

Scrotal Swelling and Pain

Essential History

Ask about:

- Whether swelling or pain is recurrent and whether it is acute or chronic
- Exact timing of the onset of symptoms, particularly in the presence of acute pain and swelling
- Nature of the pain
 - Sharp
 - Dull
 - Constant
 - Intermittent
 - Constant, with intermittent increases in intensity
 - Associated with nausea or vomiting
- Location of pain
 - Scrotum, specifically the testis
 - Radiation into the abdomen or from the abdomen into the scrotum
- Laterality of swelling and pain
- Activity or positions that alleviate or aggravate pain and swelling
- Nature of swelling
 - Changes in size during a single day **or**
 - Is constant **or**
 - Increases or decreases with time
- Recent trauma, sexual activity, use of medications, presence of rashes, and weight loss
- Immunisation history
 - Including mumps, measles (see PHE Green Book Chapter 23 and Chapter 21)

Keywords / also known as: groin pain, hydrocele, increased fluid, inguinal hernia's, testicular torsion

'Red Flag' Symptoms and Signs

Testicular torsion is a surgical emergency and requires immediate referral.

Ask about:

- Acute onset of constant, severe scrotal pain aggravated by physical activity
 - Torsion of the testis

- A hard, painless mass (or vague heavy feeling) in the testis detected by the child or parent
 - Tumours

Look for (consider chaperone and consent):

- Inguinal hernia
- Scrotal erythema
- By palpation of the scrotum with the child standing:
 - Loss of cremasteric reflex
 - Loss of contraction of the cremasteric muscle on stroking the medial thigh – seen with testicular torsion
 - Higher than normal testicular position and / or horizontal lie
 - May indicate testicular torsion
 - Tenderness
 - Localisation of the swelling to the scrotum
 - Presence of proximal extension into the cord
 - Mass

Differential Diagnosis / Conditions

Acute scrotal swelling with pain

- Torsion of the testis
 - Scrotal erythema
 - Swelling of the involved hemiscrotum
 - Higher-than-normal position of the testis within the scrotum
 - It is possible to have a torted UNDESCENDED testis
 - Palpation may show a horizontal rather than normal vertical orientation of the testicle
 - Unilateral loss of the cremasteric reflex on the side of the swelling and pain highly correlates with the presence of torsion
 - Pain on lifting testis suggests torsion and may help to differentiate torsion from epididymitis
 - Associated hydrocele may be palpated and confirmed by transillumination
- Torsion of the appendix testis
 - Difficult to differentiate from testicular torsion and usually requires referral
 - There may be hemiscrotal erythema and swelling
 - A blue-dot sign, the necrotic appendage visible through the scrotal skin, can help to make the diagnosis
 - Testicular discomfort, if present, is typically mild, but point tenderness may be elicited from uppermost pole of the testis near the head of the epididymis (the location of the appendages).

- A 3–5-mm tender indurated mass may be palpated on the upper pole
- Acute epididymitis–orchitis
 - Scrotal erythema and swelling
 - Intact cremasteric reflex
 - Tenderness limited to the epididymis during the early phase
 - Extending to testis in the later phase
 - Prehn’s sign (relief of pain with testicular elevation) may be positive
 - Rare in children, requires further evidence to exclude urological pathology
- Focal fat necrosis
 - Examination shows pain and swelling limited to the scrotum and not the testis
 - Examination can be limited by discomfort and degree of obesity
- Irreducible / obstructed hernia
 - A painful non-reducible hernia
 - There may be signs of bowel obstruction
- Trauma
 - For example, catching the foreskin in the zip, straddle injury, or blunt trauma
 - Tenderness may be limited to the testis or epididymis, depending on the extent of trauma
- Mumps orchitis
 - Tender testis
- Scrotal skin disease
 - Redness and oedema limited to the scrotum, with normal testicle and spermatic cord
 - Mild / moderate pain where erythema extends outside the scrotum suggests idiopathic scrotal erythema

Scrotal swelling without pain

- Inguinal hernias and hydroceles
 - Feel for the testis first and keep it in mind during the rest of the examination.
 - Hernia
 - Most common in preterm infants
 - A bulge in the inguinal region with fluid that can be gently reduced back into the abdomen is diagnostic of an inguinal hernia.
 - The presence of a thickened spermatic cord or silk-stocking sign (the feel of the layers of the processus vaginalis being rubbed against each other) suggests patency of the processus vaginalis or a hernia.
 - Hydrocele
 - When fluid is limited to the testis and the spermatic cord can be palpated above the fluid, a hydrocele is present.

