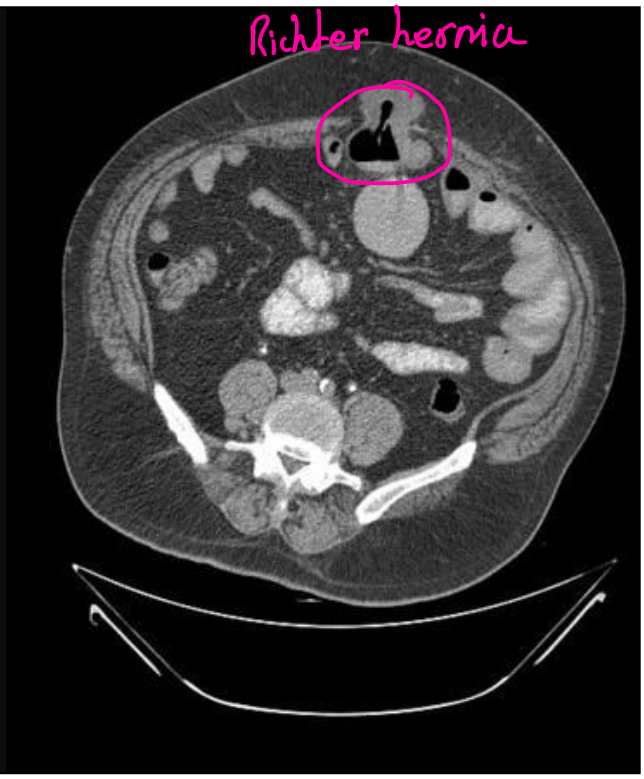
Richter's hernia

- **Is a hernia in which the sac contains only a portion of the circumference of the intestine (usually small intestine)**
- **It usually complicates femoral and, rarely, obturator hernias.**

diagnostic findings during surgery or CT scan

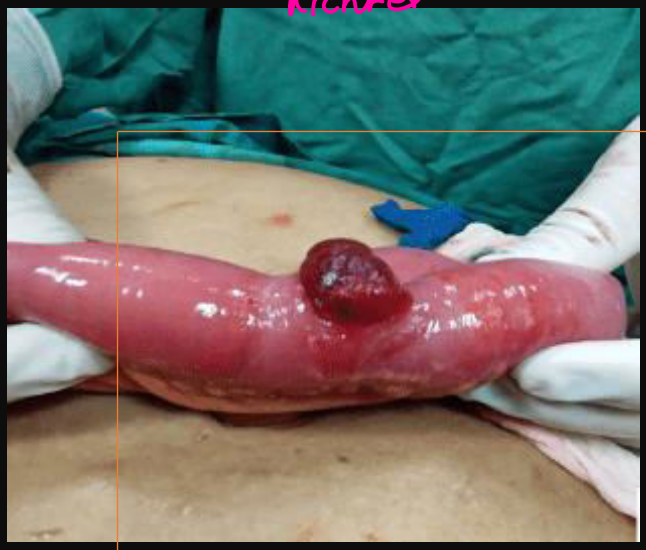


- **The local signs of strangulation are often not obvious, the patient may not vomit and, although colicky pain is present, the bowels are often opened normally or there may be diarrhea;**



Richter

- Absolute constipation is delayed until paralytic ileus supervenes.
- For these reasons, gangrene of the knuckle of bowel and perforation have often occurred before operation is undertaken.

