The undiagnosed scrotal mass can have significant consequences on the health of the male if not diagnosed and treated in a timely manner. The acute scrotum in a young patient is thought of as a urologic emergency. It is imperative that the FP possess a sound approach to the diagnosis and management of a scrotal mass and be able to appropriately and emergently refer the patient for urologic consultation when required.

History

Asking the right questions (Table 1) can quickly lead to an elimination of most conditions on the differential diagnosis (Table 2) and will help tailor and focus the physical examination.

The greatest incidence of testicular torsion occurs in boys aged 13 years to 19 years. An abrupt onset (minutes) of pain is highly suggestive of torsion and signals increased diagnostic urgency.¹ In this situation, minimizing delay of intervention is of the essence, as the likelihood of salvaging the testicle progressively diminishes over time after the onset of symptoms (Table 3).

Varicoceles, spermatoceles and hydroceles tend to be painless, but not always. An inguinal hernia will usually be painless unless incarcerated, while tumours will not cause significant discomfort except if very large or in the setting of acute hemorrhage. A painless scrotal swelling whose size fluctuates indicates a possible hydrocele or hernia. New, severe pain radiating to the abdomen in the setting of such a history should make one suspect a newly incarcerated hernia.

Testicular lacerations or contusions will usually result in a hematocèle and testicular integrity will need to be assessed. The etiology of trauma would be elicited with history taking.

Concerns about a malignant testicular tumour should be raised if there is evidence of:
• weight loss,
• respiratory symptoms and
• abdominal fullness.

One may also see manifestations related to abnormal secretion of tumour markers, such as human chorionic gonadotropin leading to gynecomastia, lactorrhea and diminished libido.

Physical examination

Typical findings on the investigations most commonly used to differentiate the various causes of a scrotal mass are shown in Table 4. The varicocele will usually be palpable as “a bag of worms” in the superior aspect of the scrotum. It is very important that the patient be examined both supine and standing and that palpation...
be carried out during a Valsalva effort. Left-sided varicoceles are much more common (90% of all cases); whereas a right-sided varicocele, particularly if of acute onset, raises the specter of a neoplasm intrinsically or extrinsically impairing gonadal vessel blood flow. A hydrocele will usually cover the anterior aspect of the testis and may prevent adequate examination of the testicular contour. It may also extend up to and along the spermatic cord. The examiner should nevertheless be able to palpate the cord above the swelling, in contrast to an inguinal hernia, where this will not be possible. A spermatocele will arise from the epididymis and be found along the cord and posterior aspect of the testis.

When torsion is present, the testis assumes an elevated and horizontal rather than vertical lie. The presence of the cremasteric reflex usually indicates that no significant torsion is ongoing. A reactive hydrocele may be present. Torsion of the testicular appendages can present in a similar way to testicular torsion, with a sudden onset of pain and may be accompanied by a blue-dot sign on the scrotum, if seen early in its evolution. The pain tends to be somewhat less severe and more localized to the upper or inferior poles of the testis and epididymis. Testicular tumours usually present as firm, painless mass often brought to light by a recent infection or trauma. Rapidly growing masses may cause acute hemorrhaging and infarction sometimes seen with a yolk-sac tumour. A reactive hydrocele is present in 10% of newly diagnosed cases.

Table 1

Key questions

- Age of patient?
- Is pain present and what has been its duration?
- Timing of pain onset – gradual vs. sudden?
- Have there been similar episodes in the past?
- Is there a history of STD’s, urinary tract infections, or recent urethral discharge?
- Is there a history of recent scrotal or perineal trauma?
- Have there been systemic symptoms such as fever, emesis, anorexia or weight loss and lymphadenopathy?
- Has there been fluctuation in the size of the scrotal mass/swelling?
- Has the patient experienced any voiding symptoms?

