Lumps in the Groin and Scrotum

Lumps in the groin and scrotum can occur at any age. Clinical assessment is needed to detect those which need urgent investigation or treatment. Usually a working diagnosis can be made clinically, and ultrasound is often helpful.

Aetiology

Groin lumps

Painful lumps:
- Tender lymph nodes.
- Strangulated femoral hernia.
- Psoas abscess.

Painless lumps:
- Skin swellings - eg, epidermal (sebaceous) cyst, contact dermatitis.
- Nontender nodes.
- Femoral hernia.
- Undescended, maldescended or ectopic testis.
- Vascular:
  - Femoral artery aneurysm.
  - Saphena varix (varicosity of saphenous vein at the junction with the femoral vein).

Scrotal lumps

Painful lumps:
- Torsion of testis.
- Torsion of a testicular or epididymal appendage.
- Epididymo-orchitis or orchitis.
- Strangulated inguinal hernia.
- Haematocele/hematoma.

Painless lumps:
- Inguinal hernia (may sometimes be painful).
- Hydrocele.
- Epididymal cyst.
- Spermatocele (feels similar to epididymal cyst but is filled with semen).
- Varicocele.
- Testicular tumour.
- Skin swellings (as for groin lumps).

Less common causes of scrotal swelling include:
- Idiopathic scrotal oedema (mainly children).
- Squamous cell carcinoma of scrotum.
- Infections:
  - Syphilitic gumma of the testis (round, hard, insensitive mass, indistinguishable from a tumour).
  - Tuberculous epididymitis.
- Filarisis.
- Henoch-Schönlein purpura.
- Kawasaki disease.
- Pancreatitis (fluid may track down the retroperitoneal compartment into the inguinal canal and scrotal sac).
- Complications of peritoneal dialysis and ventriculoperitoneal shunts.
- Crohn's disease manifestations: erythema nodosum and pyoderma gangrenosum.
- Sarcoidosis.
- Familial Mediterranean fever.
- Metastases (mainly from penile lesions).
- Hidradenitis suppurativa.
- Congenital abnormalities of lymphatic vessels (Milroy's disease).
- Generalised oedema.
Anatomy of structures in the groin and scrotum

Assessment[1]

History

- Pain.
- Duration and speed of onset (sudden in testicular torsion, more gradual in epididymo-orchitis).
- Change in size.
- Trauma.
- Note whether it reduces (eg, on lying down).
- Previous episodes. (Those with testicular torsion may have had previous self-limiting episodes.)
- Associated symptoms:
  - Urethral discharge or dysuria (suggests epididymo-orchitis).
  - Abdominal pain, nausea and vomiting (can occur with testicular torsion).
  - Back pain, weight loss, dyspnoea (can occur with metastatic testicular cancer).
  - Parotid swelling (mumps orchitis).

Examination[1, 3]
This should be carried out with the patient both standing and supine - hernias, varicoceles and saphena varix are more prominent when the patient is standing.
Check the normal structures and landmarks, which are:

- Inguinal ligament
- Femoral artery
- Pubic tubercle
- Testis
- Epididymis
- Spermatic cord

When examining the lump, note:

- Tenderness: suggests infection or ischaemia, so think of testicular torsion, a strangulated hernia, epididymo-orchitis or psoas abscess.
- Consistency of swelling: firm or solid for malignancy, soft and fluctuant for a cyst or hernia.
- Location relative to landmarks. Femoral hernias are below and lateral to the pubic tubercle but, in practice, it is not always possible to distinguish inguinal and femoral hernias.
- Note whether you can 'get above' the swelling (ie feel the upper border of it). You cannot 'get above' a hernia.
- Testis:
  - Note whether the lump is separate from the testis.
  - Testicular lie (may be transverse or high-riding in testicular torsion).
  - Cremasteric reflex. In the normal reflex, light stroking of the inner thigh causes contraction of the cremasteric muscle and therefore the testis on that side is pulled up. If absent, and there is acute scrotal pain or swelling, suspect testicular torsion.
- A cough impulse suggests hernia or saphena varix.
- Transillumination: cystic swellings such as hydroceles transilluminate well; solid tumours and most hernias don't. Inguinal hernias in infants may transilluminate.
- Skin changes - a raised papule, plaque, or ulcer suggests scrotal cancer (rare).
- Presence or absence of lymphadenopathy.
- It is not necessary to distinguish between direct and indirect inguinal hernias.
- Varicoceles typically feel like a "bag of worms" and are more often left-sided.

