

## Abdominal wall hernias

The classical surgical definition of a hernia is the protrusion of an organ or the fascia of an organ through the wall of the cavity that normally contains it.

Risk factors for abdominal wall hernias include:

- obesity
- ascites
- increasing age
- surgical wounds

Features

- palpable lump
- cough impulse
- pain
- obstruction: more common in femoral hernias
- strangulation: may compromise the bowel blood supply leading to infarction

Types of abdominal wall hernias:

<b>Inguinal hernia</b>	Inguinal hernias account for 75% of abdominal wall hernias. Around 95% of patients are male; men have around a 25% lifetime risk of developing an inguinal hernia. Above and medial to pubic tubercle Strangulation is rare
<b>Femoral hernia</b>	Below and lateral to the pubic tubercle More common in women, particularly multiparous ones High risk of obstruction and strangulation Surgical repair is required
<b>Umbilical hernia</b>	Symmetrical bulge under the umbilicus
<b>Paraumbilical hernia</b>	Asymmetrical bulge - half the sac is covered by skin of the abdomen directly above or below the umbilicus
<b>Epigastric hernia</b>	Lump in the midline between umbilicus and the xiphisternum Most common in men aged 20-30 years
<b>Incisional hernia</b>	May occur in up to 10% of abdominal operations
<b>Spigelian hernia</b>	Also known as lateral ventral hernia Rare and seen in older patients A hernia through the spigelian fascia (the aponeurotic layer between the rectus abdominis muscle medially and the semilunar line laterally)
<b>Obturator hernia</b>	A hernia which passes through the obturator foramen. More common in females and typical presents with bowel obstruction

<b>Richter hernia</b>	A rare type of hernia where only the antimesenteric border of the bowel herniates through the fascial defect
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Abdominal wall hernias in children:

<b>Congenital inguinal hernia</b>	<p>Indirect hernias resulting from a patent processus vaginalis          Occur in around 1% of term babies. More common in premature babies and boys          60% are right sided, 10% are bilaterally          Should be surgically repaired soon after diagnosis as at risk of incarceration</p>
<b>Infantile umbilical hernia</b>	<p>Symmetrical bulge under the umbilicus          More common in premature and Afro-Caribbean babies          The vast majority resolve without intervention before the age of 4-5 years          Complications are rare</p>

## Benign prostatic hyperplasia

Benign prostatic hyperplasia (BPH) is a common condition seen in older men.

Risk factors

- age: around 50% of 50-year-old men will have evidence of BPH and 30% will have symptoms. Around 80% of 80-year-old men have evidence of BPH
- ethnicity: black > white > Asian

BPH typically presents with lower urinary tract symptoms (LUTS), which may be categorised into:

- voiding symptoms (obstructive): weak or intermittent urinary flow, straining, hesitancy, terminal dribbling and incomplete emptying
- storage symptoms (irritative) urgency, frequency, urgency incontinence and nocturia
- post-micturition: dribbling
- complications: urinary tract infection, retention, obstructive uropathy

Management options

- watchful waiting
- medication: alpha-1 antagonists, 5 alpha-reductase inhibitors. The use of combination therapy was supported by the Medical Therapy Of Prostatic Symptoms (MTOPS) trial
- surgery: transurethral resection of prostate (TURP)

Alpha-1 antagonists e.g. tamsulosin, alfuzosin

- decrease smooth muscle tone (prostate and bladder)
- considered first-line, improve symptoms in around 70% of men
- adverse effects: dizziness, postural hypotension, dry mouth, depression

5 alpha-reductase inhibitors e.g. finasteride

- block the conversion of testosterone to dihydrotestosterone (DHT), which is known to induce BPH
- unlike alpha-1 antagonists causes a reduction in prostate volume and hence may slow disease progression. This however takes time and symptoms may not improve for 6 months. They may also decrease PSA concentrations by up to 50%
- adverse effects: erectile dysfunction, reduced libido, ejaculation problems, gynaecomastia

## Inguinal hernia

Inguinal hernias account for 75% of abdominal wall hernias. Around 95% of patients are male; men have around a 25% lifetime risk of developing an inguinal hernia.

Features

- groin lump: disappears on pressure or when the patient lies down
- discomfort and ache: often worse with activity, severe pain is uncommon
- strangulation is rare

Whilst traditional textbooks describe the anatomical differences between indirect (hernia through the inguinal canal) and direct hernias (through the posterior wall of the inguinal canal) this is of no relevance to the clinical management.

