Diagnosis and treatment of benign scrotal swellings

THE AUTHORS REVIEW THE COMMON BENIGN SCROTAL SWELLINGS FREQUENTLY SEEN IN PRIMARY AND SECONDARY CARE.

Benign scrotal swellings (Box 1) are among the most common urological consultations. In most cases, a single clinic visit is all that is required to determine the non-malignant nature of the patient’s swelling and offer reassurance. With experience, ultrasonography is rarely required.

SEBACEOUS CYSTS

These are benign swellings of the scrotal skin secondary to obstruction of sebaceous glands. They can be multiple and can cause local discomfort. On clinical examination, they are localised to scrotal skin and separate from the testes. They can be locally excised, often under local anaesthesia, if causing symptoms.

EPIDIDYMAL CYSTS

These benign, fluid-filled, thin-walled cysts are found posterior to the testis, usually in the upper or lower pole of the epididymis (Figure 1). It is thought that about 30 per cent of men have one or more of these cysts, which, in themselves, pose no serious threat. The patient typically presents with a persistent hemiscrotal swelling that is usually painless, but may give a dragging sensation depending upon size. There are no associated systemic symptoms such as weight loss or back pain. Examination of the scrotal contents will reveal a swelling attached to, but definitely separate from, the testis, which will be palpably normal.

BOX 1. Differential diagnosis of benign scrotal swelling

- Sebaceous cyst
- Epididymal cyst
- Sperm granuloma
- Hydrocele
- Varicocele

Figure 1. Perioperative finding of a lower pole epididymal cyst

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The cyst itself may be slightly tender with a consistency similar to that of a squash ball. Epididymal cysts may be multiple and bilateral.

The diagnosis is a clinical one in most cases, and several authors have shown that, in experienced hands, clinical diagnosis is as accurate as ultrasonography. Occasionally, confusion may arise in the presence of huge or multiple epididymal cysts, and in these scenarios palpation of the testis may be impossible, mandating ultrasonography for accurate diagnosis.

The differential diagnosis rests between an epididymal cyst, sperm granuloma, hydrocele and an inguinoscrotal hernia.

Examination of the patient in the erect position will aid diagnosis and allow the physician to determine whether or not it is possible to get above the swelling. This being the case, an inguinoscrotal hernia can be excluded. Epididymal cysts usually transilluminate, but this is an inaccurate test and simple ultrasonography will allow an accurate diagnosis if in doubt.

The indications for intervention and hence referral to secondary care are given in Box 2.

Treatment of epididymal cysts

Treatment, with the exception of reassurance, is surgical, usually performed on a day-case basis. Under regional or general anaesthesia, a transverse hemiscrotal incision is made through the skin and dartos muscle. The testis is then delivered and the cyst dissected free and excised (see Figure 1). At the time of surgery, it may become apparent that the fluid within the cyst contains sperm, giving the cyst a milky appearance (Figures 2 and 3), making the diagnosis one of a spermatocele. A wound drain is not usually required and with dissolvable sutures follow-up is unnecessary.

Attempts to avoid surgery by offering cyst aspiration are futile, recurrence is universal and sclerosants are very poorly tolerated. Hence this avenue should be explored only for the rare patient who is unfit for any form of anaesthesia. Preoperatively, it is important to warn the patient that there is a high recurrence rate for epididymal cyst excision and that, if the indication for intervention is pain or discomfort, there can be no guarantee that surgery will relieve this symptom. Indeed, there is a very real risk that scrotal surgery may increase any pain or discomfort.

Sperm granuloma

Sperm granuloma arise secondary to sperm leakage following vasectomy. They may present any time from the intermediate postoperative period onwards and are usually small, hard, tender swellings localised to the site of division of the vasa deferentia.

Again, examination of the erect patient will reveal a small (1–2cm) pea-shaped swelling above and definitely separate from the body of the testis. An inguinoscrotal hernia can be excluded by getting above the swelling. The main differential diagnosis rests between a sperm granuloma and a small upper pole epididymal cyst. Sperm granuloma do not transilluminate, but, as previously mentioned, this is not an accurate diagnostic tool. In some cases, the accurate diagnosis can be made only by virtue of the previous history of vasectomy; in other cases, only at the time of surgery.

Hydrocele

A hydrocele is a collection of serous fluid between the tunica albuginea and tunica vaginalis of the testis, caused by an imbalance in the continual production and reabsorption of fluid. Hydroceles are classified into primary, the most common variety, or secondary (caused by trauma, tumour or infection, for example).

Hydroceles vary in size from the clinically undetectable to the huge, with an incidence in the region of 15 per cent. Presentation is usually as a chronic, diffuse, hemiscrotal swelling, with an absence of pain and systemic associations.

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**Box 2. Indications for referral to secondary care**

- Diagnostic doubt
- Cosmesis
- Chronic discomfort
- Patient request
Examination of the erect patient will again allow accurate diagnosis, with inguinoscrotal hernia being excluded as above (Figure 4). The remaining differential diagnosis then lies between a large complex epididymal cyst and a hydrocele. Both may transilluminate and the only distinguishing feature will become apparent on palpation of the testis: an epididymal cyst will be separate from the testis, while a hydrocele will be found to engulf it. Provided the diagnosis is not in doubt and the testis can be palpated through the lax hydrocele, no further assessment is required. Some hydroceles are tense and prevent adequate palpation of the underlying testis; in this situation, ultrasonography is required to exclude malignancy of the testis prior to either reassurance or intervention.

