

## Scrotal swellings - Management

### Scenario: Diagnosis for scrotal swellings

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#### How do I identify the cause in a boy or man with a scrotal swelling?

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- **Have a very low threshold for suspecting testicular torsion** in a boy or man presenting with acute, painful scrotal swelling, particularly if he is younger than 30 years of age.
- **Enquire** about:
  - Presence of pain, its duration, and its severity (usually severe in testicular torsion).
  - Speed of onset of pain and swelling (usually sudden in testicular torsion and more gradual in epididymo-orchitis).
  - Previous episodes of severe, self-limiting pain and swelling (described by some men and boys with testicular torsion).
  - Associated symptoms, including:
    - Symptoms of a lower urinary tract infection, or urethral discharge (suggesting epididymo-orchitis).
    - Parotid swelling (suggesting mumps orchitis).
    - Nausea or vomiting (common with torsion; may occur with epididymo-orchitis).
    - Back pain, breathlessness, or weight loss (may occur in metastatic testicular cancer).
    - History of trauma (in haematocele and, rarely, testicular torsion).
- **Examine** for:
  - Position of the swelling in relation to the testis (testicular, extra-testicular, or enveloping the testis).
  - Tenderness (present in torsion and epididymo-orchitis; usually *diffuse* testicular tenderness in torsion).
  - Testicular lie (suspect testicular torsion if high-riding or transverse).
  - Size of the testis (may be enlarged with a testicular tumour).
  - Consistency of the swelling (firm or solid with testicular cancer; soft and fluctuant with an epididymal cyst).

- Lymphadenopathy or an abdominal mass (inguinal lymphadenopathy in epididymo-orchitis or scrotal cancer; supraclavicular or para-aortic lymphadenopathy in testicular cancer — para-aortic lymphadenopathy may present as an abdominal mass).
  - Cremasteric reflex (if there is acute scrotal pain or swelling, suspect testicular torsion if the cremasteric reflex is absent).
  - Transillumination (indicative of hydrocele).
  - Features of inguinal hernia (examine the person both lying and standing), including:
  - A positive cough impulse.
  - Inability to 'get above' the swelling, or palpate the spermatic cord or inguinal ring.
  - Skin changes (a raised papule, plaque, or ulcer suggests scrotal cancer, although this is extremely rare).
- See [Causes of scrotal swelling - clinical features](#) for further guidance on the interpretation of clinical findings.

#### Causes of scrotal swelling - clinical features

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- This information is also available in a [list format](#) for users of mobile devices.
- See also [Causes](#) (in [Background information](#)), which includes a list of other causes of scrotal swelling.

**Table 1.** Testicular causes of scrotal swelling.

Causes	Onset	Pain/tenderness	Features and associated symptoms
Testicular cancer	Chronic, but may have only just been discovered.	Often painless and non-tender; may be dragging sensation. Pain present in 20–30%.	Most common in men 20–40 years of age, but may occur in older men (when the diagnosis is usually lymphoma). Usually presents with testicular enlargement. Solid/firm swelling involving all or part of testis on palpation. May be associated back or flank pain, breathlessness, supraclavicular lymphadenopathy, abdominal mass (enlarged para-aortic lymph nodes), weight loss, gynaecomastia, epididymo-orchitis, or hydrocele.

Epididymo-orchitis	Usually gradual over hours to days.	Usually, yes. May be relieved by elevation of testis. Painless and non-tender if tuberculous.	Palpable swelling of the epididymis and/or testis. Difficult to distinguish from torsion. Torsion is particularly likely if: the person presents less than 6 hours after symptom onset; there is a history of previous trauma, previous pain attacks, nausea, or vomiting; the cremasteric reflex is absent; or the testis is elevated or lying transversely. May have urethral discharge, symptoms of a urinary tract infection, parotid swelling (mumps orchitis usually occurs 4–8 days after parotitis), or vomiting. May be erythema or oedema of scrotum on affected side, or a hydrocele. When tuberculous, the epididymis is hard with an irregular surface, the spermatic cord is thickened, and the vas deferens feels hard and irregular (like a string of beads).
Testicular torsion (torsion of spermatic cord)	Usually sudden.	Yes. Pain usually severe and may radiate into the lower abdomen on the side of torsion. Testicular tenderness usually diffuse.	Can occur at any age, most commonly in adolescents 13–17 years of age and rarely in men older than 30 years of age. May be history of previous episodes of severe, self-limiting pain. Vomiting may be present. Cremasteric reflex almost always absent. Testis often elevated in scrotum, and may have transverse lie. In pre-natal torsion, testis is hard, non-tender, and usually discoloured by haemorrhagic necrosis.
Torsion of appendix testis or appendix epididymis	Sudden or gradual over days.	Yes.	Early on, nodule at upper end of testis or epididymis. Later, scrotal oedema. May be indistinguishable from testicular torsion, but usually testis is mobile and of normal size, and cremasteric reflex present. Infarcted appendage may be seen through the skin ('blue dot sign').

a from: [[Rabinowitz, 1984](#); [Kadish and Bolte, 1998](#); [Riddick, 1998](#); [SIGN, 1998](#); [Clinical Effectiveness Group, 2001](#); [ci et al, 2004](#); [Karmazyn et al, 2005](#); [National Collaborating Centre for Primary Care, 2005](#); [Reynard et al, 2006](#); [gdahl and Teague, 2006](#); [Shipstone, 2008](#); [Tiemstra and Kapoor, 2008](#); [Albers et al, 2009](#); [Hagerty and Yerkes, 2009](#);

[gul et al, 2009](#); [Trojian et al, 2009](#); [Yin and Trainor, 2009](#)]

**Table 2.** Extra-testicular causes of scrotal swelling.

Causes	Onset	Pain/tenderness	Features and associated symptoms
Epididymal cyst or spermatocele	Chronic.	No.	Soft, fluctuant, smooth, round nodule in epididymis. Usually small, but can become large. Does not usually transilluminate.
Varicocele	Chronic.	Usually none, but may complain of a dull, dragging discomfort.	May be 'bag of worms' consistency. Disappears on lying and reappears on standing.
Hydrocele	Acute or chronic.	No.	Most common in newborn, disappearing within the first 1–2 years of life, but may appear at any age. Will transilluminate. Most common form presents as a fluctuant, ovoid swelling enveloping the testis or located above the testis along the spermatic cord (normal spermatic cord and inguinal ring felt above). May accompany varicocele, testicular torsion, testicular cancer, or an inguinal hernia, or be caused by trauma.
Haematocele	Sudden or chronic.	Yes.	Does not transilluminate. Usually caused by trauma, sometimes in association with testicular rupture, but can also occur (chronically) with testicular cancer.
Indirect inguinal hernia	Acute or chronic.	Not typically, but pain may be present, particularly if incarcerated or strangulated.	May enlarge with Valsalva-type manoeuvres, and disappear on lying down (if reducible). Positive cough impulse, bowel sounds on auscultation. May be features of strangulation or obstruction. Cannot get above swelling, or palpate spermatic cord or inguinal ring.
Squamous cell carcinoma of the scrotum	Chronic.	No.	Extremely rare; typically seen only in men older than 50 years of age (peak 75 years of age). Raised papule, plaque, or ulcer on the scrotal wall; often purulent. Inguinal lymphadenopathy may be present (as metastases or in response to infection).