Management

- the clinical consensus is currently to treat medically fit patients even if they are asymptomatic
- a hernia truss may be an option for patients not fit for surgery but probably has little role in other patients
- mesh repair is associated with the lowest recurrence rate

The Department for Work and Pensions recommend that following an open repair patients return to non-manual work after 2-3 weeks and following laparoscopic repair after 1-2 weeks

Complications

- early: bruising, wound infection
- late: chronic pain, recurrence

## Abdominal pain

The table below gives characteristic exam question features for conditions causing abdominal pain. Unusual and 'medical' causes of abdominal pain should also be remembered:

- myocardial infarction
- diabetic ketoacidosis
- pneumonia
- acute intermittent porphyria
- lead poisoning

<b>Condition</b>	<b>Characteristic exam feature</b>
Peptic ulcer disease	Duodenal ulcers: more common than gastric ulcers, epigastric pain relieved by eating Gastric ulcers: epigastric pain worsened by eating Features of upper gastrointestinal haemorrhage may be seen (haematemesis, melena etc)
Appendicitis	Pain initial in the central abdomen before localising to the right iliac fossa Anorexia is common Tachycardia, low-grade pyrexia, tenderness in RIF Rovsing's sign: more pain in RIF than LIF when palpating LIF
Acute pancreatitis	Usually due to alcohol or gallstones Severe epigastric pain Vomiting is common Examination may reveal tenderness, ileus and low-grade fever Periumbilical discolouration (Cullen's sign) and flank discolouration (Grey-Turner's sign) is described but rare
Biliary colic	Pain in the RUQ radiating to the back and interscapular region, may be following a fatty meal. Slight misnomer as the pain may persist for hours Obstructive jaundice may cause pale stools and dark urine It is sometimes taught that patients are female, forties, fat and fair although this is obviously a generalisation
Acute cholecystitis	History of gallstones symptoms (see above) Continuous RUQ pain Fever, raised inflammatory markers and white cells Murphy's sign positive (arrest of inspiration on palpation of the RUQ)
Diverticulitis	Colicky pain typically in the LLQ Fever, raised inflammatory markers and white cells
Abdominal aortic aneurysm	Severe central abdominal pain radiating to the back Presentation may be catastrophic (e.g. Sudden collapse) or sub-acute (persistent severe central abdominal pain with developing shock) Patients may have a history of cardiovascular disease
Intestinal obstruction	History of malignancy/previous operations Vomiting Not opened bowels recently 'Tinkling' bowel sounds

## Breast disorders

The table below describes some of the features seen in the most common breast disorders:

<b>Fibroadenoma</b>	Common in women under the age of 30 years Often described as 'breast mice' due as they are discrete, non-tender, highly mobile lumps
<b>Fibroadenosis (fibrocystic disease, benign mammary dysplasia)</b>	Most common in middle-aged women 'Lumpy' breasts which may be painful. Symptoms may worsen prior to menstruation
<b>Breast cancer</b>	Characteristically a hard, irregular lump. There may be associated nipple inversion or skin tethering  <b>Paget's disease of the breast</b> - intraductal carcinoma associated with a reddening and thickening (may resemble eczematous changes) of the skin/areola
<b>Mammary duct ectasia</b>	Dilatation of the large breast ducts Most common around the menopause May present with a tender lump around the areola +/- a green nipple discharge If ruptures may cause local inflammation, sometimes referred to as 'plasma cell mastitis'
<b>Duct papilloma</b>	Local areas of epithelial proliferation in large mammary ducts Hyperplastic lesions rather than malignant or premalignant May present with blood stained discharge
<b>Fat necrosis</b>	More common in obese women with large breasts May follow trivial or unnoticed trauma Initial inflammatory response but may develop into a hard, irregular breast lump Rare and may mimic breast cancer so further investigation is always warranted
<b>Breast abscess</b>	More common in lactating women Red, hot tender swelling

Lipomas and sebaceous cysts may also develop around the breast tissue.

## Scrotal problems

### Epididymal cysts

Epididymal cysts are the most common cause of scrotal swellings seen in primary care.

Features

- separate from the body of the testicle
- found posterior to the testicle

### Associated conditions

- polycystic kidney disease
- cystic fibrosis
- von Hippel-Lindau syndrome

Diagnosis may be confirmed by ultrasound.

Management is usually supportive but surgical removal or sclerotherapy may be attempted for larger or symptomatic cysts.

### **Hydrocele**

A hydrocele describes the accumulation of fluid within the tunica vaginalis. They be divided into communicating and non-communicating:

- communicating: caused by patency of the processus vaginalis allowing peritoneal fluid to drain down into the scrotum. Communicating hydroceles are common in newborn males (clinically apparent in 5-10%) and usually resolve within the first few months of life
- non-communicating: caused by excessive fluid production within the tunica vaginalis

Hydroceles may develop secondary to:

- epididymo-orchitis
- testicular torsion
- testicular tumours

### Features

- soft, non-tender swelling of the hemi-scrotum. Usually anterior to and below the testicle
- the swelling is confined to the scrotum, you can get 'above' the mass on examination
- transilluminates with a pen torch
- the testis may be difficult to palpate if the hydrocele is large

Diagnosis may be clinical but ultrasound is required if there is any doubt about the diagnosis or if the underlying testis cannot be palpated.