Treatment of hydrocele

Providing the underlying testis is normal, the indications for referral and treatment are as for other benign scrotal swellings (see Box 2).

Secondary care intervention is surgical, with an approach similar to that for excision of an epididymal cyst or sperm granuloma. Once the incision has been made, the hydrocele may be either drained or delivered with the testis through the wound (Figure 5). The tunica vaginalis is then incised longitudinally and the fluid drained. The testis is again assessed and the hydrocele sac incision extended to its uppermost point. At this point there are two options: the first is to excise the redundant sac (Lord repair), and the second is to evert the tunica vaginalis and close the sac with a continuous posterior suture (Jaboulay repair). The testis is then replaced and the wound closed in layers. A drain is required only if there is a significant risk of continued haemorrhage and haematoma formation.

If a surgical repair is performed with evertion of the tunical sac and extension of the incision to the highest point of the hydrocele, recurrence is unusual. Most recurrences are secondary to inadequate cephalad extension of the sac incision.

Patients who pose a major anaesthetic risk can be offered simple aspiration of the hydrocele fluid under aseptic conditions. This is done in the clinic treatment room with an 18G needle and a 50ml syringe. This is an arduous task with a moderate risk of infection and an almost universal recurrence rate, but it does offer a degree of temporary relief for the surgically unfit patient with a troublesome hydrocele.

VARICOCELE

A varicocele is a dilatation of the veins of the pampiniform plexus and is more common on the left side (90 per cent). The true pathogenesis of varicoceles remains hotly debated, with evidence to suggest that intrinsic vessel malfunction, oxidative stress and physical pressure all play a role.

The true incidence of varicoceles in the population is in the region of 15 per cent of adult men.

Debate also surrounds the issue of subclinical varicoceles; whether these are worthy of treatment under the same circumstances as a clinical varicocele is probably doubtful.

Patients with varicoceles present with either hemiscrotal pain, often described as a dragging sensation, testicular atrophy and/or the presence of a palpable mass within the scrotum with a characteristic likeness to a ‘bag of worms’.

Testicular hypotrophy or atrophy is commonly revealed during puberty, manifesting itself as differential testicular growth. In those patients with a greater than 1cm disparity in testicular length, varicocele repair will result, in most cases, in a catch-up phenomenon, and hence this is an absolute indication for intervention.

Varicoceles and impaired fertility

Perhaps the greatest controversy in the management of clinical varicoceles is that surrounding the issue of fertility. Men with impaired fertility are more than twice as likely to have a clinical varicocele as the general population, but most men with clinical varicoceles have no problems conceiving.

Semen analysis of subfertile men with clinical varicoceles may reveal any permutation of abnormal parameters, from single parameter deficiency, most commonly poor motility, to a triad of poorly motile dysmorphic forms in low numbers.

The impact of varicocele correction in this group of individuals is currently unclear, but the best evidence indicates that, while an improvement in semen parameters
does occur, this has not yet been shown
to translate into an increased conception
rate at 12 months.4 Two recently well
conducted meta-analyses5,6 suggested
that varicocelectomy demonstrated a
beneficial effect on fertility in infertile
men with palpable varicocele and
associated abnormal semen parameters.
It improves semen parameters in the
above group of patients and also
improves the odds of spontaneous
pregnancy in their female partners.
With improvement in semen quality,
couples who fail to conceive naturally
may achieve better results with assisted
reproductive techniques.

It would seem, therefore, that the best
treatment for varicocele includes radiological and surgical options. With
surgical repair, there is no clear advantage of the laparoscopic route over
traditional methods.

Investigation of varicocele
Clinically apparent varicoceles do not
usually require further investigation.
Should the diagnosis be in doubt, scrotal
Doppler ultrasound is the imaging modality of choice.

There are, however, certain circumstances that mandate further imaging. Varicoceles
that fail to resolve completely upon
adopting a supine position should be regarded with suspicion and, although
this may simply be a consequence of
size, a renal tumour causing venous
obstruction should be excluded with,
initially, urgent ultrasonography.
Varicoceles on the right and those of
acute presentation should also be viewed
with concern, and other features to
suggest external venous compression
should be sought.

Treatment of varicocele
The indications for varicocele correction
are as in Box 2, with the addition of
subfertility.

Various treatment modalities are available,
broadly classified into radiological and
surgical options. In general terms,
radiological embolisation offers success
rates in the region of 85 per cent, slightly
lower than one would anticipate from
surgical repair. This marginally higher
initial failure rate for embolisation is
partly offset by a shorter post-procedure
recovery time. Surgical repair may be
via any of the traditional open methods
or via the laparoscopic route; again,
there is no clear proven advantage of
one over another.

After correction, there is a risk of hydrocele
formation and, although this usually
self-resolves, 3–5 per cent of patients
require further surgery to correct this.

In practical terms, the choice of treatment
offered is dictated by local expertise and
availability of equipment.

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