Data from: [[Riddick, 1998](#); [National Collaborating Centre for Primary Care, 2005](#); [Reynard et al, 2006](#); [Ringdahl and Teague, 2006](#); [Shipstone, 2008](#); [Tiemstra and Kapoor, 2008](#); [Hagerty and Yerkes, 2009](#); [Tekgul et al, 2009](#)]

## Causes of scrotal swellings - for mobile devices

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### ▪ **Clinical features of testicular causes of scrotal swelling**

#### ○ **Testicular cancer**

- Onset is chronic, but the lump may have only just been discovered.
- Often painless and non-tender, or there may be a dragging sensation. Pain is present in 20–30% of people with testicular cancer.
- Most common in men 20–40 years of age, but can occur in older men, when it is usually a lymphoma.
- Usually presents with testicular enlargement.
- On palpation, there is a solid, firm swelling involving all or part of testis.
- There may be associated back or flank pain, breathlessness, supraclavicular lymphadenopathy, abdominal mass (enlarged para-aortic lymph nodes), weight loss, gynaecomastia, epididymo-orchitis, or a hydrocele.

#### ○ **Testicular torsion (torsion of spermatic cord)**

- Onset is usually sudden.
- Pain is usually severe and may radiate into lower abdomen on the side of the torsion. There is also tenderness, and vomiting may be present.
- Can occur at any age, most commonly in adolescents 13–17 years of age and rarely in men older than 30 years of age.
- There may be a history of previous episodes of severe, self-limiting pain.
- The cremasteric reflex is almost always absent. The testis is often elevated in the scrotum, and may have a transverse lie.
- In pre-natal torsion, the testis is hard, non-tender, and usually discoloured by haemorrhagic necrosis.

#### ○ **Torsion of appendix testis or appendix epididymis**

- Onset is sudden or gradual over a few days.
- Typically painful and tender.

- Early on, a nodule can be palpated at the upper end of testis or epididymis. Later, there is more generalized scrotal oedema.
- May be indistinguishable from testicular torsion, but usually the testis is mobile and of normal size, and the cremasteric reflex is present.
- An infarcted appendage may be seen through the skin (the 'blue dot sign').
- **Epididymo-orchitis**
- Onset is usually gradual over hours to days.
- Usually painful and tender. May be relieved by elevation of testis. Painless and non-tender if tuberculous.
- There is palpable swelling of the epididymis and/or testis.
- Difficult to distinguish from torsion. Torsion is particularly likely if: the person presents less than 6 hours after symptom onset; there is a history of previous trauma, previous pain attacks, nausea, or vomiting; the cremasteric reflex is absent; or the testis is elevated or lying transversely.
- There may be urethral discharge, symptoms of a urinary tract infection, parotid swelling (mumps orchitis usually occurs 4–8 days after parotitis), or vomiting.
- There may be erythema or oedema of scrotum on the affected side, or a hydrocele.
- When tuberculous, the epididymis is hard with an irregular surface, the spermatic cord is thickened, and the vas deferens feels hard and irregular (like a string of beads).
- **Clinical features of extra-testicular causes of scrotal swelling**
- **Epididymal cyst or spermatocele**
- Onset is chronic.
- Presents as a painless, non-tender, soft, fluctuant, smooth, round nodule in the epididymis. It is usually small, but can become large.
- Does not usually transilluminate.
- **Varicocele**
- Onset is chronic.

- Often painless and non-tender, but there may be a dull, dragging discomfort.
- May be a 'bag of worms' consistency.
- Disappears on lying and reappears on standing.
- **Hydrocele**
- Onset can be acute or chronic.
- Painless and non-tender.
- Will transilluminate.
- Most common in neonates, disappearing within the first 1–2 years of life, but may appear at any age.
- Most common form presents as a fluctuant, ovoid swelling enveloping the testis or located above the testis along the spermatic cord (when a normal spermatic cord and inguinal ring can be felt above).
- May accompany a varicocele, testicular torsion, testicular cancer, or an inguinal hernia, or be caused by trauma.
- **Haematocele**
- Onset may be sudden or chronic.
- Usually associated with pain and tenderness.
- Does not transilluminate.
- Usually caused by trauma, sometimes in association with testicular rupture, but can also occur (chronically) with testicular cancer.
- **Indirect inguinal hernia**
- Onset may be acute or chronic.
- Often painless but pain may be present, particularly if the hernia is incarcerated or strangulated.
- May enlarge with Valsalva-type manoeuvres, and disappear on lying down (if reducible).

- On examination, it is not possible to 'get above' the swelling, or palpate the spermatic cord or inguinal ring; there is a positive cough impulse; and bowel sounds may be heard on auscultation.
- **Squamous cell carcinoma of the scrotum** (extremely rare)
- Onset is chronic.
- Painless.
- Typically seen only in men older than 50 years of age (peak 75 years of age).
- Presents as a raised papule, plaque, or ulcer on the scrotal wall, and is often purulent.
- Inguinal lymphadenopathy may be present (as metastases or in response to infection).

[[Rabinowitz, 1984](#); [Kadish and Bolte, 1998](#); [Riddick, 1998](#); [SIGN, 1998](#); [Clinical Effectiveness Group, 2001](#); [Ciftci et al, 2004](#); [Karmazyn et al, 2005](#); [National Collaborating Centre for Primary Care, 2005](#); [Reynard et al, 2006](#); [Ringdahl and Teague, 2006](#); [Shipstone, 2008](#); [Tiemstra and Kapoor, 2008](#); [Albers et al, 2009](#); [Hagerty and Yerkes, 2009](#); [Tekgul et al, 2009](#); [Trojian et al, 2009](#); [Yin and Trainor, 2009](#)]

#### **Basis for recommendation**

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#### **Have a very low threshold for suspecting testicular torsion**

- On the basis of expert opinion from narrative or evidence-based reviews and guidelines, it is not easy to determine the cause of acute scrotal pain and swelling from history and physical examination alone, and surgical exploration or Doppler ultrasound (provided it does not delay surgery) are often indicated [[Davenport, 1996b](#); [RCGP and BASHH, 2006](#); [Ringdahl and Teague, 2006](#); [Shipstone, 2008](#); [Schmitz and Safranek, 2009](#); [Tekgul et al, 2009](#); [BASHH, 2010](#)].
- It is vital not to miss testicular torsion because irreversible ischaemic injury can begin within 4 hours of cord occlusion, resulting in reduced fertility or even testicular loss [[Yin and Trainor, 2009](#)].

