HERNIA

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Definition : It is bulging of part of the contents of the abdominal cavity through a weakness in the abdominal wall.

Causes of hernia:

_ Weakness due to structures entering and leaving the
abdomen
_ Developmental failures
_ Genetic weakness of collagen
_ Sharp and blunt trauma
_ Weakness due to ageing and pregnancy
_ Primary neurological and muscle diseases
_ Excessive intra-abdominal pressure

Pathophysiology of hernia formation:

- Increase intra-abdominal pressure (constipation ,chronic cough ,prostatic symptoms, obesity)
- Hormonal : Pregnancy (pelvic ligaments laxity)
- Collagen disease

Types of hernia by complexity

_ Occult – not detectable clinically; may cause severe pain
_ Reducible – a swelling which appears and disappears

_ Irreducible – a swelling which cannot be replaced in the
abdomen, high risk of complications
_ Strangulated – painful swelling with vascular compromise,
requires urgent surgery
_ Infarcted – when contents of the hernia have become
gangrenous, high mortality

Pathophysiology of strangulation :

The narrow neck acts as a constriction ring impeding venous return and increasing pressure within the hernia. Resulting tension leads to pain and tenderness. If the hernia contains bowel then it may become 'obstructed', partially or totally. If the pressure rises sufficiently, arterial blood is not able
to enter the hernia and the contents become ischaemic and may
infarct. The hernia is then said to have 'strangulated'. The wall
of the bowel perforates, releasing infected, toxic bowel content
into the tissues and ultimately back into the peritoneal cavity.

Types of Hernia :

Umbilical/Paraumbilical

Epigastric
Inguinal (direct/indirect)
Femoral
Spegilian
Richter's hernia
Obturator
Sciatic
Internal
Diaghramtic
Sliding :part of the wall of the viscera constitute part of the wall of the hernia
Lumbar
Incisional
Traumatic
parastomal
Amyand :contain appendix
Littre hernia:contain meckles diverticulum.

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.

Femoral hernia: may present in this way often with diagnostic delay and high risk to the patient .

Spigelian hernia : An interstitial hernia occurs when the hernia extends between the layers of muscle and not directly through them.

Internal hernia is a termed used when adhesions form within the peritoneal cavity leading to abnormal pockets into
which bowel can enter and become trapped.

Investigations

_ Plain x-ray – of little value
_ Ultrasound scan – low cost, operator dependent
_ CT scan – incisional hernia
_ MRI scan – good in sportsman's groin with pain
_ Contrast radiology – especially for inguinal hernia
_ Laparoscopy – useful to identify occult contra lateral
inguinal hernia

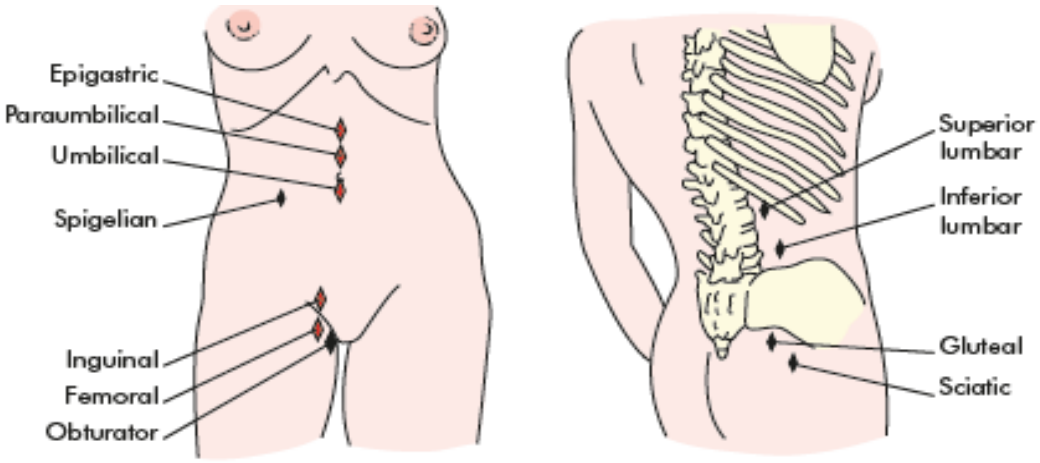
Treatment:

_ Not all hernias require surgical repair
_ Small hernias can be more dangerous than large
_ Pain, tenderness and skin colour changes imply high risk of strangulation
_ Femoral hernia should always be repaired

Inguinal hernia

_ Types – lateral (oblique, indirect); medial (direct), sliding
_ Origin – congenital or acquired

_ Anatomy – inguinal canal
_ Classification – latest European Hernia Society
_ Diagnosis – usually clinical but radiological in special circumstances
_ Surgery – open and laparoscopic



Basic anatomy of the inguinal canal

The inferior epigastricvessels lie just medial to the deep inguinal ring passing from the iliac vessels to the rectus abdominus muscle.

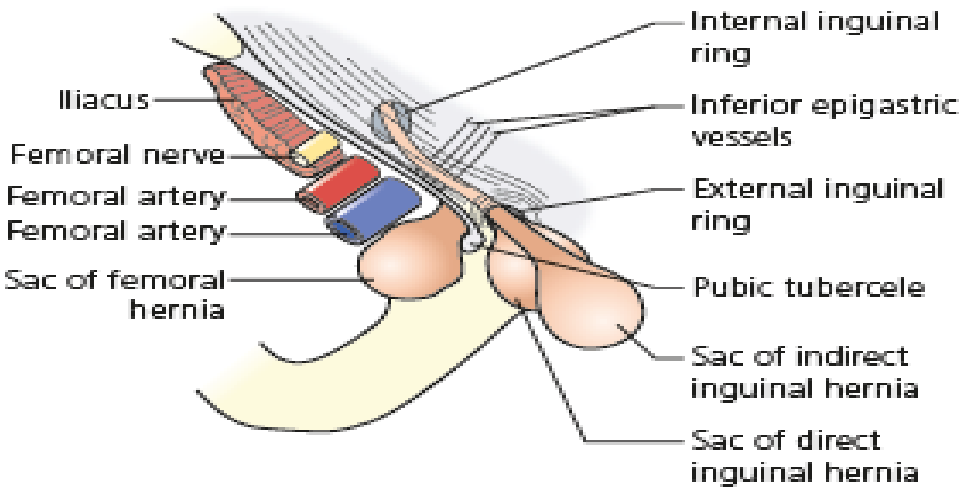
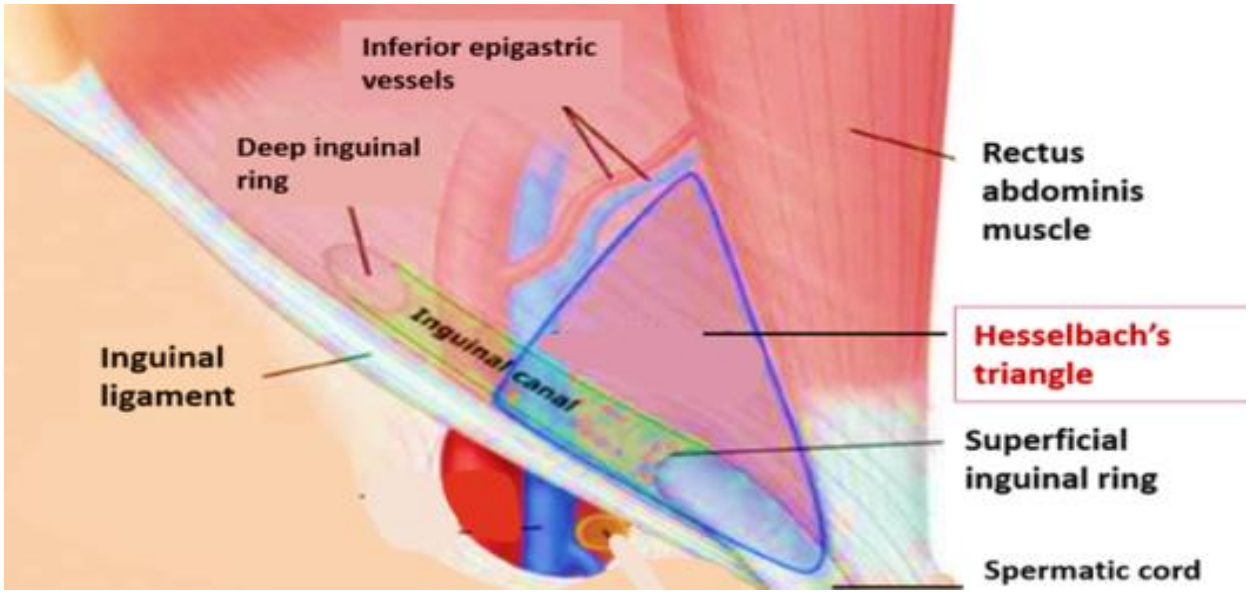