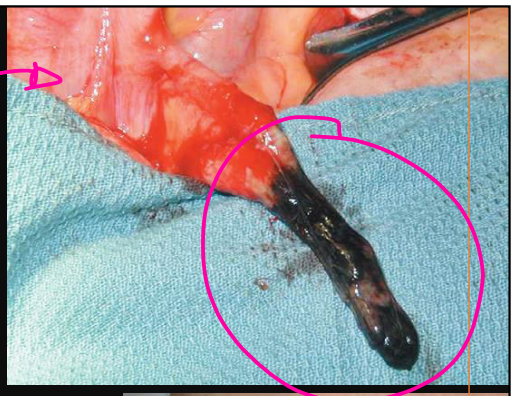


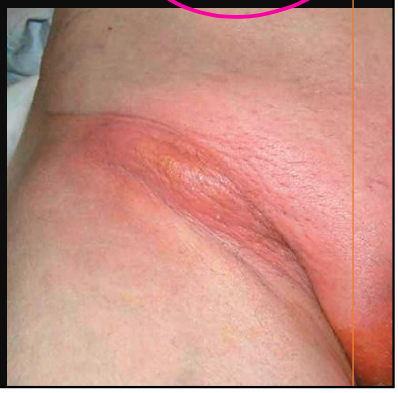
Amyand hernia :- Appendix

Inflamed Hernia

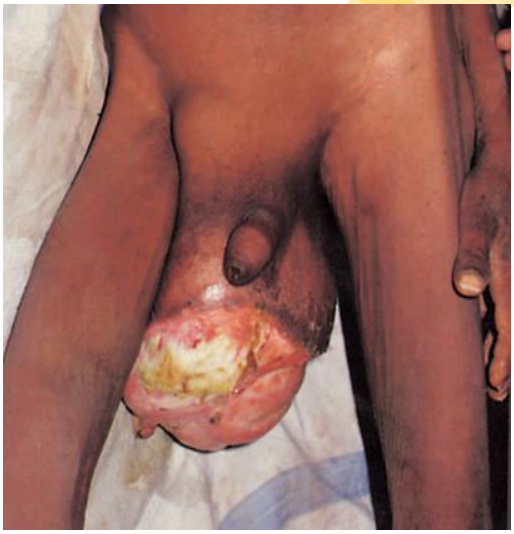
- From inflammation of **the contents** of the sac, e.g., acute appendicitis or salpingitis,
- **De Garengeot's** Hernia is an indirect inguinal hernia containing inflamed appendix

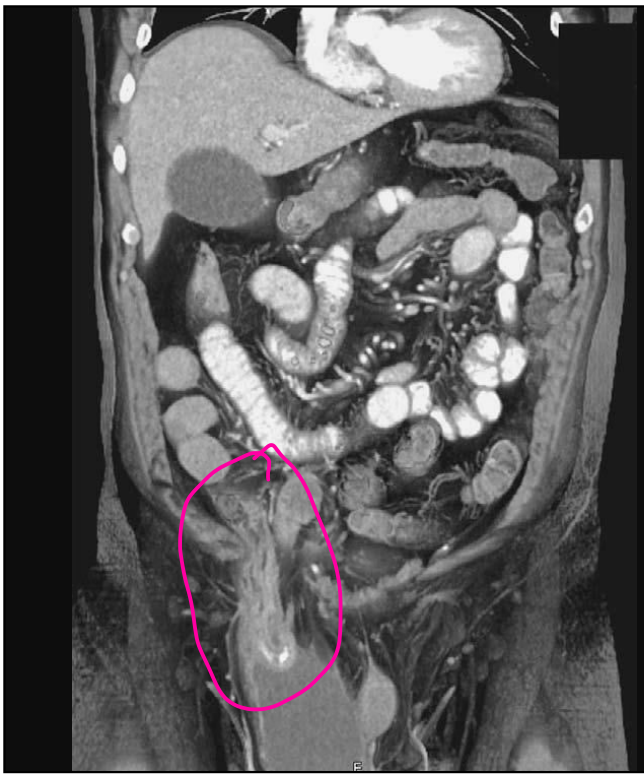
يتعالج بالـ appendectomy





- Or from **external causes**, e.g., the trophic ulcers that develop in the dependent areas of large umbilical or incisional hernias.
- Tender but not tense and the overlying skin red and edematous.