#### **History**

- The information on which to make these recommendations is derived from evidence and expert opinion from a national guideline for the management of epididymo-orchitis by the British Association for Sexual Health and HIV [[BASHH, 2010](#)], and from expert opinion from narrative reviews [[Riddick,](#)



[1998](#); [Ringdahl and Teague, 2006](#); [Weinberger et al, 2007](#); [Shipstone, 2008](#); [Tiemstra and Kapoor, 2008](#); [Trojian et al, 2009](#)].

o Some boys and men with testicular torsion give a history of previous episodes of severe, self-limiting scrotal pain and swelling, which are assumed to reflect spontaneous torsion and detorsion. Most have a 'bell-clapper' deformity, where the testis is abnormally mobile. Elective scrotal exploration and bilateral testicular fixation is indicated [[Shipstone, 2008](#)].

### Examination

▪ The information on which to make these recommendations is derived from expert opinion from:

o The National Institute for Health and Clinical Excellence guideline *Referral guidelines for suspected cancer: urological cancer* [[NICE, 2005](#)].

o A national guideline for the management of epididymo-orchitis by the British Association for Sexual Health and HIV [[BASHH, 2010](#)].

o A guideline on the management of adult testicular germ cell tumours by the Scottish Intercollegiate Guidelines Network [[SIGN, 1998](#)].

o Narrative reviews [[Riddick, 1998](#); [Ringdahl and Teague, 2006](#); [Weinberger et al, 2007](#); [Jenkins and O'Dwyer, 2008](#); [Shipstone, 2008](#); [Tiemstra and Kapoor, 2008](#); [Trojian et al, 2009](#); [Yin and Trainor, 2009](#)].

### How can I exclude testicular torsion in a boy or man with acute scrotal pain and swelling?

▪ **History and physical examination alone cannot always rule out testicular torsion.**

▪ **Have a low threshold for admitting immediately** for assessment by a surgeon (usually a urologist or paediatric surgeon).

### Basis for recommendation

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**History and physical examination alone cannot always rule testicular torsion; have a low threshold for admitting.**

▪ Urgent surgical treatment (detorsion) of testicular torsion is vital because irreversible ischaemic injury can begin within 4 hours of cord occlusion, resulting in reduced fertility or even testicular loss [[Yin and Trainor, 2009](#)].

- No single clinical feature has consistently been found to rule out testicular torsion. Limited [evidence](#), from several studies carried out in secondary care of boys with acute scrotal pain and/or swelling, indicates that testicular torsion is very unlikely if the cremasteric reflex is intact/positive (particularly if diffuse testicular tenderness is absent and the boy is presenting more than 6 hours after the onset of pain) or the testis is not elevated. However, the studies were generally low in quality: all were relatively small, retrospective, and had inconsistent application of a reference standard to all individuals. CKS did not identify any studies that evaluated clinical findings in men older than 18 years of age.
- According to several experts, writing in narrative or evidence-based reviews and guidelines, it is not easy to determine the cause of acute scrotal pain or swelling on the basis of history and physical examination alone, and surgical exploration (or perhaps Doppler ultrasound, provided it does not delay surgery) is usually needed to exclude testicular torsion [[Davenport, 1996b](#); [RCGP and BASHH, 2006](#); [Ringdahl and Teague, 2006](#); [Shipstone, 2008](#); [Schmitz and Safranek, 2009](#); [Tekgul et al, 2009](#); [BASHH, 2010](#)].

### **When should I arrange a scrotal ultrasound?**

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- Provided the scrotal swelling is *not* of acute onset (that is, there is no suspicion of torsion, acute epididymo-orchitis, or a strangulated inguinal hernia):
  - Arrange an *urgent* ultrasound scan of the scrotum if any of the following apply:
  - It is not evident whether the scrotal swelling is testicular or extra-testicular.
  - The body of the testis cannot be distinguished.
  - A hydrocele is detected in a man 20–40 years of age (being the at-risk age group for testicular cancer).
  - Consider arranging an ultrasound scan of the scrotum if there is diagnostic uncertainty.
- Do *not* arrange an ultrasound scan of the scrotum if a testicular tumour is clinically evident — refer directly for an urgent outpatient appointment (within 2 weeks) with a urologist.

### **Basis for recommendation**

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**Urgent ultrasound scan if it is not clinically evident whether a mass is testicular or extra-testicular**

- This recommendation is derived from joint guidelines on testicular cancer from the European Society for Paediatric Urology and the European Association of Urology [[Albers et al, 2009](#)] and from a published evidence-based response to a clinical enquiry [[Barnhouse et al, 2007](#)].
- These European guidelines state that the sensitivity of ultrasound in detecting testicular cancer is almost 100%.

#### **Urgent ultrasound scan if the body of the testis cannot be distinguished**

- The recommendation is derived from a recommendation based on expert opinion in the National Institute for Health and Clinical Excellence guideline *Referral guidelines for suspected cancer: urological cancer* [[NICE, 2005](#)].

#### **Urgent ultrasound scan if a hydrocele is detected in an man 20–40 years of age**

- The recommendation is based on narrative reviews and European guidelines on paediatric urology, which state that a hydrocele can be secondary to a testicular tumour [[Riddick, 1998](#); [Tiemstra and Kapoor, 2008](#); [Tekgul et al, 2009](#)].

#### **Ultrasound if there is diagnostic uncertainty**

- The recommendation to consider arranging an on the nature of the scrotal mass is based on expert opinion from a narrative reviews [[Tiemstra and Kapoor, 2008](#)].

#### **Not requesting ultrasound when a testicular tumour is clinically evident**

- The recommendation is based on European guidelines [[Albers et al, 2009](#)].

### **Scrotal swellings - Management**

#### **Scenario: Testicular torsion**

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#### **How should I manage a man or boy with suspected testicular torsion or torsion of a testicular or epididymal appendage?**

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- **If testicular torsion (torsion of the spermatic cord) or torsion of an appendage of the testis or epididymis is suspected, admit immediately** to urology or paediatric surgery.

- If the man or boy has no current scrotal swelling, but gives a history of previous episodes of severe, self-limiting pain or swelling, refer for an outpatient appointment with a urologist, the urgency depending on the frequency and duration of episodes.

### **Basis for recommendation**

These recommendations are based on evidence reported in narrative reviews [[Ringdahl and Teague, 2006](#); [Shipstone, 2008](#); [Yin and Trainor, 2009](#)] and on evidence from a large case series [[Knight and Vassy, 1984](#)].

