Hernia

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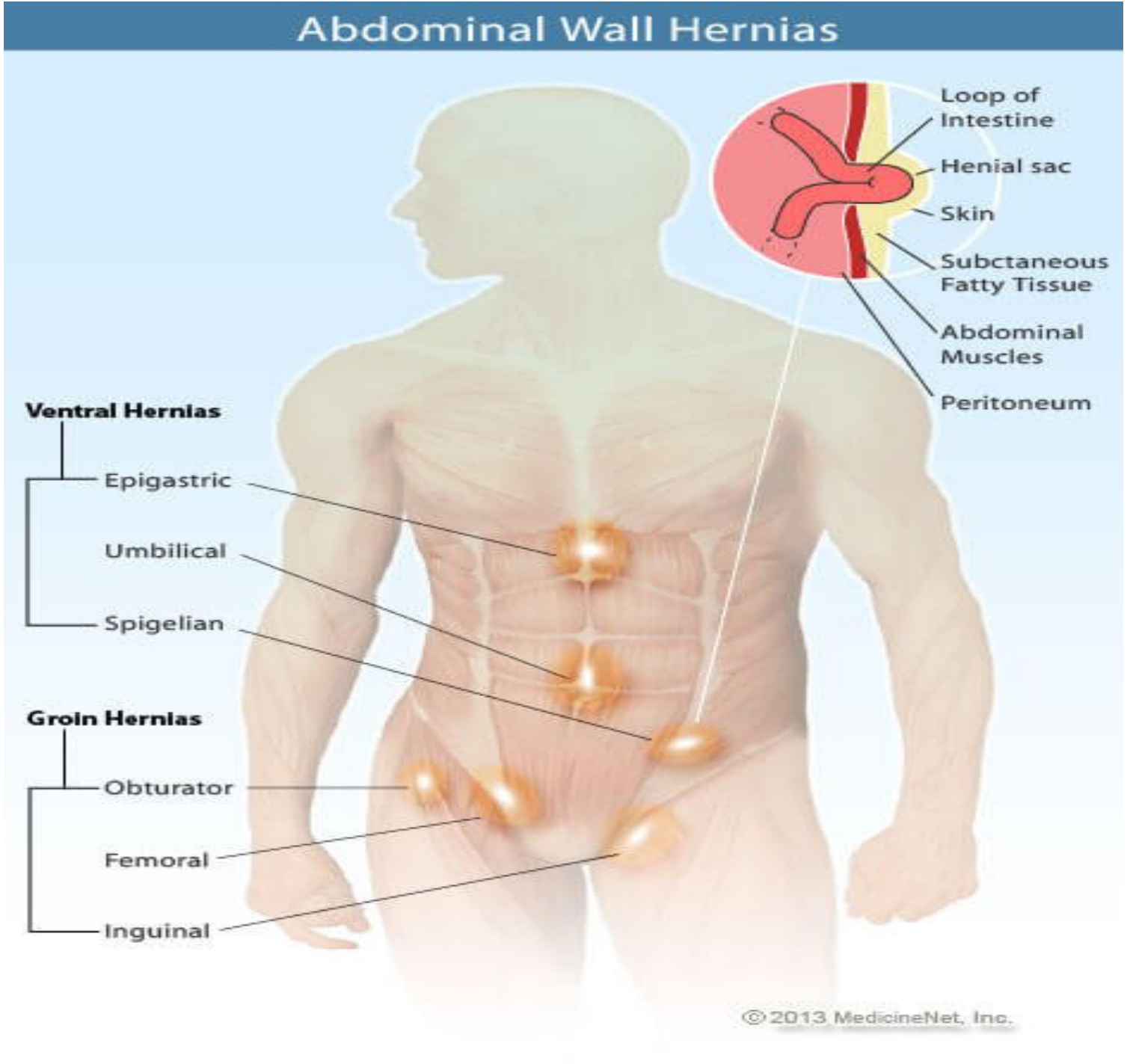
Hernia

- An abnormal protrusion of a cavity's contents through a weakness in the wall of the cavity.
- Hernia may be classified as
  - Congenital or acquired
  - Location
  - Internal or external
  - Complicated or non complicated


Abdominal Wall Hernias
Loop of Intestine
Henial sac
Skin
Subctaneous Fatty Tissue
Abdominal Muscles
Peritoneum
Ventral Hernias
Epigastric
Umbilical
Spigelian
Groin Hernias
Obturator
Femoral
Inguinal
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Risk Factors