Figure 60.10 The close relationships of direct inguinal, indirect inguinal and femoral hernias.

The inguinal canal is roofed by the conjoint tendon, its posterior wall is transversalis fascia, an anterior wall is the external oblique aponeurosis and a floor the inguinal ligament (Poupart's). The inguinal canal in the male contains the testicular artery, veins, lymphatics and the vas deferens. In the female, the round ligament descends through the canal to end in the vulva. Three important nerves, the ilioinguinal, the iliohypogastric and the genital branch of the genitofemoral nerve .

An indirect hernia is lateral to the inferior epigastric vessels. Direct hernia is medial to the inferior epigastric vessels. there is a triangle referred to as **Hasselbach's triangle**, whose three sides are the IE vessels laterally, the lateral

edge of the rectus abdominus muscle medially and the pubic bone below (the iliopubic tract)
This area is weak as the abdominal wall here only consists of transversalis fascia covered by the external oblique aponeurosis.
The third type of inguinal hernia is referred to as a **sliding hernia.** The viscera may form a part of hernia wall .On the left side, sigmoid colon may be pulled into a sliding hernia and on the right side the caecum. Surgeons need extra caution during repair as the wall of the large bowel may not be
covered by peritoneum and can be damaged.
Occasionally, both lateral and medial hernias are present in the same patient (**pantaloon hernia**).



Diagnosis of an inguinal hernia

Identification of visible swelling and asking the patient to cough and standing and supine position to see if the cough

impulse is lateral or medial to the pubic tubercle (direct/indirect).

Investigations for inguinal hernia

Most cases require no diagnostic tests but ultrasound scanning,
CT scan and MRI scan are occasionally used.

Management of inguinal hernia

It is safe to recommend **NO** active treatment in cases of **early,**
asymptomatic, direct hernia, particularly in **elderly** patients
who do not wish surgical intervention. These patients should be warned to seek early advice if the hernia increases in size or
becomes symptomatic.

Herniotomy & / Hernioraphy

In children who have lateral hernias with a persistent processus,
it is sufficient only to remove and close the sac. This is called a herniotomy. In adult surgery, herniotomy and hernioraphy should be done

Operations for inguinal hernia

_ Herniotomy
_ Open suture repair
Bassini
Shouldice

_ Open flat mesh repair
Lichtenstein
_ Open preperitoneal repair
_ Laparoscopic repair
TEP(Total Extraperitoneal repair)
TAPP(Trans abdominal pre-peritoneal repair)

Complications

_ Early – pain, bleeding, urinary retention, anaesthetic related
_ Medium – seroma, wound infection
_ Late – chronic pain, testicular atrophy

Femoral hernia:

Basic anatomy

The iliac artery and vein pass below the inguinal ligament to become the femoral vessels in the leg. The vein lies medially and the artery just lateral to the artery with the femoral nerve lateral to the artery. They are enclosed in a fibrous sheath. Just medial to the vein is a small space containing fat and some lymphatic tissue (node of Cloquet). It is this space which is exploited by a femoral hernia. The walls of a femoral hernia are the femoral vein laterally,the inguinal ligament anteriorly, the pelvic bone covered by the ileopectineal ligament posteriorly and the lacunar ligament medially.