- Testicular torsion requires surgical detorsion as soon as possible. Irreversible ischaemic injury can begin within 4 hours of spermatic cord occlusion, resulting in reduced fertility and even testicular loss [[Yin and Trainor, 2009](#)]. Rates of salvage of the affected testis decrease with time from the onset of symptoms, from 90% at 6 hours to just 10% at 24 hours [[Ringdahl and Teague, 2006](#)].
- Although torsion of an appendage often resolves with conservative management, it cannot be reliably distinguished from testicular torsion [[Ringdahl and Teague, 2006](#); [Shipstone, 2008](#)]. The appendage can be excised if surgical exploration is done because of diagnostic uncertainty or failure to resolve [[Shipstone, 2008](#)].
- A history of previous episodes of severe, self-limiting scrotal pain and swelling are assumed to be spontaneous torsion and detorsion [[Knight and Vassy, 1984](#); [Shipstone, 2008](#)]. These men usually have a 'bell-clapper deformity', where the testis is abnormally mobile, although this is not detectable clinically. Elective scrotal exploration and bilateral testicular fixation can be done.

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## **Scrotal swellings - Management**

### **Scenario: Suspected testicular cancer**

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#### **How should I manage a man or boy with suspected testicular cancer?**

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- **Refer for an urgent outpatient appointment with a urologist, to be seen within 2 weeks.**
- Consider measuring the following tumour markers whilst awaiting an urgent urology appointment, or follow local guidelines:
  - Alpha-fetoprotein (AFP) levels.

- Human chorionic gonadotrophin (hCG) levels.

## **Basis for recommendation**

### **Urgent referral**

- The recommendation to refer urgently (to be seen within 2 weeks) is in line with the National Institute for Health and Clinical Excellence guideline *Referral guidelines for suspected cancer: urological cancer* [[NICE, 2005](#)].
- Treatment of germ cell tumours is orchidectomy, chemotherapy, radiotherapy, and/or lymph node dissection. Cure rates and prognosis are excellent following treatment, particularly if the tumour is detected at an early stage.
- Following treatment, 5-year survival is nearly 100% for non-metastatic germ cell tumours.
- For metastatic disease, 5-year survival is, on average, 85%, but varies from 48% to 92% depending on the stage and type of tumour [[Dearnaley et al, 2001](#); [Albers et al, 2009](#)].

### **Measuring tumour markers while awaiting appointment**

- The statement in relation to tumour markers is in line with joint guidelines on testicular cancer from the European Society for Paediatric Urology and the European Association of Urology [[Albers et al, 2009](#)].

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## **Scrotal swellings - Management**

### **Scenario: Epididymo-orchitis, epididymitis, and orchitis**

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#### **How do I further assess a man or adolescent with epididymo-orchitis?**

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- **Have a very low threshold for suspecting and admitting to exclude testicular torsion,** particularly in adolescents and men younger than 30 years of age.
- **Identify the most likely causative organism based on risk factors.**
- Any sexually transmitted infection:
- Age less than 35 years.

- More than one sexual partner in the past 12 months.
- Any urethral discharge.
- Gonorrhoeal infection:
- Previous gonorrhoea infection.
- Known contact of a person with gonorrhoea.
- Purulent urethral discharge.
- Men who have sex with men.
- Black ethnicity.
- Enteric organisms associated with lower urinary tract infections:
- Low risk sexual history.
- Age 35 years or older.
- History of penetrative anal intercourse.
- Recent urological instrumentation or catheterization.
- Consider other causes, such as mumps orchitis (may be parotid swelling), Behçet's syndrome, tuberculosis, and amiodarone.

### **Basis for recommendation**

#### **Have a very low threshold for admitting to exclude a testicular torsion**

- Although [evidence](#) indicates that several clinical findings can help to exclude testicular torsion, none have consistently been found to exclude testicular torsion and the quality of the diagnostic studies was low.
- There is a large body of expert opinion, expressed in narrative and evidence-based reviews and guidelines, that history and clinical examination alone cannot always determine the cause of acute scrotal pain and swelling or distinguish testicular torsion from epididymo-orchitis [[Davenport, 1996b](#); [RCGP and BASHH, 2006](#); [Ringdahl and Teague, 2006](#); [Shipstone, 2008](#); [Schmitz and Safranek, 2009](#); [Tekgul et al, 2009](#); [BASHH, 2010](#)].

#### **Assessment to identify the likely cause based on risk factors**

- These recommendations are derived from:
  - A national guideline for the management of epididymo-orchitis by the British Association for Sexual Health and HIV [[BASHH, 2010](#)].
  - In sexually active adolescents and men younger than 35 years of age, the causative organism is likely to be *Chlamydia trachomatis* or *Neisseria gonorrhoeae*.
  - In men 35 years or older and adolescents and men younger than 35 years of age who are not sexually active, the causative organisms are typically enteric organisms found in lower urinary tract infections, such as *Escherichia coli*.
  - Guidelines on urological infections in adults from the European Association of Urology [[European Association of Urology, 2009](#)].
  - A national guideline by the British Association for Sexual Health and HIV for the management of genital tract infection with *Chlamydia trachomatis* [[BASHH, 2006](#)].
  - Four narrative reviews which cover aspects of history and examination, and other causes of scrotal swelling and pain [[Riddick, 1998](#); [Hagley, 2003](#); [Weinberger et al, 2007](#); [Trojian et al, 2009](#)].

#### **How do I manage a man or an adolescent boy with epididymo-orchitis?**

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- **Have a very low threshold for admitting immediately to exclude testicular torsion,** particularly in adolescents and men younger than 30 years of age.
- **If mumps orchitis is suspected,** see the CKS topic on [Mumps](#).
- **If symptoms are severe or the man or boy is very unwell,** consider admitting to hospital, particularly if he has diabetes or is immunocompromised.
- **Ideally, refer for same-day or next-day assessment by a sexual health specialist** (if mumps orchitis is not diagnosed).
- **If urgent referral to a sexual health specialist is not possible:**
  - **Obtain a mid-stream urine for dipstick, microscopy, and culture.**
  - **[Test for sexually transmitted infections.](#)**
  - **If epididymo-orchitis is thought to be due any sexually transmitted organism, including gonorrhoea:**

- Treat without waiting for test results with oral doxycycline 100 mg twice daily for 10–14 days, *plus* a single dose of either intramuscular ceftriaxone 250 mg, if available, or oral cefixime 400 mg stat as an alternative to intramuscular ceftriaxone.
- If gonorrhoea is suspected (see [risk factors for gonorrhoea](#)), seek telephone advice from a sexual health specialist. See the CKS topic on [Gonorrhoea](#) for more information.
- Refer to a sexual health specialist for follow up and contact tracing. If this is not possible, arrange follow up in primary care at the end of treatment.
- Advise the man or adolescent boy not to have any sexual contact during treatment and until his sexual partners have been traced and treated.
- **If epididymo-orchitis is thought to be due to chlamydia or other non-gonococcal organism** (no risk factors for gonorrhoea):
  - Treat without waiting for test results with doxycycline 100 mg by mouth twice daily for 10–14 days, *or* ofloxacin 200 mg by mouth twice daily for 14 days.
  - Refer to a sexual health specialist for follow up and contact tracing. If this is not possible, arrange follow up in primary care at the end of treatment.
  - Advise the man or adolescent boy not to have any sexual contact during treatment and until his sexual partners have been traced and treated.
- **If epididymo-orchitis is thought to be due to an enteric organism** (for example, *Escherichia coli*):
  - Treat without waiting for test results with ciprofloxacin 500 mg by mouth twice daily for 10 days, *or* ofloxacin 200 mg by mouth twice daily for 14 days. Avoid quinolones in people with a history of tendon disorders related to quinolones, or a history of seizures or conditions that predispose to seizures.
  - If a quinolone is contraindicated, treat with co-amoxiclav 500/125 mg three times daily for 10 days. Avoid in people with hepatic impairment, or a history of hepatic dysfunction associated with co-amoxiclav (risk of cholestatic jaundice).
  - Arrange follow up at the end of treatment.
- **Advise:**
- Bed rest, scrotal elevation (such as with supportive underwear), and analgesia.