- Intraabdominal high pressures from constipation, prostatic symptoms, excessive coughing & lifting.
  - However, it has been shown that hernia is no more common in Olympic weight lifters than the general population, suggesting that high pressure is not a major factor in causing a hernia.
  - Many patients will first notice a hernia after excessive straining.
- Pregnancy due to hormonally induced laxity of pelvic ligaments.
- Elderly due to degenerative weakness of muscles and fibrous tissue.
- Hernia is more common in smokers.
  - A recent Swedish report has shown that inguinal hernia is less common in obese patients with hernia risk being negatively related to body mass index (BMI) contrary to widespread belief.

- Abdominal Hernia has
  - Sac allows bowel and omentum to pass through the defect.
  - Content
  - Neck
- Reducible hernia when the intraperitoneal organs can move freely in and out of the hernia

Hx & EX

- Painless lump Usually,
  - But patients may complain of an aching or heavy feeling.
  - Sharp, intermittent pains suggest pinching of tissue.
  - Severe pain should alert the surgeon to a high risk of strangulation.
- Reduces spontaneously or needs to be helped.
- Symptoms of bowel obstruction.
- Constipation, cough, LUTS, Lifting heavy objects
- Primary hernia or a recurrent one.
  - Recurrent hernia is more difficult to treat and may require a different surgical approach.

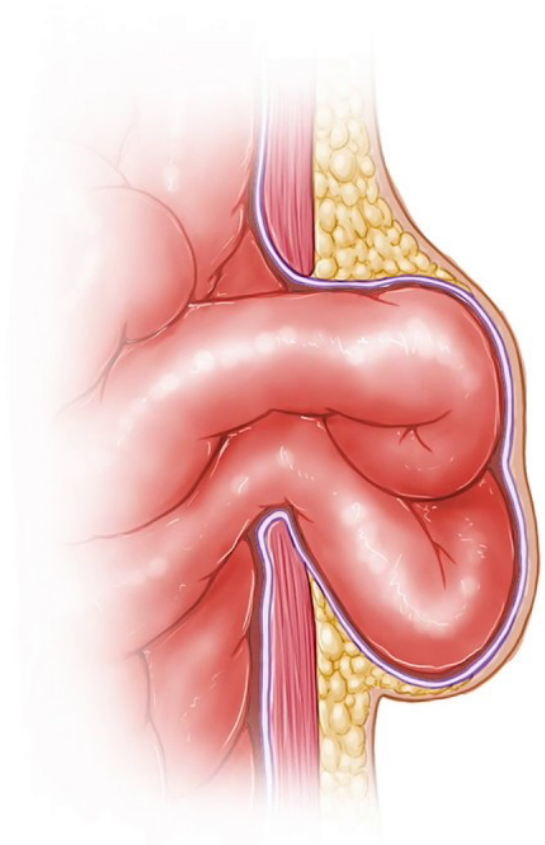
- Reducibility
- Cough impulse
- Tenderness
- Overlying skin colour changes
- Multiple defects/contralateral side
- Signs of previous repair
- Scrotal content for groin hernia
- Associated pathology