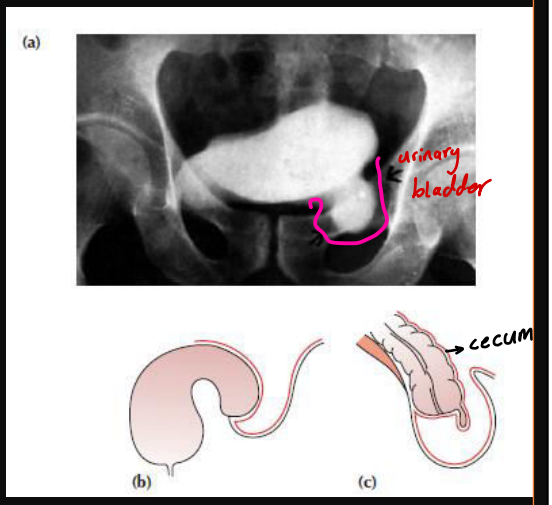




- **Amyand's** Hernia is an indirect inguinal hernia containing appendix

Sliding Hernia (synonym: hernia-en-glissade)

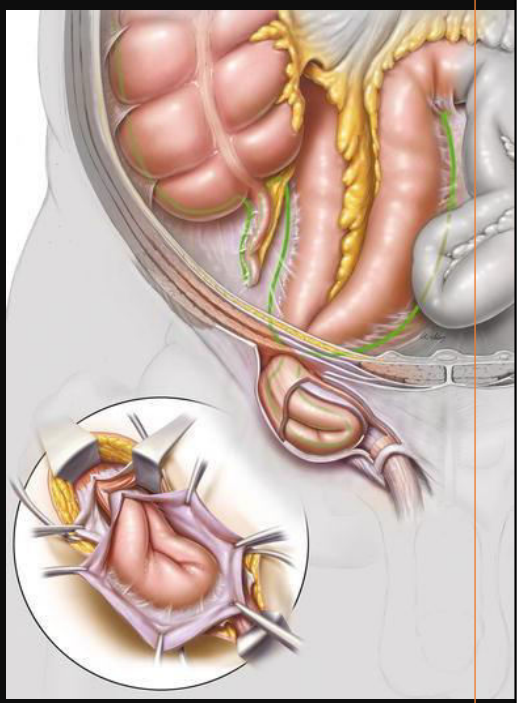
Richter هاد فرقة عن جزء من wall كوتة الـ Bowel



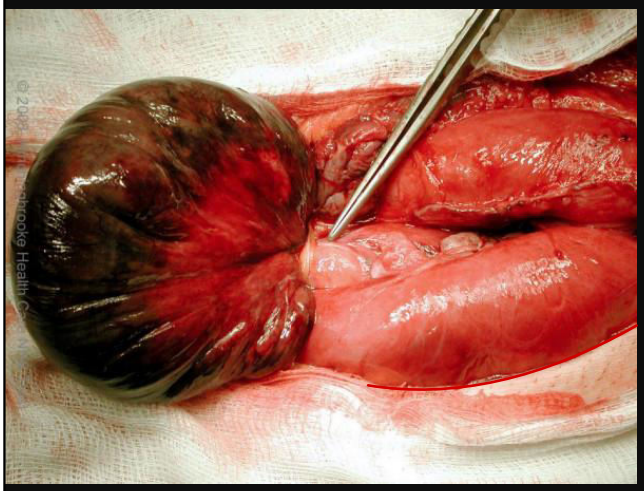
الخطورة ⇐
injury during repair

Sliding Hernia

- The wall of the hernia sac, rather than being formed completely by peritoneum, is in part formed by a retroperitoneal structure, such as the colon or the bladder.



