Management of scrotal swellings in primary care

Taha Alver Ansari

Correspondence:
Dr. Taha Alver Ansari
Consultant Family Medicine
Operations - HC Omar Bin Al Khatab
Tel: 402-79952
P.O. Box 26555 | Doha | Qatar
Email: tansari@phcc.gov.qa

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Abstract

Testicular lumps are a common presenting concern in primary care. While many of these lumps are benign, such as hydroceles or epididymal cysts, they can also indicate more serious conditions like testicular cancer. Early and accurate identification of the nature of testicular lumps is crucial to ensure appropriate management and optimal outcomes. This report provides a comprehensive overview of the management of testicular lumps in primary care, covering epidemiology, clinical presentation, differential diagnosis, diagnostic approach, management strategies, and patient education.

Keywords: Testicular lumps, epidemiology, clinical presentation, differential diagnosis, diagnostic approach, management strategies, patient education

Clinical Case

A 28-year-old male presented to his General Practitioner during winter with the sudden onset of left-sided scrotal pain. He described being awakened three hours prior by sharp left lower quadrant pain, which soon radiated to the scrotum, accompanied by swelling. The patient denied experiencing fever, chills, vomiting, or trauma, though he reported associated nausea.

On examination, his abdomen appeared normal, but there was noticeable enlargement of the left scrotum. Palpation revealed tenderness, mild erythema, and enlargement of the left testicle, along with a thickened spermatic cord. Elevation of the scrotum did not provide relief, and the affected testicle was positioned slightly higher than the unaffected one.

Urinalysis performed in the clinic showed 2+ leucocytes, with no other significant findings. He was subsequently referred to the on-call urologist and sent to the emergency department for an urgent surgical consultation, including exploration and de-torsion, to preserve testicular function.

Epidemiology

Testicular lumps can affect males of all ages, but the incidence and etiology can vary significantly based on age groups. Testicular cancer, for instance, is most common in younger men aged 15-35 years, with a median age of 32 at diagnosis {13}. Benign conditions like epididymal cysts are more prevalent in middle-aged and older men. The lifetime risk of testicular cancer is about 1 in 250, but it accounts for only about 1% of all cancers in men {10}, highlighting the rarity but significant concern of malignant lumps.

Clinical Presentation

Symptoms

Patients with testicular lumps may present with various symptoms including:

- A palpable lump or swelling in the testicle.
- A sensation of heaviness or aching in the scrotum.
- Pain or discomfort in the testicle or scrotum, which may radiate to the groin.
- Sudden onset of scrotal pain, which can indicate torsion or acute inflammation. The most common cause of scrotal pain is epididymitis {1}, the majority presenting at age 20 to 39 years.
- Associated systemic symptoms like fever if infection is present.

History

A thorough history is crucial in the initial evaluation of a patient presenting with a testicular lump. Important aspects to cover include:

- Onset and duration of the lump.
- Presence of pain or discomfort.
- Any associated symptoms such as urinary difficulties, fever, or weight loss.
- Sexual history and risk of sexually transmitted infections.
- Personal or family history of testicular cancer or other cancers.
- History of trauma to the area.

Differential Diagnosis

The differential diagnosis of a testicular lump is broad, including both benign and malignant conditions. Some of the key conditions to consider are:

Benign Conditions

Hydrocele: Accumulation of fluid around the testicle, usually presenting as a painless, smooth, and transilluminable swelling.

Epididymal Cyst: Fluid-filled cyst arising from the epididymis, often asymptomatic and discovered incidentally.

Varicocele: Dilatation of the pampiniform plexus veins within the scrotum, typically presenting as a “bag of worms” on palpation and more noticeable when standing.

It is thought that 10-15% of men and adolescent boys have a varicocele in the general population {2}.

Epididymitis/Orchitis: Inflammation of the epididymis or testicle, often due to infection, presenting with pain, swelling, and sometimes fever.

Spermatocele: A cystic accumulation of sperm, usually painless and located above and behind the testicle.

Testicular Torsion: A surgical emergency where the spermatic cord twists, cutting off blood supply to the testicle, presenting with sudden, severe pain and swelling.

Malignant Conditions

Testicular Cancer: Presents as a painless, firm lump in the testicle. Types include seminomas and non-seminomas (e.g., embryonal carcinoma, teratoma, choriocarcinoma).

- It is useful to note that up to 20% of men present with painful swelling of sudden onset due to hemorrhage or infection {5}.

Lymphoma: Rare in the testicle but can present as a painless mass, more common in older men.

Diagnostic Approach

Physical Examination
A thorough physical examination is essential. Key components include:

Inspection: Look for asymmetry, swelling, skin changes, **or signs of trauma.**
Palpation: Systematic palpation of each testicle and epididymis. A normal testicle is smooth, firm, and slightly sensitive. Note the size, shape, consistency, and mobility of any lumps.
Transillumination: Helps differentiate cystic (transilluminable) from solid masses.
Abdominal and inguinal examination: To check for lymphadenopathy or masses.