- Hydrocele of the spermatic cord feels distinct from the testis and is round or ovoid, possibly mimicking the presence of an additional testis.
- Hydroceles (communicating, scrotal, or of the cord) are rarely associated with tenderness on palpation.
- Tumours
 - On palpation, the mass is harder than the substance of the testis, but this distinction may be difficult to discern.
 - The mass may bulge from the surface of the testis.
- Varicoceles
 - A varicocele is usually decompressed in the supine position and present in the standing position.
 - Inspection may reveal dilated veins
 - Increased blood pooling in veins can sometimes be prompted by a Valsalva manoeuvre (grade 2 of 3)
- Spermatoceles and epididymal cysts
 - Separate from the testis and can be transilluminated

Other causes of scrotal pain / swelling

- Henoch–Schönlein purpura
- Insect bite
- Thrombosis of spermatic vein
- Folliculitis
- Dermatitis, acute
- Sebaceous cyst

Investigations

To be undertaken by non-specialist practitioners (eg. General Practitioner (GP) Team):

- Laboratory tests are of limited value
- The leucocyte count may be elevated in the setting of infection
- Urinalysis may help to distinguish orchitis from torsion of the spermatic cord or testicular appendage when leucocytes or nitrites are present.
- Swabs for chlamydia if indicated and sexual infection suspected
- Ultrasonography, if available (see below)

To be undertaken by specialist practitioners (eg, Emergency Department / Paediatric Surgical Team(s)):

- Perform imaging only when it will not delay surgical exploration if torsion exists, adding to the risk of testicular loss

- Ultrasonography can determine whether the scrotal swelling:
 - Is fluid filled or solid
 - Arises from the abdomen and extends into the groin
 - Is limited to the scrotum
 - Arises from the testis or spermatic cord structures
- Ultrasonography with Doppler can assess the flow of blood into the testis, helping to differentiate torsion of the testis from an inflammatory process
- Nuclear scintigraphy using ^{99m}technetium-pertechnetate evaluates blood flow to the testis
 - No place in suspected torsion where surgery to explore the scrotum is key
 - Inflammation results in increased flow to the same area.

Treatment Approach

To be undertaken by non-specialist practitioners (eg, GP Team)

- Minor hydroceles, spermatoceles and epididymal cysts can be managed conservatively with observation

To be undertaken by specialist practitioners (eg, Paediatric Surgical Team (or Adult Surgical Team if appropriate)):

- Torsion of the testicle
 - Surgical intervention is indicated when testicular torsion is suspected or cannot be convincingly excluded
 - The likelihood of salvaging the testis is highest when surgery is done shortly after the onset of pain (within 4 hours).
- Torsion of appendix testis
 - Management is non-surgical, although surgical intervention is indicated when acute testicular torsion cannot be excluded
 - Advise rest and non-steroidal pain relievers and cold compresses for several days to reduce inflammation, swelling, and pain
- Acute epididymitis–orchitis
 - Treat with antibiotics on the basis of the results of the urine / urethral culture and sensitivities
 - In sexually active adolescents, antibiotic coverage must include gonococcal and non-gonococcal sexually transmitted infections.
 - Anti-inflammatory agents, scrotal elevation, and rest should be prescribed
 - Requires urological referral
- Focal fat necrosis / mumps orchitis
 - Treat with rest and anti-inflammatory agents

- Trauma
 - Testicular or spermatic cord contusions
 - Manage symptomatically
 - Testicular rupture requires surgical exploration, evacuation of the haematoma, debridement, and repair (when possible)
- Inguinal hernias and hydroceles
 - Repair on diagnosis to prevent incarceration
- Varicoceles
 - Indications for surgery
 - Significant loss of testicular volume
 - Abnormal semen analysis (older adolescent patients)
 - Pain

When to Refer

Refer (arrange emergency transfer) to specialist practitioners (eg, Emergency Department / Paediatric Surgical Team(s)) if:

- Acute painful scrotal swelling
- Scrotal swelling / hernia with vomiting / abdominal pain

Refer urgently to specialist practitioners (eg, Emergency Department / Paediatric Surgical Team(s)) if:

- Acute hydrocele
- Hernia in an infant (even if reducible)
- Scrotal trauma
- Cellulitis of scrotum
- Testicular mass
- Paratesticular mass

Refer non-urgently to specialist practitioners (eg, Paediatric Surgical Team) if:

- Varicocele
- Uncomplicated hernia in an older child

'Safety-Netting' Advice

- Advise boys always to see a medical practitioner as soon as possible if testicular pain develops.

Patient / Carer Information

****Please note: whilst these resources have been developed to a high standard they may not be specific to children.***

- [Testicular lumps and swellings](#) (Web page), the NHS website
- [Mumps – complications](#) (Web page), the NHS website

Resources

Medical Decision Support

[Measles](#) (Web page), Public Health England's Green Book

[Mumps](#) (Web page), Public Health England's Green Book

Suggested Resources

****Please note: these resources include links to external websites. These resources may not have national accreditation and therefore PCO UK cannot guarantee the accuracy of the content.***

[Scrotal swellings](#) (Web page), NICE clinical knowledge summary, National Institute for Health and Care Excellence.

[Hydroceles and Inguinal Hernias](#) (Web page), Urology Care Foundation

[Neonatal Testicular Torsion](#) (Web page), Urology Care Foundation

[Testicular Trauma](#) (Web page), Urology Care Foundation

[Abdominal Pain](#) (Web page – requires log-in), Spotting the Sick Child

[Pain Management](#) (eLearning - requires log-in), RCPCH Compass

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