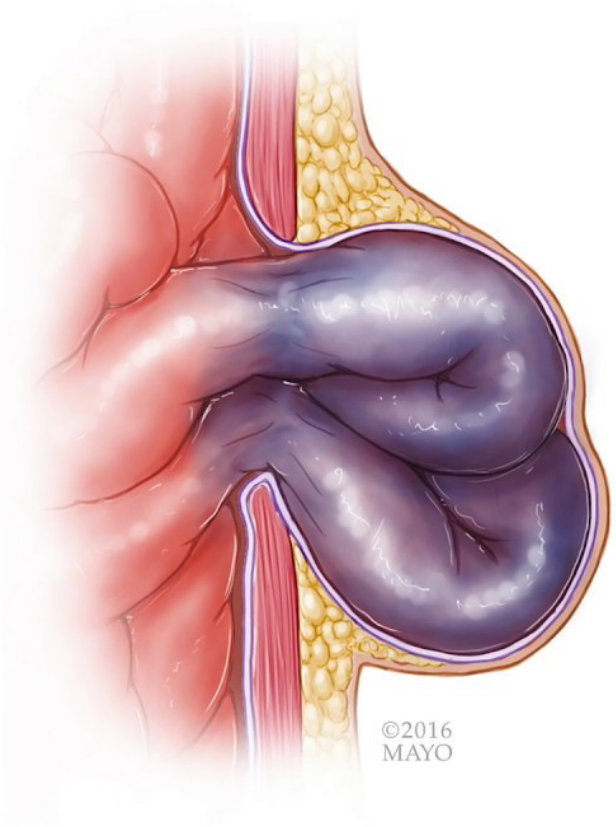
Complications

- Irreducible Hernia (Incarcerated):
  - In which the contents cannot be manipulated back into the abdominal cavity.
  - 2ry to adhesions, the content get swollen (edematous) from the inflammation or the defect (neck) is small.
    - Negative cough impulse
    - Painless or discomfort
    - No tenderness
    - No skin changes

- Obstructed Hernia
  - Narrow neck acts as a constriction ring
  - If the hernia contains bowel then it may become ‘obstructed’, partially or totally.
  - Patient will have symptoms & signs of bowel obstruction
    - No cough impulse
    - Painful
    - Tender
    - No skin Changes

- Strangulated Hernia (Ischemic):
  - Compromise the blood supply of the contents.
  - The low-pressure venous drainage is occluded first and then the artery
    - No cough impulse
    - Very Painful
    - Severely Tender
    - *SKIN CHANGES*

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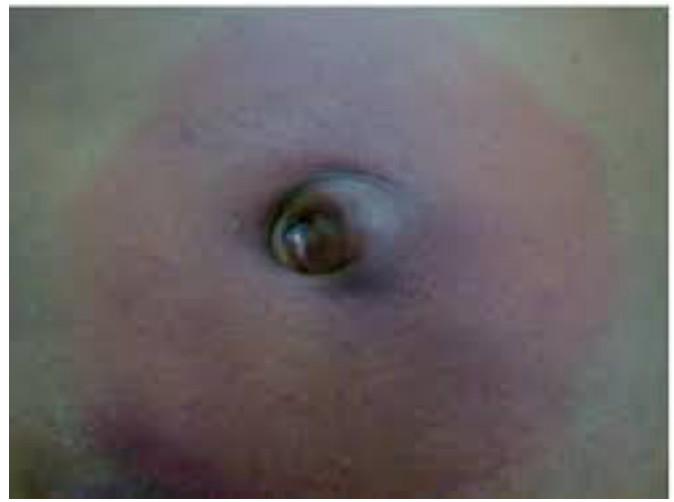
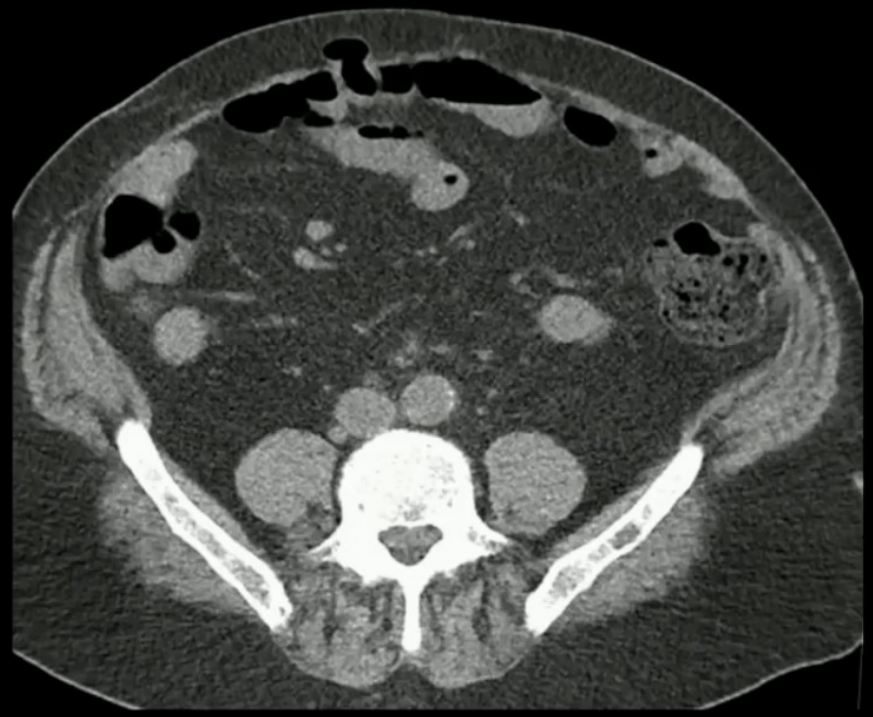
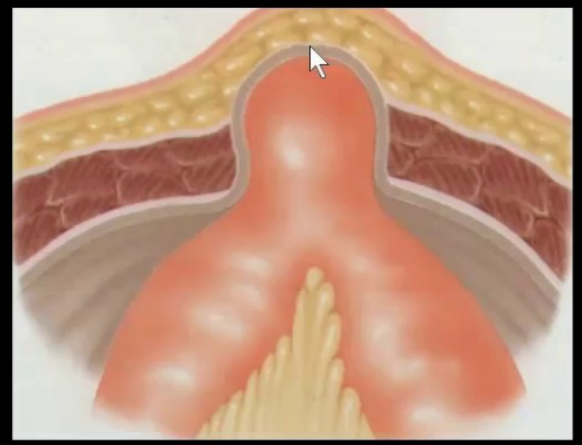
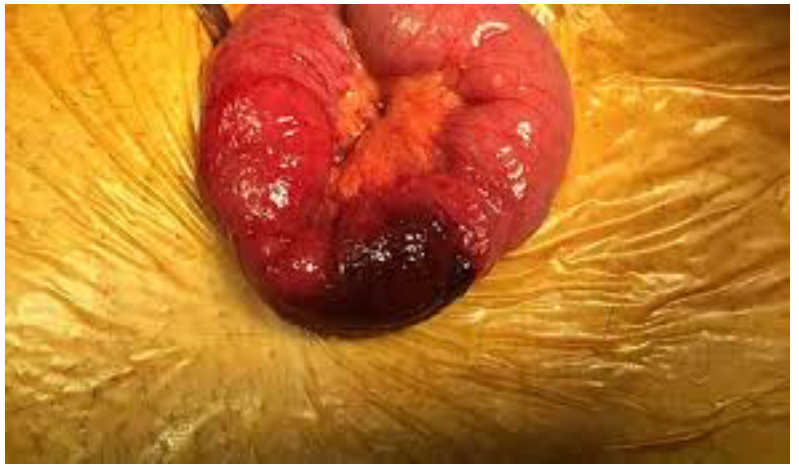


