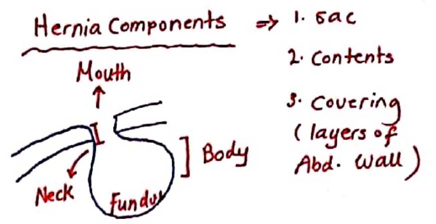
Hernia

 # Definition: Protrusion of viscus or part of Viscus through abnormal opening in the wall of its containing cavity.



Hernia Components ⇒ 1. Sac
2. Contents
3. Covering (layers of Abd. wall)

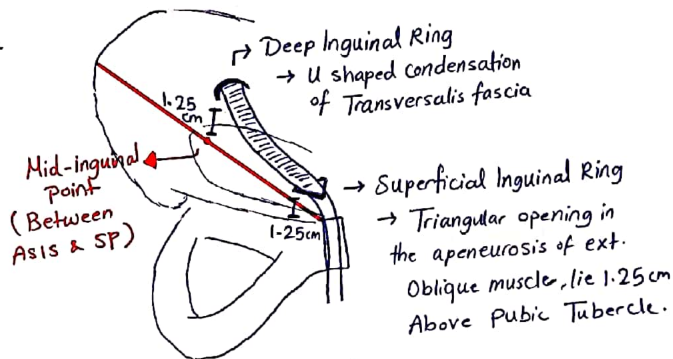
- **Contents of a hernia:** (Any viscous except liver)
  1. fluid
  2. Omentum
  3. Intestine or portion of circumference of Intestine (Richter's Hernia)
  4. Portion of Bladder or Bladder diverticulum.
  5. Ovary with or without tubes.
  6. Meckle's Diverticulum (Littre's Hernia)

- **Natural history of Hernia**

1. Reducible → 2. Irreducible (Incarcerated) – still have Blood supply – → 3. Obstructed – Bowel Obstruct. → severe pain, Vomiting. → 4. Strangulated – Ischemic → Bacterial translocation → Gangrene

 # Etiology:

- Occur at site of weakness in the wall:
  - ↳ Normal (Physiological)
  - ↳ Congenital
  - ↳ Acquired ⇒ Risk factors:
    - ① Straining
    - ② Chronic Cough
    - ③ BPH
    - ④ Pregnancy
    - ⑤ Ascites
    - ⑥ Heavy lifting.



→ Deep Inguinal Ring → U shaped condensation of Transversalis fascia

→ Superficial Inguinal Ring → Triangular opening in the apeneurosis of ext. Oblique muscle, lie 1.25 cm Above Pubic Tubercle.

Inguinal Canal

- Directed forward, downward & medially.
- 4 cm Long.

 # Boundries:

- Posteriorly: Transversalis fascia
- Inferiorly: Inguinal ligament
- Roof: Conjoind Tendon (Aponeurosis of internal Oblique & Transversalis fascia)
- Anteriorly: Aponeurosis of ext. oblique & laterally Conjoind tendon.

 # Layes of spermatic Cord:

1. External spermatic fascia – from external oblique muscle –.
2. cremesteric muscle – from Internal oblique.
3. Internal spermatic fascia – from transversalis fascia –
4. Tunica vaginalis – Peritoneum –
   - ↳ parietal (outer)
   - ↳ visceral (inner)

↳ Some = skin, Damn = Dartus muscle, Englishmen = External fascia, Call = Cremestric fascia, It = Internal fascia, The Testis = Tunica vaginalis.

 # Contents of Inguinal canal:

- Spermatic Cord or Round Ligament in females.
- Ileoinguinal nerve.

 # Contents of spermatic Cord:

1. Testicular Artery
2. Cremestric Artery
3. Artery to vas deference
4. Pampiniform vein plexus
5. Genital Branch of Genitofemoral nerve
6. Lymphatics
7. Testicular veins
8. vas Deferens.

Groin Hernia

- 86% of all Hernias (Inguinal Hernia Is the most common type)
- Epidemology: – x5 times more in Males, More frequently Right sided → Due Delay of descend in Right Testis → later obliteration of proceus vaginalis.
  - 97% of Indirect inguinal hernia Assoc. with undescended Testis.
  - Bilateral in 20%
  - Indirect in 75% & Direct in 25%
- Femoral Hernia 4%.
- Lifetime Risk to develop Hernia (Inguinal) is 10%

Scanned with CamScanner

Femoral Hernia vs. Inguinal Hernia

Femoral Hernia	Inguinal Hernia
- More In Females	- More In males
- pass through femoral Canal.	- pass through Inguinal canal
- Neck of sac Is Below & lateral to Pubic Tubercle.	- Neck of sac is Above & medial to pubic tubercle.
- More common to be strangulated (Because it has very narrow neck & due to Lacunar Lig.	- Less common to be Strangulated.
- Must be treated by surgery.	- Can be treated without surgery
- Sac mainly contain Omentum.	- Sac mainly contain Bowel.