- If ciprofloxacin or ofloxacin is prescribed, avoid nonsteroidal anti-inflammatories, and discontinue treatment and seek immediate medical advice if joint or tendon pain occur.
- If symptoms worsen, or do not begin to improve within 3 days, return for reassessment.

### **Basis for recommendation**

#### **Have a very low threshold for admitting immediately to exclude a testicular torsion**

- Although [evidence](#) indicates that several clinical findings can help to exclude testicular torsion, none have consistently been found to exclude testicular torsion and the quality of the diagnostic studies was low.
- There is a large body of expert opinion, expressed in narrative and evidence-based reviews and guidelines, that history and clinical examination alone cannot always determine the cause of acute scrotum or distinguish testicular torsion from epididymo-orchitis [[Davenport, 1996b](#); [RCGP and BASHH, 2006](#); [Ringdahl and Teague, 2006](#); [Shipstone, 2008](#); [Schmitz and Safranek, 2009](#); [Tekgul et al, 2009](#); [BASHH, 2010](#)].

#### **Consider admitting if symptoms are severe or the man or boy is very unwell, particularly if diabetic or immunocompromised**

- In the absence of published evidence, this recommendation is based on expert opinion from a CKS reviewer.

#### **Referral to a sexual health specialist**

- This recommendation is based on joint guidelines on sexually transmitted infections in primary care by the Royal College of General Practitioners (RCGP) and the British Association for Sexual Health and HIV (BASHH) [[RCGP and BASHH, 2006](#)].
- Sexual health specialists have the expertise and resources to provide more effective testing and pre-test counselling for sexually transmitted infections (STIs), including screening for coexisting STIs, and to provide contact tracing [[RCGP and BASHH, 2006](#)].

#### **Management if referral to a sexual health specialist is not possible**

- These recommendations are mainly based on:

- A national guideline for the management of epididymo-orchitis in adults by BASHH [[BASHH, 2010](#)].
- For epididymo-orchitis most probably due to any sexually transmitted pathogen, oral doxycycline *plus* intramuscular ceftriaxone or oral cefixime is recommended due to the high levels of quinolone-resistant gonorrhoea.
- If intramuscular ceftriaxone is not available in primary care, oral cefixime is recommended by CKS as a practical alternative to intramuscular ceftriaxone. For the basis for prescribing oral cefixime as an alternative to ceftriaxone for gonorrhoea, see the [Basis for recommendation](#) for the section on [Treatment](#) in the CKS topic on [Gonorrhoea](#).
- The recommendations from this guideline, where appropriate, have been extrapolated to adolescents.
- Guidelines on sexually transmitted infections in primary care by the RCGP and BASHH [[RCGP and BASHH, 2006](#)].
- Consensus of expert opinion from the British Society for Antimicrobial Chemotherapy (BSAC), in relation to the use of ciprofloxacin in children and the use of co-amoxiclav as an alternative to ciprofloxacin/quinolones in the treatment of epididymo-orchitis thought to be due to enteric organisms [[British Society for Antimicrobial Chemotherapy, Personal Communication, 2010](#)].
- The British National Formulary (BNF) and the BNF for Children state that quinolones are generally not recommended in children and growing adolescents because they cause arthropathy in the weight-bearing joints of immature animals, but that the significance of this effect in humans is uncertain [[BNF 58, 2009](#); [BNF for Children, 2009](#)]. However, they may be used where the benefit is considered to outweigh the potential risks [[BNF 58, 2009](#); [BNF for Children, 2009](#)]. The consensus view of BSAC is that ciprofloxacin is 'safe for use in children, and that the benefits of use outweigh any risk in this specific situation' [[British Society for Antimicrobial Chemotherapy, Personal Communication, 2010](#)].
- The British National Formulary [[BNF 58, 2009](#)], in relation to:
  - Avoiding quinolones in people with a history of tendon disorders related to quinolones, or a history of seizures or conditions that predispose to seizures.
  - Advice to avoid the use of nonsteroidal anti-inflammatory drugs with quinolones, because of an increased risk of convulsions.

- Advice to discontinue treatment with quinolones and seek immediate medical advice if joint or tendon pain should occur, because tendon damage (including rupture) has been reported rarely in people receiving quinolones.
- Very limited [evidence](#) from the only randomized, controlled trial of antibiotics for epididymo-orchitis identified by CKS that, for men older than 40 years of age with epididymitis, ciprofloxacin is more effective than pivampicillin, and has a lower risk of adverse effects.
- The recommendation in relation to the risk of cholestatic jaundice with co-amoxiclav is derived from advice from the Committee on Safety of Medicines [[CSM, 1997](#)].

### **How do I test for sexually transmitted infections in a man or adolescent boy with epididymo-orchitis?**

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These recommendations are only appropriate for adolescent boys and men for whom referral for same day or next-day assessment by a sexual health specialist is not possible.

- **Confirm which testing methods are used locally**, as there are a variety of laboratory tests available.
  - For details on how to take a urethral swab or first-void urine sample, see the section on [Laboratory tests](#) in the CKS topic on [Urethritis - male](#).
- **Test for gonorrhoea** by taking *either* a urethral swab for microscopy and nucleic acid amplification testing (NAAT) and/or culture, *or* a first-void urine sample for microscopy and testing by NAAT.
  - Send any urethral swabs to the laboratory as soon as possible, and refrigerate whilst awaiting transport, as there is a loss of viability of gonococci within 6 hours of the sample being taken (resulting in a false-negative result).
- **Test for chlamydia** by requesting NAAT on a first-void urine sample or urethral swab.
- **Consider testing for trichomoniasis, HIV, hepatitis, and syphilis.**
  - See the CKS topics on [Trichomoniasis](#) and [HIV infection and AIDS](#) for more information.