### Scrotal swellings - urgent problems not to miss

#### Testicular torsion
Requires a low threshold of suspicion and immediate referral:
- May be difficult to exclude on clinical grounds; may mimic epididymo-orchitis.
- Common in teenagers; rare >30 years of age.
- Sudden or gradual onset; may have had previous self-limiting pain episodes.
- Painful; usually severe pain, which may radiate to the abdomen; may have vomiting.
- Cremasteric reflex is almost always absent.
- Testis is often elevated or lying transversely.
- Neonates - testis is hard, non-tender, and usually haemorrhagic.

#### Testicular cancer
- Most common in men aged 20-40 years; can occur in older men (usually lymphoma).
- Usually presents with testicular enlargement.
- Often painless and non-tender; there may be a dragging sensation. Pain is present in 20-30%.
- May have back or flank pain, dyspnoea, supraclavicular lymphadenopathy, abdominal mass (enlarged para-aortic lymph nodes), weight loss, gynaecomastia, epididymo-orchitis, or hydrocele.
- On palpation, solid/firm swelling involving all or part of the testis.

#### Inguinal hernias in infants, or if strangulated/obstructed
- 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 (abdominal pain and/or intestinal obstruction symptoms).
- Cannot get above the swelling.

#### Squamous cell carcinoma of the scrotum
- Extremely rare; usually only in men aged >50 years.
- Raised papule, plaque, or ulcer on the scrotal wall; often purulent.
- Inguinal lymphadenopathy may be present (due to metastases or infection).

### Investigations
- Clinically suspected testicular cancer: do not wait for investigations, but refer urgently to be seen within two weeks by a urologist. Alpha-fetoprotein (AFP) and beta human chorionic gonadotrophin (beta-hCG) are tumour markers for testicular cancer - can arrange a blood test while awaiting appointment.
Where diagnosis is unclear, request urgent ultrasound of the scrotum and/or groin (almost 100% sensitive for testicular tumours). This is useful, for example, where the body of the testis cannot be distinguished or where it is not clear whether the swelling is testicular or extratesticular, and for hydroceles in adults (to exclude testicular cancer).

Tests as appropriate for sexually transmitted infections where there is epididymo-orchitis.

Acute lymphadenopathy may need investigation for limb or genital/sexually transmitted infection.

Persistent unexplained lymphadenopathy needs biopsy.

Inguinal hernias in baby girls probably merit investigation for androgen insensitivity syndrome. [4]

Management

This depends on the diagnosis, but note that:

- Immediate referral is necessary for:
  - Suspected torsion of the testis.
  - Strangulated or obstructed hernia.

- Urgent referral/investigation is needed for:
  - Scrotal swellings, unless the diagnosis is known, to exclude testicular cancer; [1]
  - Inguinal hernias in infants. All are repaired as there is a risk of strangulation, but there is debate about the optimal timing of repair, and the urgency of this. [5, 6]

- Femoral hernias:
  - These are more likely to strangulate than inguinal hernias; if suspected, they should be referred for surgery to be considered.

- Hydroceles:
  - In infants, these usually resolve spontaneously.
  - Hydroceles occurring in adults may be secondary to testicular tumour or infection and should be investigated - request urgent ultrasound for hydrocele in men aged 20-40 years. [1]

Prevention

Testicular cancer may present as a painless testicular swelling, and is often curable if treated early. Testicular self-examination may have a role in the early detection of testicular cancer. As for any lump, early consultation for testicular swellings should be encouraged.

Further reading & references

- Varicocele; NICE CKS, October 2012
- Management of epididymo-orchitis; British Association for Sexual Health and HIV (2010 updated June 2011)
- Guidelines on Testicular Cancer; European Association of Urology (2011)
- Acute scrotal pain or swelling, Clinical practice guidelines; The Royal Childrens Hospital Melbourne, January 2013

1. Scrotal Swellings; NICE CKS, February 2010 (UK access only)

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