Why you advice patients for surgery

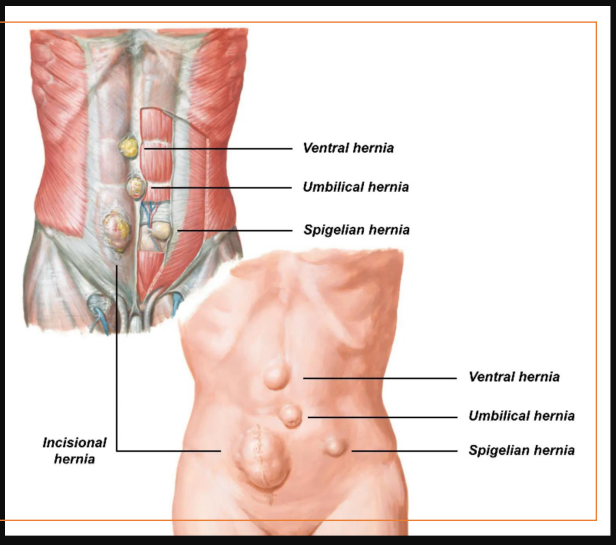


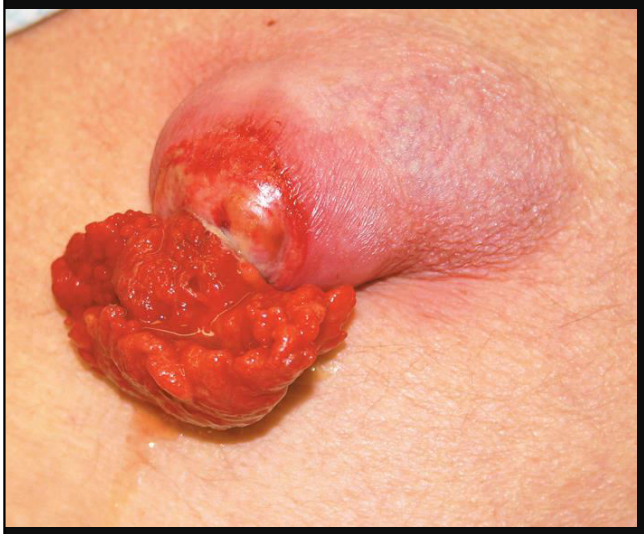
Complications

- Hernias **should be repaired** electively to prevent the development of major complications.
  1. Intestinal **obstruction**.
  2. Intestinal **strangulation** with bowel **perforation**

→ obstruction can cause death due to electrolyte imbalance or sepsis or due to rupture peritonitis.
↳ sepsis & multi organ failure.

Specific types of abdominal wall hernias





Umbilical Hernias

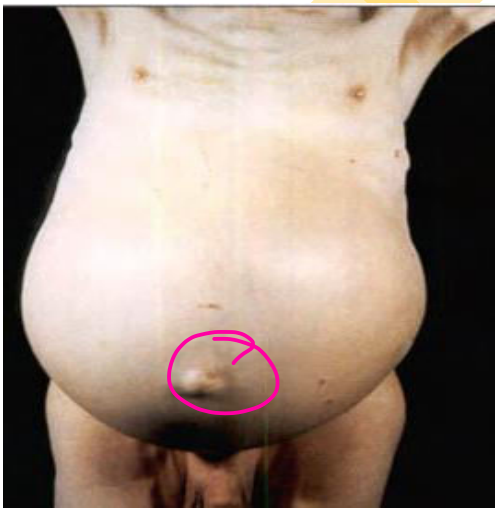
through umbilical cicatrix

more common in infant (may in Adult Female due to ↑ intra Abdominal pressure)

- Occur through the defect where the umbilical structures passed through the abdominal wall
- Occur 10 times more often in women than in men

♀ > ♂ ×10

- In adults, **umbilical hernias** are often associated **with increased intra-abdominal pressure**, as with **ascites** or **pregnancy**