### **Basis for recommendation**

- These recommendations are based on:

- A national guideline for the management of epididymo-orchitis by the British Association for Sexual Health and HIV (BASHH) [[BASHH, 2010](#)].
- Recommendations from the Bacterial Special Interest Group of BASHH on testing for sexually transmitted infections in primary care settings [[BASHH, 2004](#)].
- A national guideline on the diagnosis and treatment of gonorrhoea in adults by BASHH [[BASHH, 2005](#)].
- A national guideline on the management of genital tract infection with *Chlamydia trachomatis* by BASHH [[BASHH, 2006](#)].
- Joint guidelines on sexually transmitted infections in primary care by the Royal College of General Practitioners and BASHH [[RCGP and BASHH, 2006](#)].

### **What should I do at follow up for a man or adolescent boy with epididymo-orchitis?**

- **If swelling has worsened or has not started to improve within 3 days of commencing antibiotics**, reassess, and consider a change of antibiotics according to laboratory results (no causative organism is found in 30–40% of men with epididymitis), or consider admission to urology.
  - Further follow up is recommended at 2 weeks to assess compliance with treatment, partner notification, and improvement of symptoms.
- **If swelling persists after antibiotic treatment is completed**, refer for an urgent outpatient appointment with a urologist to exclude underlying testicular cancer.
- **If a urinary tract infection is confirmed**, refer to a urologist to investigate for an underlying structural abnormality or urinary tract obstruction. See the CKS topic on [Urinary tract infection \(lower\) - men](#) for more information.
- **If a sexually transmitted infection is confirmed**, see the CKS topics on [Chlamydia - uncomplicated genital](#), [Gonorrhoea](#), [Trichomoniasis](#), or [HIV infection and AIDS](#), and see the section on [Partner notification](#) in the CKS topic on [Urethritis - male](#).

### **Basis for recommendation**

- These recommendations are derived from:
  - A national guideline for the management of epididymo-orchitis by the British Association for Sexual Health and HIV (BASHH) [[BASHH, 2010](#)], which states:

- Anatomical or functional abnormalities of the urinary tract are common in men infected with Gram negative enteric organisms (for example, *Escherichia coli*), and further investigation of the urinary tract should be considered in all such patients, but especially in those older than 50 years.
- Follow up is recommended at 2 weeks after initial presentation, to assess compliance with treatment, partner notification, and improvement of symptoms.
- Guidelines on sexually transmitted infections in primary care by the Royal College of General Practitioners and the British Association for Sexual Health and HIV [[RCGP and BASHH, 2006](#)].
- The recommendation to refer urgently to exclude underlying testicular cancer if swelling does not improve is derived from a narrative review [[Riddick, 1998](#)].
- The information that no causative organism is found in 30–40% of men with epididymitis is derived from a narrative review [[Ludwig, 2008](#)].

### **How should I manage a pre-pubertal boy with epididymo-orchitis?**

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- **Have a low threshold for admitting to exclude testicular torsion.**
- **Admit if systemically very unwell.**
- **If mumps orchitis is suspected** (because of the presence of parotid swelling), see the CKS topic on [Mumps](#).
- **Obtain a mid-stream urine sample** for dipstick, microscopy, and culture.
- **If urine dipstick or microscopy and culture indicate a urinary tract infection:**
  - Seek specialist advice on the choice, dose, and duration of antibiotics.
  - Referral to a paediatric specialist may be required for further investigations — see the CKS topic on [Urinary tract infection - children](#).
- **If a urinary tract infection is not identified**, seek specialist advice, as opinion is divided on whether or not antibiotic treatment is necessary.

### **Basis for recommendation**

**Have a low threshold for admitting to exclude testicular torsion**

- See the [Basis for recommendation](#) for the management of epididymo-orchitis in a man or adolescent boy.
- Although torsion is less common in pre-pubertal boys than in adolescents and young men, it is well documented in this age group [[Kadish and Bolte, 1998](#); [Mushtaq et al, 2003](#)].

#### **Admit if systemically unwell**

- CKS made this recommendation because epididymo-orchitis in this age group can be seen in association with meningitis, salmonella infection, and *Haemophilus influenzae* infection [[Hagley, 2003](#)].

#### **Obtain and test a mid-stream urine sample**

- This recommendation is based on guidelines on paediatric urology from the European Society for Paediatric Urology and the European Association of Paediatric Urology [[Tekgul et al, 2009](#)], and on guidelines on urological infections from the European Association of Urology [[European Association of Urology, 2009](#)].

#### **Seek specialist advice regarding treatment of pre-pubertal boys with epididymo-orchitis in association with a urinary tract infection (UTI)**

- The recommendation to seek specialist advice regarding the treatment of pre-pubertal boys with epididymo-orchitis in association with a UTI is made because there are no guidelines or primary evidence to guide the choice, dose, and duration of antibiotics specifically in this age group, and because antibiotics recommended for adults with epididymo-orchitis are not normally recommended in children.
- Guidelines on urological infections from the European Association of Urology recommend quinolones for 2–4 weeks, on the basis that they have favourable penetration into the epididymis and testis [[European Association of Urology, 2009](#)]. However, these guidelines do not differentiate between pre-pubertal children and adolescents or men.
- A national guideline for the management of epididymo-orchitis by the British Association for Sexual Health and HIV (BASHH) only makes recommendations for adults. In adults with epididymo-orchitis thought to be due to an enteric organism, ofloxacin for 2 weeks or ciprofloxacin for 10 days are recommended [[BASHH, 2010](#)].
- The British National Formulary (BNF) and the BNF for Children state that quinolones are generally not recommended in children and growing adolescents because they cause arthropathy

in the weight-bearing joints of immature animals, but that the significance of this effect in humans is uncertain [[BNF 58, 2009](#); [BNF for Children, 2009](#)]. However, they may be used where the benefit is considered to outweigh the potential risks [[BNF 58, 2009](#); [BNF for Children, 2009](#)].

### Seek specialist advice if a UTI is not found

- This recommendation is made on account of conflicting evidence and expert opinion.
- Guidelines on paediatric urology from the European Society for Paediatric Urology and the European Association of Paediatric Urology state that antibiotics are not necessary [[Tekgul et al, 2009](#)].
- In a retrospective review of 36 pre-pubertal boys with epididymitis but no pyuria who were not treated with antibiotics, none of the 33 boys followed up (for a mean 87 days) had testicular atrophy or any other complications [[Lau et al, 1997](#)].
- One CKS expert reviewer disagreed with a recommendation to withhold antibiotics if a UTI is not found, stating that bacterial infection does occur in this age group.

### Prescriptions

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For information on contraindications, cautions, drug interactions, and adverse effects, see the electronic Medicines Compendium (eMC) (<http://emc.medicines.org.uk>), or the British National Formulary (BNF) ([www.bnf.org](http://www.bnf.org)).

### Any suspected STI, including gonorrhoea

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#### Age from 13 years onwards

#### Multi-therapy: Ceftriaxone injection + doxycycline

##### Ceftriaxone injection: 250mg single dose

Ceftriaxone 250mg powder for solution for injection vials  
Reconstitute and give a single dose of 250mg by intramuscular injection.  
Supply 1 250mg vial.