A male scrotal exam is a routine part of a male physical exam and can help detect issues such as testicular cancer, hernias, infections, or other abnormalities. Here is how a typical scrotal exam is conducted:

Preparation
1. Explain the procedure: to the patient to reduce anxiety and gain consent.
2. Ensure privacy: and provide a gown or drape.
3. Position the patient: either standing or lying down. If checking for hernias, the patient is often asked to stand.

Examination Steps
1. Inspect the scrotum visually
- Look for symmetry, skin changes, swelling, masses, or discoloration.
- Check for any asymmetry (one testicle may be slightly larger, but dramatic differences may indicate an issue).

2. Palpate the scrotum
- Gently feel the entire scrotum, including the testes, epididymis, and spermatic cord.
- Use both hands, placing the thumb on the front of the scrotum and fingers behind the testicle.
- Gently roll each testicle between your fingers to assess for masses, tenderness, or irregularities. The testes should feel smooth, firm, and oval-shaped.

3. Palpate the epididymis
- This is the soft, tube-like structure at the back of each testicle. Check for swelling, tenderness, or hard nodules, which could suggest infection (epididymitis).

4. Palpate the spermatic cord
- Follow the spermatic cord upward from the epididymis towards the inguinal canal. Ensure there are no masses, varicoceles (enlarged veins), or tenderness.

5. Check for hernias (if indicated)
- Ask the patient to cough or bear down while palpating the inguinal region for any bulges, which could indicate an inguinal hernia.

6. Transillumination (if needed):
- If a mass or swelling is detected, you can shine a light behind the scrotum. Solid masses (like tumors) will not transilluminate, while fluid-filled masses (like hydroceles) will.
A hydrocele often increases in size with activities such as coughing, straining {7}.

Abnormal Findings to Note
- Hard lumps or masses (could indicate testicular cancer).
- Swelling (could be a sign of infection, trauma, or hydrocele).
- Pain or tenderness (could suggest infection or torsion).
- Varicose veins (varicocele).

Always follow up on any abnormal findings with appropriate investigations, such as ultrasound or referral to a specialist.

Investigations
- Ultrasound: The gold standard imaging modality for evaluating testicular lumps. It can differentiate solid from cystic lesions and help in identifying features suggestive of malignancy {8}.
- Of note a negative ultrasound does not exclude cancer and should be repeated six to eight weeks for indeterminate findings on ultrasound, examination and normal serum tumour markers {8}.
Blood Tests: Including tumor markers such as alpha-fetoprotein (AFP), beta-human chorionic gonadotropin (β-hCG), and lactate dehydrogenase (LDH) for suspected malignancy {9}.
- Urinalysis: To check for infection or hematuria.
- Sexually Transmitted Infection (STI) Screening: If there is a risk of STIs contributing to the symptoms. Scrotal pain due to Epididymitis may be sexually transmitted or via an enteric source such as E. coli {11}.

Management Strategies

Benign Conditions

Hydrocele
- Observation: If asymptomatic, as many resolve spontaneously.
- Aspiration and Sclerotherapy: For persistent or symptomatic cases.
- Surgery: Hydrocelectomy is indicated for large or recurrent hydroceles {6}.

Epididymal Cyst and Spermatocele
- Observation: Asymptomatic cases often require no treatment.
- Surgical Excision: If symptomatic or causing discomfort.

Varicocele
- Conservative Management: Scrotal support and analgesia for mild cases.
- Surgical Ligation or Embolization: For significant pain or infertility issues {4}.

Epididymitis/Orchitis
- Antibiotics: Based on the likely causative organism (e.g., doxycycline or ceftriaxone for suspected STI, ciprofloxacin for urinary pathogens) {12}.
- Supportive Care: Including scrotal elevation, ice packs, and analgesia.

Malignant Conditions

Testicular Cancer
- Urgent Referral: To a urologist or oncologist.
- Orchiectomy: Surgical removal of the affected testicle is the primary treatment {8}.
- Staging and Further Treatment: Depending on the type and stage of cancer, may include chemotherapy, radiotherapy, and retroperitoneal lymph node dissection {8}.
- Follow-Up: Regular follow-up with imaging and tumor markers to monitor for recurrence.

Acute Conditions

Testicular Torsion
- Immediate Referral: To emergency services for surgical intervention.
- Detorsion and Fixation: Within 6 hours to salvage the testicle {3}.

Patient Education

Education and reassurance are critical components of managing testicular lumps. Key points include:

Self-Examination: Educating patients on how to perform regular testicular self-examinations to detect any changes early.

Signs and Symptoms: Informing patients about warning signs that require immediate medical attention, such as sudden severe pain or a rapidly enlarging mass.

Follow-Up: Emphasizing the importance of follow-up appointments to monitor the condition and ensure appropriate management.

Key Points

- The management of testicular lumps in primary care involves a structured approach to history taking, physical examination, appropriate investigations, and timely referrals.
- While many testicular lumps are benign and can be managed conservatively, the primary care provider must maintain a high index of suspicion for malignancy and other serious conditions that require urgent intervention.
- Educating patients about testicular health and encouraging regular self-examinations can aid in early detection and improve outcomes.

By following these guidelines, primary care providers can effectively manage testicular lumps and ensure the best possible care for their patients.

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