### Management

- infantile hydroceles are generally repaired if they do not resolve spontaneously by the age of 1-2 years
- in adults a conservative approach may be taken depending on the severity of the presentation

### **Varicocele**

A varicocele is an abnormal enlargement of the testicular veins. They are usually asymptomatic but may be important as they are associated with infertility.

Varicoceles are much more common on the left side (> 80%). Features:

- classically described as a 'bag of worms'
- subfertility

Diagnosis

- ultrasound with Doppler studies

Management

- usually conservative
- occasionally surgery is required if the patient is troubled by pain. There is ongoing debate regarding the effectiveness of surgery to treat infertility

## Haemorrhoids

Haemorrhoidal tissue is part of the normal anatomy which contributes to anal continence. These mucosal vascular cushions are found in the left lateral, right posterior and right anterior portions of the anal canal (3 o'clock, 7 o'clock and 11 o'clock respectively). Haemorrhoids are said to exist when they become enlarged, congested and symptomatic

Clinical features

- painless rectal bleeding is the most common symptom
- pruritus
- pain: usually not significant unless piles are thrombosed
- soiling may occur with third or fourth degree piles

### Types of haemorrhoids

External

- originate below the dentate line
- prone to thrombosis, may be painful

Internal

- originate above the dentate line
- do not generally cause pain

Grading of internal haemorrhoids

Grade I	Do not prolapse out of the anal canal
Grade II	Prolapse on defecation but reduce spontaneously

Grade III	Can be manually reduced
Grade IV	Cannot be reduced

### Management

- soften stools: increase dietary fibre and fluid intake
- topical local anaesthetics and steroids may be used to help symptoms
- outpatient treatments: rubber band ligation is superior to injection sclerotherapy
- surgery is reserved for large symptomatic haemorrhoids which do not respond to outpatient treatments
- newer treatments: Doppler guided haemorrhoidal artery ligation, stapled haemorrhoidopexy

### Acutely thrombosed external haemorrhoids

- typically present with significant pain
- examination reveals a purplish, oedematous, tender subcutaneous perianal mass
- if patient presents within 72 hours then referral should be considered for excision. Otherwise patients can usually be managed with stool softeners, ice packs and analgesia. Symptoms usually settle within 10 days

## **Renal stones: management**

### **Acute management of renal colic**

Diclofenac 75 mg by intramuscular injection is the analgesia of choice for renal colic\*. A second dose can be given after 30 minutes if necessary

### **Prevention of renal stones**

#### Calcium stones

- high fluid intake
- low animal protein, low salt diet (a low calcium diet has not been shown to be superior to a normocalcaemic diet)
- thiazide diuretics (increase distal tubular calcium resorption)
- stones < 5 mm will usually pass spontaneously
- lithotripsy, nephrolithotomy may be required

#### Oxalate stones

- cholestyramine reduces urinary oxalate secretion
- pyridoxine reduces urinary oxalate secretion



## Uric acid stones

- allopurinol
- urinary alkalinization e.g. oral bicarbonate

\*PR diclofenac is an alternative

## Minor surgery

### Local anaesthetic (LA)

Lidocaine is the most widely used LA. It has a rapid onset of action and anaesthesia lasts for around 1 hour.

- the maximum safe dose is 200mg - 20ml of 1% solution or 10ml of 2% solution (or 500mg if given in solutions containing adrenaline)
- lidocaine is available pre-mixed with adrenaline. This increases the duration of action of lidocaine and reduces blood loss secondary to vasoconstriction. It must never be used near extremities due to the risk of ischaemia

### Evidenced-based recovery times

The Department for Works and Pensions has produced evidence-based recovery times which certifying medical practitioners should consider when advising patients of working age

Procedure	Recovery time	
	Laparoscopic	Open
Abdominal/groin hernia	1 - 2 weeks	2 - 3 weeks
Appendicectomy	1 - 2 weeks	2 - 3 weeks
Cholecystectomy	2 - 3 weeks	3 - 5 weeks
Hysterectomy	3 weeks (laparoscopic-assisted vaginal)	7 weeks (abdominal)

## Suture material

### Non-absorbable Absorbable

Silk	Vicryl
Novafil	Dexon
Prolene	PDS
Ethilon	

Non-absorbable sutures are normally removed after 7-14 days, depending on the location. Absorbable sutures normally disappear after 7-10 days. Removal times for non-absorbable sutures are shown below:

<b>Area</b>	<b>Removal time (days)</b>
Face	3 - 5
Scalp, limbs, chest	7 - 10
Hand, foot, back	10 - 14