**Age:** from 13 years onwards  
**NHS cost:** £2.40  
**Licensed use:** yes

##### Doxycycline capsules: 100mg twice a day for 14 days

Doxycycline 100mg capsules  
Take one capsule twice a day for 14 days.  
Supply 28 capsules.

**Age:** from 13 years onwards  
**NHS cost:** £2.22  
**Licensed use:** yes

## Multi-therapy: Cefixime + doxycycline

### Cefixime tablets: 400mg single dose

Cefixime 200mg tablets  
Take two tablets as a single dose.  
Supply 2 tablets.

**Age:** from 13 years onwards  
**NHS cost:** £3.78  
**Licensed use:** no - off-label indication

### Doxycycline capsules: 100mg twice a day for 14 days

Doxycycline 100mg capsules  
Take one capsule twice a day for 14 days.  
Supply 28 capsules.

**Age:** from 13 years onwards  
**NHS cost:** £2.22  
**Licensed use:** yes

## Suspected STI: non-gonococcal

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### Age from 13 years onwards

#### Doxycycline capsules: 100mg twice a day for 10 days

Doxycycline 100mg capsules  
Take one capsule twice a day for 10 days.  
Supply 20 capsules.

**Age:** from 13 years onwards  
**NHS cost:** £1.23  
**Licensed use:** yes

#### Doxycycline capsules: 100mg twice a day for 14 days

Doxycycline 100mg capsules  
Take one capsule twice a day for 14 days.  
Supply 28 capsules.

**Age:** from 13 years onwards  
**NHS cost:** £2.22  
**Licensed use:** yes

### Age from 18 years onwards

#### Ofloxacin tablets: 200mg twice a day for 14 days

Ofloxacin 200mg tablets  
Take one tablet twice a day for 14 days.  
Supply 28 tablets.

**Age:** from 18 years onwards  
**NHS cost:** £18.08  
**Licensed use:** yes

## Suspected enteric organism

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### Age from 13 years to 17 years 11 months



### Ciprofloxacin tablets: 500mg twice a day for 10 days

Ciprofloxacin 500mg tablets  
Take one tablet twice a day for 10 days.  
Supply 20 tablets.

**Age:** from 13 years to 17 years 11 months

**NHS cost:** £1.41

**Licensed use:** no - off-label indication

### Age from 13 years onwards

### Co-amoxiclav tabs: 500/125mg three times a day for 10 days

Co-amoxiclav 500mg/125mg tablets  
Take one tablet three times a day for 10 days.  
Supply 30 tablets.

**Age:** from 13 years onwards

**NHS cost:** £8.19

**Licensed use:** yes

### Age from 18 years onwards

### Ofloxacin tablets: 200mg twice a day for 14 days

Ofloxacin 200mg tablets  
Take one tablet twice a day for 14 days.  
Supply 28 tablets.

**Age:** from 18 years onwards

**NHS cost:** £18.08

**Licensed use:** yes

### Ciprofloxacin tablets: 500mg twice a day for 10 days

Ciprofloxacin 500mg tablets  
Take one tablet twice a day for 10 days.  
Supply 20 tablets.

**Age:** from 18 years onwards

**NHS cost:** £1.41

**Licensed use:** yes

## Scrotal swellings - Management

### Scenario: Inguinal hernia extending into scrotum

#### How should I manage a man or boy with an inguinal hernia extending into the scrotum?

- **Exclude strangulation or obstruction**, which are suggested by:
  - An acutely painful, firm, tender, irreducible mass (strangulation).
  - Vomiting, constipation, absence of flatus, and abdominal pain and distension (obstruction).
- **If there are features of strangulation or obstruction**, admit immediately.
- **If there are no features of strangulation or obstruction:**

- For an infant or young boy, refer urgently to a paediatric surgeon (preferably to be seen within 2 weeks).
- For a man or older boy who is medically fit, offer referral to a surgeon for repair, even if he is asymptomatic and the hernia reducible.
- For a man or older boy who is *not* medically fit:
  - If he is symptomatic or the hernia is irreducible, offer referral for an assessment of the risks by a surgeon and an anaesthetist.
  - If he is asymptomatic and the hernia is reducible, discuss the risks and advise watchful waiting.
- Advise about the symptoms of strangulation and obstruction, and tell the person to seek immediate medical attention if they occur.

### **Basis for recommendation**

#### **Features of strangulation and obstruction**

- These are usually well known, but are derived here from a narrative review [[Tiemstra and Kapoor, 2008](#)] and a standard textbook [[Browse, 2005](#)].

#### **Admit immediately if there are features of strangulation or obstruction**

- This recommendation is based on European guidelines on the treatment of inguinal hernia in adults [[Simons et al, 2009](#)] and, for children, on expert opinion from narrative reviews [[Davenport, 1996a](#); [Benjamin, 2002](#); [Leslie and Cain, 2006](#)].

#### **Refer urgently an infant or young boy**

- This is based on expert opinion, and on evidence from narrative reviews that the risk of incarceration in the first 6 months of life in children with an inguinal hernia is 60% [[Benjamin, 2002](#); [Haynes, 2006](#); [Hagerty and Yerkes, 2009](#)]. It is not known at what age this risk diminishes, and it is likely that, for children older than 6 months of age, an inguinal hernia will already either have been operated on or have become incarcerated.

#### **Refer a man or older boy without features of strangulation or obstruction**

- Although European guidelines on the treatment of inguinal hernia in adults recommend that repair is not necessary for men with asymptomatic and reducible inguinal hernias [[Simons et al, 2009](#)], CKS recommends referral for repair where the hernia extends into the scrotum and the person is medically fit on the basis that:
  - The risk of strangulation for all inguinal hernias is estimated to be 0.3–3.0% per year [[Simons et al, 2009](#)].
  - If an inguinal hernia extends into the scrotum, it is almost always indirect [[Douglas et al, 2009](#)].
  - The risk of strangulation is thought to be 10 times higher for indirect hernias than for direct inguinal hernias [[Simons et al, 2009](#)].
  - An emergency operation to treat a strangulated inguinal hernia has a higher mortality (higher than 5%) compared with an elective operation for a non-strangulated inguinal hernia (lower than 0.5%) [[Simons et al, 2009](#)].
  - Repair is recommended in a narrative review for people with asymptomatic inguinal hernia if they are medically fit [[Jenkins and O'Dwyer, 2008](#)].
- No evidence or published expert opinion was found on whether to refer men and older boys who are not medically fit. These recommendations are based on expert opinion from CKS reviewers and on what CKS considers to be good medical practice.
- The recommendation to advise about symptoms of strangulation or obstruction is based on what CKS considers to be good medical practice in the absence of evidence and published expert opinion.

## Scrotal swellings - Management

### Scenario: Varicocele

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How should I manage a man or boy with a varicocele?

See the CKS topic on Varicocele.

Basis for recommendation

See the CKS topic on Varicocele.