Table 2

Differential diagnosis

- Varicocele
- Spermatocele
- Hydrocele
- Hematocele
- Inguinal hernia
- Testicular torsion
- Testicular appendiceal torsion
- Testicular tumour (benign or malignant)
- Henoch-Schönlein purpura
- Idiopathic scrotal edema

Table 3

Testicular salvage rates based on duration of torsion

<table>
<thead>
<tr>
<th>Hours since onset of torsion</th>
<th>Likelihood of viability</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6</td>
<td>&gt; 95%</td>
</tr>
<tr>
<td>6 to 12</td>
<td>50% to 80%</td>
</tr>
<tr>
<td>12 to 24</td>
<td>20% to 30%</td>
</tr>
<tr>
<td>&gt; 24</td>
<td>&lt; 5%</td>
</tr>
</tbody>
</table>

**Treatment**

Most varicoceles do not require treatment unless they are causing significant discomfort, or if evidence of impaired male fertility exists in the setting of inability to conceive. Treatment entails surgical ligation or testicular vein embolization.

Aspiration of a hydrocele is not recommended as it may lead to bleeding or infection and usually recurs thereafter. The usual approach is conservative management, but surgical removal or ligation of the tunica vaginalis can be carried out if the hydrocele is of an extreme size and is causing discomfort or embarrassment to the patient. A similar
The Canadian Journal of CME / February 2007

The Canadian Journal of CME / February 2007

WORKSHOP

The Canadian Journal of CME / February 2007

WORKSHOP

The Canadian Journal of CME / February 2007

The Canadian Journal of CME / February 2007

WORKSHOP

approach is used in the management of spermatoceles.
In the case of mild testicular trauma, management is conservative with prophylactic antibiotics. However, a severe insult to the structural integrity and/or damage to the tunica albuginea requires fairly urgent surgical débridement and repair.

Treatment for a torsed testis, if still viable, is surgical detorsion and orchiopexy. Orchiectomy is performed if the testis is found to be necrotic. The contralateral testis should also be orchiopexed as a congenital malattachment is found to be bilateral in a majority of cases.\(^8\)

Management of a torsed appendage is supportive and entails scrotal support, bed rest, ice packs and analgesics. Surgery is reserved for those where the clinical diagnosis is uncertain or in those whom severe pain persists.

A confirmed or suspected testicular malignancy is explored through a high inguinal incision which proceeds to an orchiectomy in most cases. Scrotal exploration in the presence of possible testicular tumour is strongly discouraged. If the patient belongs to an age group for which testicular cancer is a possible diagnosis (15 years to 40 years), only inguinal exploration should be contemplated for the diagnosis and management of testicular masses. Subsequent adjuvant management is dependent on tumour stage and histology, with seminomas tending to be highly sensitive to radiation and nonseminomas quite responsive to chemotherapy with retroperitoneal lymphadenectomy advisable for most stages. Advanced staging for tumours of both cell types requires several cycles of systemic chemotherapy.

For references please contact: cme@sta.ca

Table 4

Typical findings of various scrotal mass investigations

<table>
<thead>
<tr>
<th></th>
<th>Blood Flow on Doppler ultrasonography</th>
<th>Pyuria on ultrasonography</th>
<th>Transillumination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testis torsion</td>
<td>Absent or severely</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Testis appendage</td>
<td>Locally overall</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Torsion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicocele</td>
<td>Venous congestion</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Hydrocele</td>
<td>Normal</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Spermatocele</td>
<td>No change</td>
<td>No</td>
<td>Yes (usually)</td>
</tr>
<tr>
<td>Hematocele</td>
<td>Variable</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Hernia</td>
<td>No change</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Testis neoplasm</td>
<td>No change, may see aberrant distribution</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Peter’s case cont’d...

The clinical history and examination in this case is highly suggestive of testicular torsion, particularly the sudden onset of pain, the lie and the position of the testis and the absence of pyuria.

Waiting for further confirmation by ultrasound is ill advised. Upon urgent referral for urologic assessment, Peter is immediately taken to the OR for exploration.

Seven hours after the onset of pain, the testis is found to be ischemic and dusky in appearance but ultimately recovers its viability with débridement. It is orchiopexed as is the contralateral testicle to prevent further torsion.

Take-home message

- Sudden onset of severe scrotal pain demands urgent urological attention to rule out torsion or hemorrhagic tumour
- If clinical suspicion for torsion is high, waiting for an ultrasound is not advisable
- An intratesticular mass mandates an emergency scrotal ultrasound, tumour marker levels and an urgent referral to an urologist
- The inability to palpate the entire contour of the testis in the setting of a new-onset hydrocele demands an ultrasound to rule out possible malignancy
- Most varicoceles, spermatoceles or hydroceles require no treatment unless symptomatic

For references please contact: cme@sta.ca