- HCC
- Liver ascites ⇐

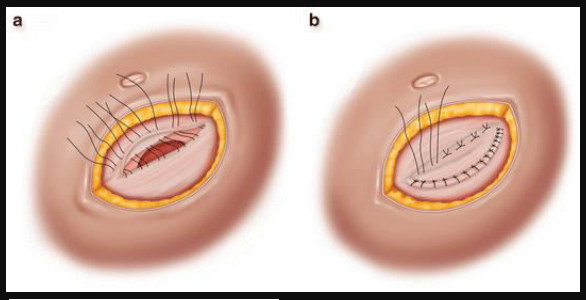
لو فتحت الـ hernia حطون الـ ascites ما بخليها تلتئم

delayed الأولوية لعلاج الـ ascites.

Aceitis → ↑ intraperitoneal Pressure → Hernia

- Repair of an umbilical hernia consists of a simple transverse repair of the fascial defect

Herniotomy → افتح
---Raphy → خيط
---plasty → رقعة

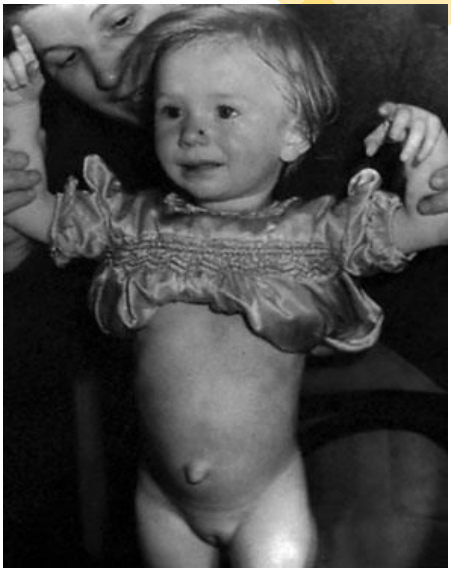


HERNIAL SURGERY IN ADULTS

1. **HERNIOTOMY** – excision of hernial sac
2. **HERNIORRHAPHY** – **herniotomy** + posterior wall strengthening
3. **HERNIOPLASTY** – herniorraphy with mesh usage

من عندي

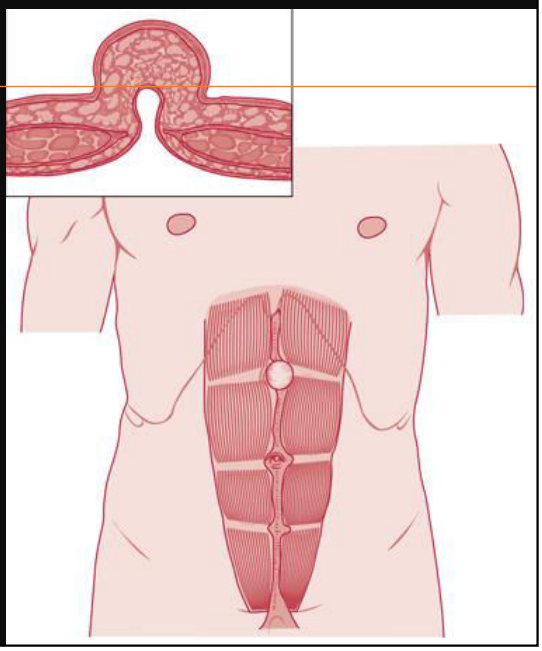
- The defect is common in children but usually closes by age 2 years, and fewer than 5% of umbilical hernias persist into later childhood and adult life



Epigastric Hernias

multiple Hernia + omentum فيه

- Result from a defect in the linea alba above the umbilicus
- They occur more commonly in men (in a 3:1 ratio)



- 20% of epigastric hernias are multiple at the time of repair
- Repair (simple suturing) is associated with a recurrence rate as high as 10%

Ventral Hernias

- Occur in the abdominal wall in areas other than the inguinal region

Incisional Hernia

- The most common type of ventral hernia + ↑ Reccurnce
- Results from poor wound healing in a previous surgical incision and occurs in 5%-10% of abdominal incisions