Presentation:

1. Pain (localized, referred, Generalized)
2. Nausea & vomiting
3. Constipation
4. Urinary Symptoms.

Clinical Examenation:

- Examine the patient when standing (Best Position)

① Inspection:
- Ask the patient to cough (↑ size)
- Site & shape, if it extend down to scrotum., other swellings on the normal side.
- scars (from Previous Trauma, surgery)

② Palpation:
- Consistency, temperature, tenderness, flatulance
- Expansile cough impulse.
- Can't Get Above the swelling In the scrotum.
- Reducible or not (femoral > Indirect > direct)
- Deep Ring Occlusion Test ⇒ Reduce the swelling → locate Deep Ring (1.25 cm Above mid inguinal point) → Impulse → Direct if not seen Indirect.
- Leg Raising Test → Malgaigne Bulging ⇒ Seen more In Direct Hernia.
  - If swelling gurgles → Enterocele, firm/Granular → Omentocele.
- Always palpate the other Inguino-femoral region. (Bilateral)
  - Zeiman's Test (3 fingers test)

③ Percussion:
- Bowel Is Hyper-resonant (unless strangulated)
- Omentum & fat are dull & no Bowel sound.

Investigation:

① Ultrasound — High sensitivity & specificity; Distinguish Incarcerated Hernia from firm mass

② Herniography

Femoral Hernia

- Pass through femoral canal which contain from medial to lateral → Vein, Artery, Nerve. (VAN)
- Bulge below Inguinal crease, or middle thigh
- Femoral canal is 2.5 cm.
- Most commonly present as strangulated Hernia.

Boundries of femoral canal:
- Posteriorly → Cooper's ligament
- Medially → Lacunar ligament
- Laterally → Femoral vein
- Anteriorly → Inguinal lig.

Inguinal Hernia

	Indirect Hernia	Direct Hernia
Age	- Young Age	Elderly. (Due to weakness in the wall)
Occur via	- Patent proceus vaginalis through Deep Ring → Inguinal Canal → superficial ring.	- Hasselbach's triangle ↳ medially - rectus abdominus ↳ Inferiorly - Inguinal ligament ↳ laterally - Inf. epigastric A.
Site	- Unilateral / more in the right side - Lateral to inf. epigastric v. - Can enter scrotum	- 50% Bilateral. - Medial to Inf. epigastric v. - Don't enter the scrotum.
Reduction	- Upward, laterally & Backward.	- Upward then straight Backward.
Neck of sac	- Narrow - more strangulation & Incarceration	- wide neck.
Deep Ring Occlusion Test	Positive	Negative

Management:

↳ Non-Operative material:
- watchful waiting for asymptomatic or minimally symptomatic.
- Truss → Belt to maintain reduction & prevent enlargement.

↳ Surgery:-

① ↳ Open (lechtenstein) → Tension free mesh repair ⇒ In long term polypropelene mesh face degradation due to heat.

or Tension free suture repair
- ↳ Shouldice
- ↳ Bassini

② ↳ Laparoscopic Repair
- ↳ Transabdominal Peperitoneal Repair (TAPP)
- ↳ Totally Extra Peritoneal (TEP)

Scanned with CamScanner

Laparoscopic vs. Open

Advantages	Disadvantages
- Quicker Recovery - Less pain - less Complications (Infection, Bleeding or seroma) - ↓ Chronic pain.	- Need Highly experienced surgeon - Longer operating time - ↑ Recurrance if surgeon not experienced.

Complications : (> 10%)

1) Foreign Body sensation
2) Adhesion
3) Mesh migration
4) Mesh folding
5) Erosion into intraperitoneal organs
6) Infection
7) Ejaculation disorder (Obstructive Azospem
8) Chronic Pain.

Umbilical Hernia

- Common . 10 - 30%

Age: - Usually noted at Birth as Protrusion in the umbilical Area.
- Can Occur in Elderly & women who had childrens.

Cause : - Area of weakness in Abdominal wall
→ Used to be an opening for Gut rotation & normally should close after birth.

Inscisional Hernia

↑ In wound ← infections

- Occur in 2-10% after Abdominal surgeries. ⇒ Flaw create weakness In Abdominal wall.
- Even after repair these Hernias have high rate of recurrance (20-45%)

Epigastric Hernia

- Occur in the upper, midline of the Abdomen due to Area of weakness (linea Alba)
- Contain fat (Rarely Intestine)
- Painless & usually can't be pushed back to the abdomen.

Sliding Hernia: Hernial sac partially formed of a wall of viscous (Bladder, Cecum).

Spegelian Hernia : Hernia In linea semilunaris
→ lateral wall of rectus Abdominus.

Obturator Hernia : Through Obturator canal (F>M)

Lumbar Hernia : → Petit's Hernia → Hernia through inferior lumbar triangle
↓ Granfelt Hernia → Hernia through superior lumbar triangle

Pantaloon hernia: Both direct & Indirect

para-stomal hernia: Adjacent to stoma

Amyand's Hernia : Sac contain ruptured appendix

Scanned with CamScanner