Femoral hernia

_ Less common than inguinal hernia
_ It is more common in females than in males
_ Easily missed on examination
_ Fifty per cent of cases present as an emergency with very high risk of strangulation

Differential diagnosis

_ Direct inguinal hernia
_ Lymph node
_ Saphena varix
_ Femoral artery aneurysm
_ Psoas abscess
_ Rupture of adductor longus with haematoma

Treatment :

Surgery is always indicated because of risk of strangulation.

Umbilical hernia in children

_ Common in infants and most resolve spontaneously
_ Rarely strangulate

Umbilical hernia in adult:

Clinical features

Women are affected more than men,overweight , multiparous women . Most patients complain of pain due to tissue tension or symptoms of intermittent bowel obstruction. In large hernias, the overlying skin may become thinned, stretched and develop dermatitis.

Treatment

Because of the high risk of strangulation, Surgery is indicated (open or laparoscopically).

Epigastric hernia

These arise through the midline raphe (linea alba) anywhere between the xiphoid process and the umbilicus, usually midway.
When close to the umbilicus they are called supraumbilical hernias. Usually contain omentum .mostly not contain sac

Clinical features

The patients are often fit, healthy males between 25 and 40 years of age. These hernias can be very painful . The pain may mimic that of a peptic ulcer . It may resemble a lipoma. A cough impulse may or may not be felt.

Treatment

Very small epigastric hernias have been known to disappear spontaneously, probably due to infarction of the fat. Small to moderate-sized hernias without a peritoneal sac are not inherently dangerous and surgery should only be offered if the herniais symptomatic.

Incisional hernia:

Incidence and aetiology

Incisional hernias have been reported in 10–50 per cent of laparotomy incisions and 1–5 per cent of laparoscopic port-site
incisions. Factors predisposing to their development are:
patient factors: (obesity, general poor healing due to malnutrition, immunosuppression or steroid therapy, chronic cough, cancer),
wound factors: (poor quality tissues, wound infection) and
surgical factors: poor surgical technique (inappropriate suture material, incorrect suture placement). The classic sign of wound disruption is serosanguinous discharge.

Treatment

Asymptomatic incisional hernias may not require treatment at
all. The wearing of an abdominal binder or belt may prevent the
hernia from increasing in size.
Is symptomatic : Open or Laparoscopic repair is indicated.

Spigelian hernia

_ Rare
_ Often misdiagnosed
_ High risk of complications

Lumbar hernia

Primary lumbar hernias are rare, but may be mimicked by incisional hernias arising through flank incisions for renal operations or through incisions for bone grafts harvested from the iliac crest.

Differential diagnosis

- a lipoma;
- a cold (tuberculous) abscess pointing to this position;
- pseudo-hernia due to local muscular paralysis.

Treatment

Surgery (Lap. Or open)

Parastomal hernia

Occur in a colostomy or ileostomy, it is very difficult to manage .The ideal surgical solution for the patient is to rejoin the
bowel and remove the stoma. It may be resited but further recurrence is likely. Various open suture and mesh techniques have been described to repair parastomal hernia but failure rates are high.

Traumatic hernia

arise through non-anatomic defects caused by
injury. They can be classified into three types:

1 Hernias through abdominal stab wound sites. (incisional hernias).

2 Hernias protruding through splits or tears in the abdominal
muscles following blunt trauma.
3 Abdominal bulging secondary to muscle atrophy which occurs as a result of nerve injury or other traumatic denervation.

Treatment
Surgery (lap or open with mesh)

Obturator hernia:

Obturator hernia, which passes through the obturator canal, 6 times more common in women than in men. Most patients are over 60 years of age. The leg is usually kept in a semiflexed position and movement increases the pain.
On vaginal or rectal examination the hernia can sometimes be felt as a tender swelling in the region of the obturator foramen.
These hernias have often undergone strangulation, frequently
of the Richter type, by the time of presentation.

Treatment
Surgery (laparotomy) is indicated. The diagnosis is rarely made preoperatively .