Risk factors

1. Wound infection or hematoma
2. Midline incision
3. Advanced age
4. Obesity
5. General debilitation or malnutrition
6. Surgical technique
7. A postoperative increase in abdominal pressure, as occurs with paralytic ileus, ascites, or pulmonary complications after surgery

most common risk factor for incisional hernia development is
↳ deep wound infection

- Incisional hernias are repaired after the patient has recovered from the prior surgery trauma

- Repair requires:

1. Definition of the adequate fascial edges surrounding the defect,
2. Closure with nonabsorbable sutures, and use of prosthetic mesh when the defect is too large to be closed primarily

>3cm
بده شبكة
ولازم تكون ع أضعاف الـ defect

very Hard to diagnose

Spigelian Hernias

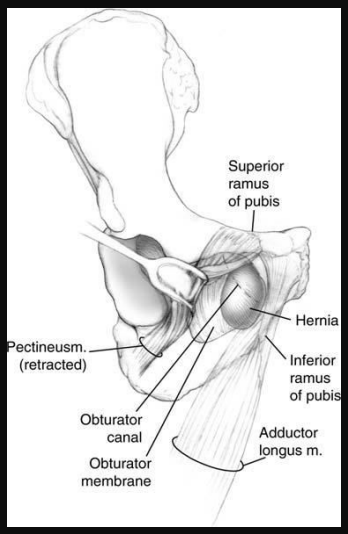
- Protrude through the abdominal wall along the semilunar line at the semicircular line of Douglas.

at the lateral part of abdomine below the umbilicus

هيرنيا ما بتبين برا، بتكون بين العضلات

Obturator Hernias

Occur in the pelvis through the obturator foramen



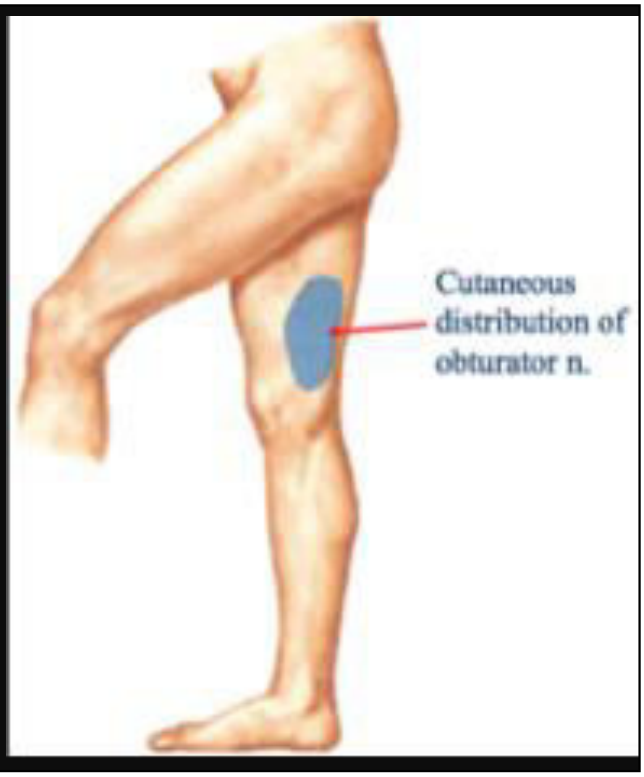
- You can't see it usually
- the patient usually present with intestinal obstruction

& it's usually an old friable fragile lesion

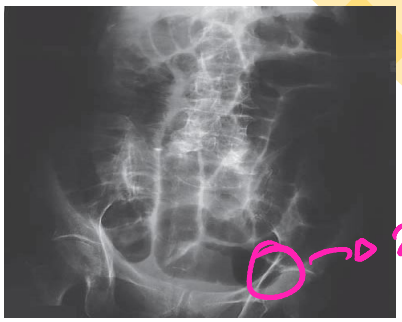
⇒ Hernia of the old lady

Needs high index of suspession.