- Richter’s hernia
  - Only part of the bowel wall enters the hernia.
  - It may be small and difficult or even impossible to detect clinically.
  - Bowel obstruction may not be present but the bowel wall may still become necrotic and perforate with life-threatening consequences.
    - So it is a form of strangulated hernia
  - Femoral hernia may present in this way often with diagnostic delay and high risk to the patient.
  - Strangulation is the main risk factor for death in such cases

HÉRNIA DE RICHTER







Inguinal Hernia

- Groin hernias account for 75% of all abdominal wall hernias
- The most common types of groin hernia are indirect inguinal (60% direct inguinal (25%) and femoral (15%).
- premature infants is 30 times that seen at term.
- In early life, an indirect inguinal hernia is by far the most common.
- Femoral hernias are relatively more common in females, but an indirect inguinal hernia is still the most common type of groin hernia in women.

Surgical anatomy

- The inguinal canal is an oblique passage in the lower anterior abdominal wall, through which the spermatic cord passes to the testis in the male, or the round ligament to the labium majus in the female.
- The openings of the canal are formed by the internal and external rings.
- The internal (deep) inguinal ring is an opening in the transversalis fascia, which lies approximately 1.25 cm above the mid point of inguinal ligament (midway between the pubic tubercle and the anterior superior iliac spine).
- The internal inguinal ring is bounded medially by the inferior epigastric artery.
- The inguinal canal ends at the external (superficial) inguinal ring, which is an opening in the aponeurosis of the external oblique muscle just above and medial to the pubic tubercle.
- At birth, the internal and external rings lie on top of each other, so that the inguinal canal is short and straight with growth, the two rings move apart so that the canal becomes longer and oblique.