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## Scrotal swellings - Management

### Scenario: Suspected squamous cell carcinoma of the scrotum

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#### How should I manage a man with suspected squamous cell carcinoma of the scrotum?

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- Refer for an urgent outpatient appointment with a urologist or dermatologist, to be seen within 2 weeks.

#### Basis for recommendation

- The recommendation on referral is in line with the National Institute for Health and Clinical Excellence guideline *Referral guidelines for suspected cancer: skin cancer* [[NICE, 2005](#)].
- Treatment is by wide local excision. Inguinal lymphadenectomy, with adjuvant chemotherapy, is considered if inguinal lymphadenopathy persists after antibiotics (often prescribed for 6 weeks) for super-imposed local infection [[Reynard et al, 2006](#)].
- Prognosis is poor if there is supraclavicular lymphadenopathy, or visceral or bony metastases [[Reynard et al, 2006](#)].

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## Scrotal swellings - Management

### Scenario: Hydrocele

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#### How should I manage a boy with a congenital hydrocele?

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- **For an infant or toddler with a hydrocele since birth:**
  - Refer to a paediatric surgeon if any of the following apply:
    - The hydrocele fluctuates in size (for example at the end of the day or after crying — suggesting a communicating hydrocele).
    - The swelling cannot be distinguished from an inguinal hernia.
    - The hydrocele is localized to the spermatic cord (suggesting a hydrocele of the cord).
    - There is also a palpable abdominal mass (suggesting an abdomino-scrotal hydrocele).

- A simple, non-communicating hydrocele either is not decreasing in size or is still present at 2 years of age.
- If none of the criteria for referral apply, reassure the parents that the hydrocele is likely to resolve without treatment by 2 years of age.
- Do not aspirate.

### **Basis for recommendation**

- In the absence of higher-quality evidence, these recommendations are based on expert opinion from:
  - A narrative review [[Hagerty and Yerkes, 2009](#)] which states that:
    - Elective repair is needed for communicating hydroceles (suggested by fluctuation in size) or abdomino-scrotal hydroceles (when a child has a palpable abdominal mass).
    - A hydrocele of the cord cannot be easily distinguished from an inguinal hernia.
  - A narrative review [[Gill, 1998](#)] which recommends:
    - Referral at diagnosis of an infant with a communicating hydrocele or a hydrocele of the cord.
    - That, for simple, non-communicating hydrocele, 'if the swelling is consistently decreasing in size over time, it may be monitored by the primary care provider'.
  - Guidelines on paediatric urology from the European Society for Paediatric Urology and the European Association of Paediatric Urology [[Tekgul et al, 2009](#)], which state that:
    - 'Surgical treatment is not indicated, for most infants, within the first 12–24 months because of the tendency for spontaneous resolution'. (CKS assumes this applies to children with simple hydroceles.)
    - 'Early surgery is indicated if there is suspicion of a concomitant hernia.'

### **How should I manage a boy or man with a new, non-congenital hydrocele?**

For a boy or man with a new, non-congenital hydrocele:

- Consider whether the hydrocele may be secondary to testicular torsion, epididymo-orchitis, testicular cancer, varicocele, hernia, trauma, or continuous peritoneal ambulatory dialysis, and manage accordingly.

- If testicular torsion may be the cause, admit immediately.
- Look for generalized oedema (for example due to heart failure or renal failure).
- If the man is 20–40 years of age or the body of the testis cannot be distinguished, arrange an urgent ultrasound scan of the scrotum.
- Refer for an outpatient appointment with a urologist or paediatric surgeon.
- Do not aspirate unless for symptomatic relief in an elderly man who is unfit for surgery, and then only if you have the expertise.

### **Basis for recommendation**

These recommendations are based on the need to identify testicular cancer [[Riddick, 1998](#); [NICE, 2005](#)] or other causes, including testicular torsion, varicocele, epididymo-orchitis, trauma, hernia, fluid overload, and continuous peritoneal ambulatory dialysis [[Riddick, 1998](#); [Weinberger et al. 2007](#); [Tekgul et al. 2009](#)].

### **Suspected testicular torsion**

- The recommendation to admit immediately if a testicular torsion is suspected is based on evidence from narrative reviews that surgical detorsion is needed as soon as possible to prevent irreversible ischaemic injury, which can result in reduced fertility and even testicular loss [[Ringdahl and Teague, 2006](#); [Yin and Trainor, 2009](#)].

### **Urgent ultrasound**

- The recommendation to arrange an urgent ultrasound scan of the scrotum if the man is 20–40 years of age (the at-risk age group for testicular cancer) is based on expert opinion from a narrative review [[Riddick, 1998](#)].
- The recommendation to arrange an urgent ultrasound scan of the scrotum when the body of the testis cannot be distinguished is in line with the National Institute for Health and Clinical Excellence guideline *Referral guidelines for suspected cancer: urological cancer* [[NICE, 2005](#)].

### **Not to aspirate hydrocele unless for symptomatic relief in an elderly man**

- The recommendation not to aspirate unless for symptomatic relief in an elderly man who is unfit for surgery is based on expert opinion from a narrative review [[Riddick, 1998](#)].

## Scrotal swellings - Management

### Scenario: Haematocele

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#### How should I manage a man or boy with a haematocele?

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- If the haematocele follows acute trauma, admit immediately.
- If the haematocele does not follow trauma or is chronic, refer for urgent ultrasound of the scrotum.

### Basis for recommendation

#### Admit immediately

- The recommendation to admit immediately if the haematocele follows acute trauma is based on low-quality evidence from case series [[Schuster, 1982](#); [Schaffer, 1985](#); [Cass and Luxenberg, 1988](#); [Kratzik et al, 1989](#); [Altarac, 1994](#); [Chandra et al, 2007](#)], and on expert opinion from a narrative review [[Tiemstra and Kapoor, 2008](#)], that immediate ultrasound of the scrotum or surgical exploration is indicated to exclude testicular torsion, exclude or repair rupture of the testis, or evacuate a haematocele and prevent the need for later orchidectomy.

#### Urgent ultrasound

- The recommendation to refer for urgent ultrasound if the haematocele does not follow trauma is based on very low-quality evidence from a case report [[Alvarez-Alvarez et al, 2005](#)], and on expert opinion from a narrative review [[Riddick, 1998](#)], that haematoceles can be secondary to testicular cancer.

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## Scrotal swellings - Management

### Scenario: Epididymal cyst/spermatocoele

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#### How should I manage a man or boy with an epididymal cyst or spermatocoele?

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- If confident of the diagnosis:
  - Reassure the man that epididymal cysts/spermatocoeles are common, harmless, rarely cause any symptoms, and rarely need treatment.

- If the man has bothersome symptoms, offer referral for a routine outpatient appointment with a urologist.
- If there is diagnostic uncertainty, see [When to ultrasound](#).

### **Basis for recommendation**

These recommendations are based on expert opinion from narrative reviews [[Junnila and Lassen, 1998](#); [Rubenstein et al, 2004](#)].