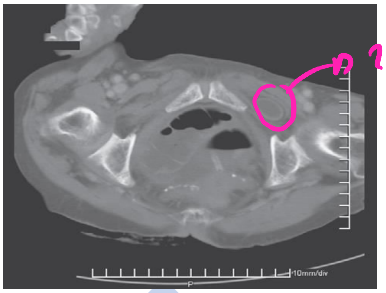
- The hernia can cause pain along the obturator nerve (mid-anterior thigh), referred to as Howship-Romberg sign.



Usually in elderly debilitated females

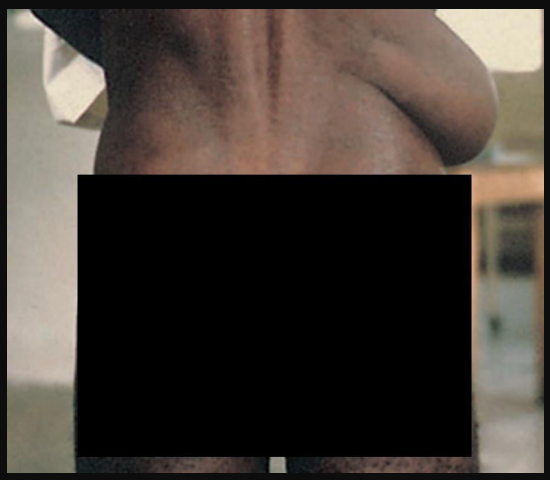


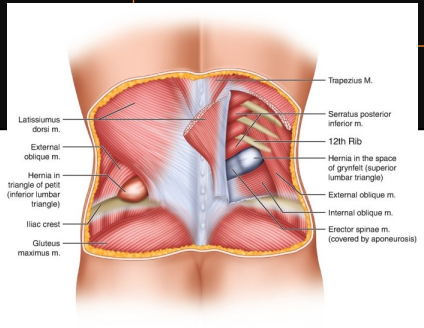
It presents as an intestinal obstruction for evaluation



Lumbar Hernias

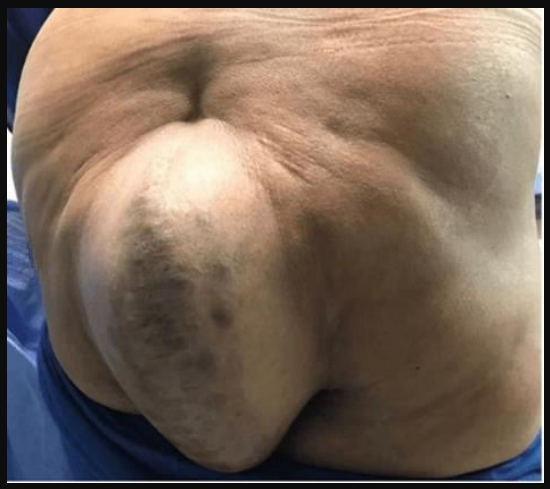
Occur on the flank and are seen in the superior (Grynfeltt's) and inferior (Petit's) triangles

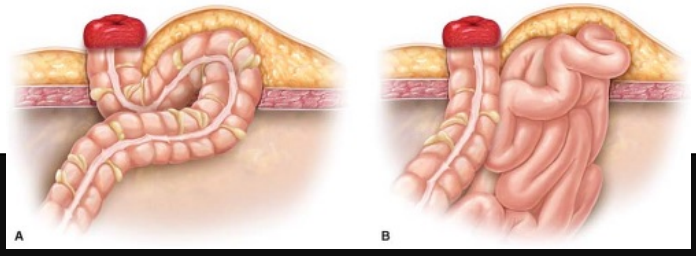




Perineal Hernias

Occur in the pelvic floor usually after surgical procedures such as an abdominoperineal resection