Indirect inguinal hernia

- An indirect inguinal hernia enters the internal (deep) inguinal ring and descends within the coverings of the spermatic cord so that it can pass on down into the scrotum, the so- called inguino-scrotal hernia.
- An inguinal hernia, which passes into the scrotum, passes above and medial to the pubic tubercle, in contrast to a femoral hernia, which bulges below and lateral to the tubercle

Direct inguinal hernia

- Due to weakness of the abdominal wall.
- The hernia protrudes through the transversalis fascia in the posterior wall of the inguinal canal.
- The defect is bounded medially by the lateral border of rectus muscle, below by the inguinal ligament, and laterally by the inferior epigastric vessels.
- These boundaries mark the area known as Hesselbach's triangle.
- The hernia occasionally bulges through the external (superficial) inguinal ring, but the transversalis fascia cannot stretch sufficiently to allow it to descend down into the scrotum.
- The sac has a wide neck, so that the hernia seldom becomes irreducible, obstructs or strangulates.

- The neck of the sac of a direct inguinal hernia lies medial to the inferior epigastric vessels, whereas that of an indirect hernia lies lateral to them.
- A combined indirect and direct hernia may occur on the same side (pantaloon or saddle-bag hernia), with sacs straddling the inferior epigastric vessels.

Femoral Hernia

- A hernia projects through the femoral ring and passes down the femoral canal.
- The ring is bounded
  - laterally by the femoral vein,
  - anteriorly by the inguinal ligament,
  - medially by the lacunar ligament, and
  - posteriorly by the superior ramus of the pubis (pectineal or Cooper's ligament)

- The hernia forms a bulge in the upper inner aspect of the thigh.
- Groin pain related to exercise is also a common presentation.
- It can sometimes be difficult to differentiate between an inguinal and a femoral hernia
  - The inguinal hernia passes above and medial to the pubic tubercle
  - The femoral hernia passes below and lateral to it.
  - Tracing the tendon of adductor longus upwards to its insertion to the pubic tubercle is the way to differentiate.

- A femoral hernia is frequently difficult or impossible to reduce because of its J-shaped course and the tight neck of the sac make it higher risk for obstruction or strangulation.
- As well as needing to be differentiated from inguinal hernia, it can be confused with:
  - Inguinal lymph node (no cough impulse, irreducible),
  - Saphenous varix (positive cough impulse or ‘saphenous thrill’, which is prominent on standing but disappears on elevating the leg),
  - Ectopic testis,
  - Psoas abscess,
  - Hydrocele of the spermatic cord or a lipoma.

Sportsman's hernia

- Groin injury leading to chronic groin pain is often referred to as the sportsman's hernia.
- The definition, investigation and treatment of this condition remain controversial.
- The differential diagnosis includes musculotendinous injuries, osteitis pubis, nerve entrapment, urological pathology or bone and joint disease.
- In many cases, clinical signs are lacking, despite the patient's symptoms.
- MRI

Ventral Hernia

Ventral hernias

- Occur through areas of weakness in the anterior abdominal wall
  - The linea alba (epigastric hernia),
  - The umbilicus (umbilical and paraumbilical hernia),
  - The lateral border of the rectus sheath (Spigelian hernia), and
  - The scar tissue of surgical incisions (incisional hernia).
    - Such incisions include scars from laparoscopic surgery, the so-called port-site hernia.

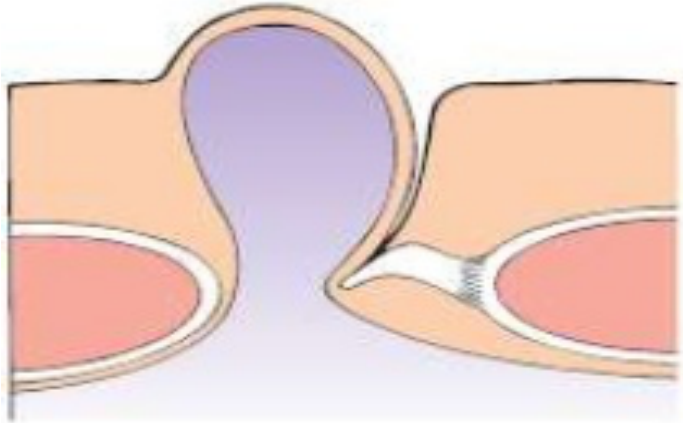
Umbilical hernias

- True umbilical hernia occur in infants more commonly .
- The small sac protrudes through the umbilicus, particularly as the child cries, but is easily reduced.
- Over 95% of these hernias close spontaneously in the first 3 years of life.
- Persistence after the third birthday is an indication for elective repair.
- Surgery involves excision of the hernial sac and closure of the defect in the fascia of the abdominal wall.