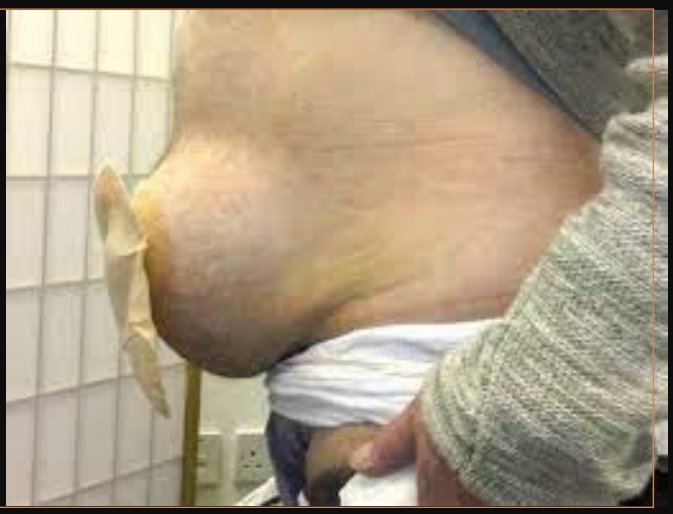


Peristomal Hernias

جنب و هله من برا

Develop adjacent to an intestinal ostomy

Hernia of a hernia.



Clinical picture

- Swelling
  - site → anatomical site hernia
  - ↑by ↑ intra-abdominal pressure → standing, cough, straining
  - ↓ by ↓ intra-abdominal pressure → lying flat.

- Expansile impulse cough.

Hernia ⇒ obaque, except → during infancy, hernia ⇒ translucent.

? hernia عشان نعرف

- Site
- Direction of descend
- content.

Investigations:

1- Ultrasound may be needed in small hernia with uncertain diagnosis .

2- Investigations to detect the cause eg.

➢ Chest x-ray for any respiratory problems .

➢ Abdominal and pelvic ultrasound for BPH , hepato-splenomegaly , ascitis , abdominal swelling .....etc

3- Routine pre-operative investigations : ECG , HB % , full blood picture , blood sugar , urine analysis , liver functions , blood urea .

Treatment:

A. Curative:

➢ Treat and eliminate any predisposing factor followed by surgery.

➢ In uncomplicated hernia , elective surgery is advised as rapid as possible to avoid progressive enlargement of the hernia which widens the defect and weakens the musculo-aponeurotic layer around the defect .

➢ Surgical treatment is done in the form of one or more of the following:

1) Herniotomy: (herniectomy)

➢Excision of the sac at the proper neck without any form of repair. ➢It should done for all cases , either alone (if the defect is small in infants) or as a part of herniorrhaphy or hernioplasty (if the defect is wide in adults).

2) Herniorrhaphy:

➢This include herniotomy and repair of the defect by approximation of local tissues .

➢It is performed only if the defect is wide .

Hernioplasty:

➢ This include herniotomy and repair & strengthening the defect by a graft using imported distal tissues or synthetic material.

➢Laparoscopic (rarely open surgery), no tension repair polypropylene mesh hernioplasty is the most popular operation nowadays ,for all cases of hernia as it has the lowest incidence of recurrence .

B. Palliative treatment: By a truss. حزام It should be avoided because it predisposes to adhesions inside & outside the sac , complications & fibrosis of the anatomical structures → subsequent repair is difficult.

? Indication: Reducible hernia & surgery cannot be done.

	Irreducibility	Inflammation	Obstruction	Strangulation
Irreducibility	Present	Present	Present	Present
Pain	Absent	Present	Present	Severe
I.O	Absent	Absent	Present	Present
Sac	Soft	Soft	Soft	Tense
Impulse of cough	Present	Present	Present	Absent
Red , warm skin	Absent	Present	Absent	Severe
Toxemia	Absent	Present	Absent	Severe