Para-umbilical hernia PUH

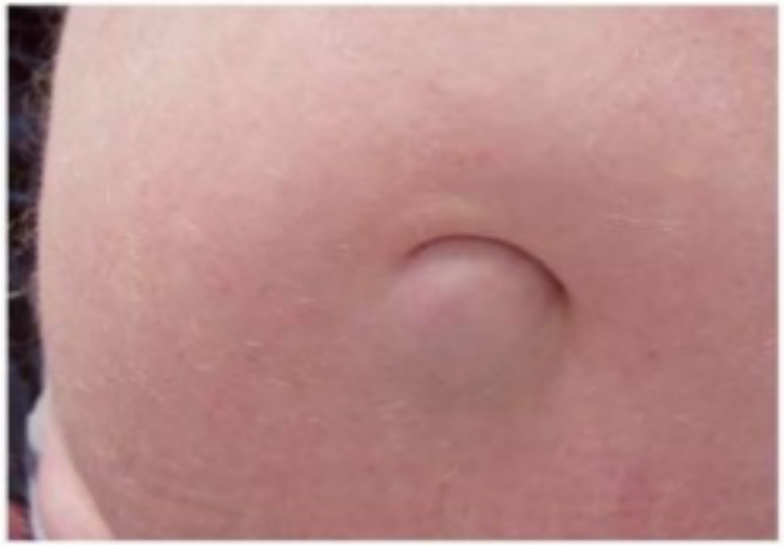
- This hernia is caused by gradual weakening of the tissues around the umbilicus.
- It most often affects obese multiparous women, and passes through the attenuated linea alba just above or below the umbilicus.
- The hernia gradually enlarges, the covering tissues become stretched and thin.

Paraumbilical hernia



A paraumbilical hernia

The hernial orifice is at the side of the umbilical scar so the sac bulges out beside the umbilicus, turning it into a crescent-shaped slit.



A large para-umbilical hernia, partially obscured by a very fat abdominal wall. Note the classical crescentic shape of the umbilicus.

Incisional hernias

- Occur after 5% of all abdominal operations.
- Over half of incisional hernias occur in the first 5 years after the original surgery.
- Midline vertical incisions are most often affected, and poor surgical technique, wound infection, obesity and chest infection are important predisposing factors.
- The diffuse bulge in the wound is best seen when the patient coughs or raises the head and shoulders from a pillow, thereby contracting the abdominal muscles.

Parastomal hernia

- These occur after the formation of an abdominal wall stoma.
- The majority of patients with a stoma will develop a parastomal hernia with time.

Sliding Hernia

- Part of the wall of the sac is formed by a viscus.
  - Right cecum
  - Left sigmoid or bladder

- A *Spigelian hernia*
  - Through the linea semilunaris at the outer border of the rectus abdominis muscle.
- A *lumbar hernia*
  - Forms a diffuse bulge above the iliac crest between the posterior borders of the external oblique and latissimus dorsi muscles.
- An *obturator hernia*
  - A rare hernia that is more common in women and passes through the obturator canal.
  - Patients may present with knee pain owing to pressure on the obturator nerve (Howship- Romber sign)

Other types of hernia

Hernias	
Littre's hernia	Hernia involving a Meckel's diverticulum
Petersen's hernia	Seen after bariatric gastric bypass;
Petit's hernia	hernia through Petit's triangle (inferior lumbar triangle)
Grynfeltt's hernia	Hernia through Grynfeltt-Lesshaft triangle (superior lumbar triangle)
Richter's hernia	Incarcerated or strangulated hernia involving only one sidewall of the bowel
Amyand's hernia	Hernia sac containing a ruptured appendix

Maydl’s Hernia

Maydl's hernia (Hernia-in-W)

- hernial sac contains two loops of bowel with another loop of bowel being intra-abdominal
  - loop of bowel in the form of 'W lies in the hernial sac and the centre portion of the 'W loop may become strangulated, either alone or in combination with the bowel in the hernial sac
  - more often seen in men, and predominantly on the right side

- Postural or manual reduction of the hernia is contra-indicated as it may result in non-viable bowel being missed

Karel Maydl (1853 –1903)
Austrian surgeon