THE ACUTE SCROTUM

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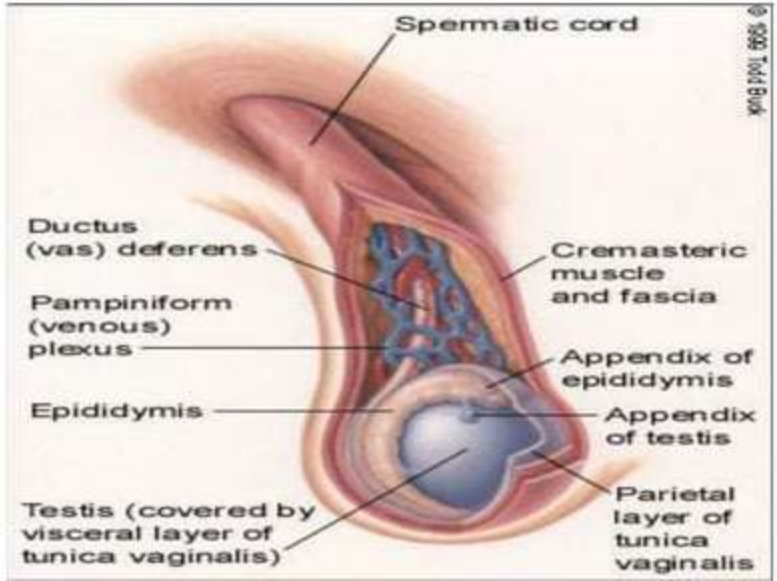
LECTURER – DEPARTMENT OF SURGERY

The basic anatomy



ACUTE SCROTUM

- Acute scrotum is a general term referring to an emergency condition affecting the contents or the wall of the scrotum.

- There are a number of conditions that present acutely, predominantly with pain and/or swelling

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- A careful and detailed history and examination, and in some cases, investigations allow differentiation between these diagnoses. A prompt diagnosis is essential as the patient may require urgent surgical intervention

Aetiology and Ddx:(*urological emergency 1st ed 2017)*

Ischaemia	Testicular torsion Torsion of testicular appendage Testicular infarction
Infectious	Acute epididymitis Acute epididymo-orchitis Acute orchitis Fournier's gangrene Abscess
Hernia	Strangulated inguinoscrotal hernia, with or without associated testicular ischaemia
Acute on chronic conditions	Hydrocoele infection Testicular tumour with infection, bleeding or ischaemia Varicocoele
Trauma	Ruptured testicle Scrotal/testicular haematoma or haematocoele

1. Testicular torsion

- Testicular torsion refers to twisting of the spermatic cord, causing ischaemia of the testicle.
- Testicular torsion results from inadequate fixation of the testis to the tunica vaginalis producing ischemia from reduced arterial inflow and venous outflow obstruction.
- The prevalence of testicular torsion in adult patients hospitalized with acute scrotal pain is approximately 25 to 50 percent

Testicular torsion as seen at Kilimanjaro Christian Medical Center, Moshi- Tanzania

Nyongole, Obadia Venance; Kimu, Njiku; Frank, Bright; Mbwambo, Jasper

URI: http://hdl.handle.net/123456789/14889

Description:

Background; Testicular torsion is a common condition in both developed and developing countries. Testicular torsion is an emergency urological condition. Early diagnosis and treatment are crucial to restore perfusion and preserve testicular viability. Testicular torsion needs special attention due to its psychosocial long term impact which can be avoided if early intervention is done. Objectives; The aim of the study was to determine the pattern of presentation and early outcome of patients with testicular torsion managed at KCMC. Patient and method; This was a hospital based descriptive retrospective and prospective study conducted at KCMC. It involved patients presenting to urology department confirmed to have testicular torsion managed during the period of study from January 2006-January2015. Results; A total of 74 patients were managed for Testicular torsion during the study period of nine years as per inclusion criteria. The left side was more affected by 64.9%. None of our patients had synchronous bilateral torsion while 4(3.8%)

Risk factors

- Age
- Genetics
- Previous testicular torsion
- Trauma

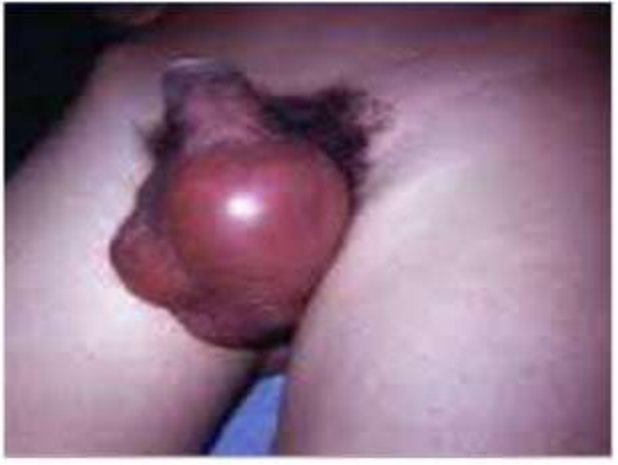
"ARTICLES REVIEW FOR THE RISKS"

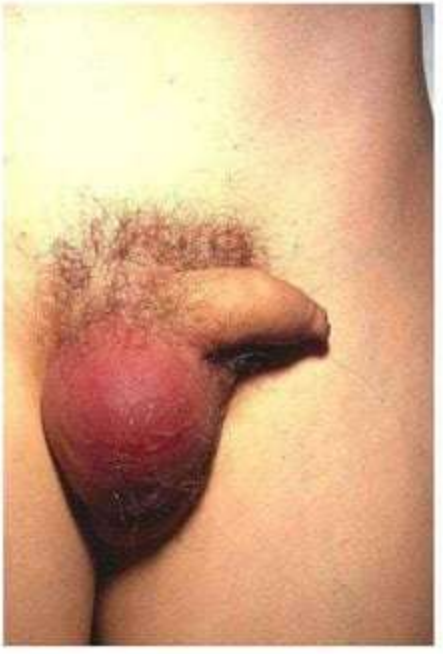
- Greear GM, Romano MF, Katz MH, Munarriz R, Rague JT. Testicular torsion: epidemiological risk factors for orchiectomy in pediatric and adult patients. International Journal of Impotence Research. 2021 Mar;33(2):184-90.
- Lacy A, Smith A, Koyfman A, Long B. High risk and low prevalence diseases: Testicular torsion. The American Journal of Emergency Medicine. 2023 Apr 1;66:98-104.

Clinical features and diagnosis

- The diagnosis of testicular torsion is usually determined by **acute onset** of severe symptoms and characteristic physical findings.
- The onset of **pain** in testicular torsion is usually **sudden** and often occurs several hours after vigorous physical activity or minor trauma to the testicles .
- There may be **associated nausea and vomiting**
- Another typical presentation, particularly in **children**, is **awakening with scrotal pain** in the middle of the night or in the morning.

On examination





Special tests

- **Cremasteric reflex**

The reflex is usually **absent** *in patients with testicular torsion* **(Rabinowitz' sign)**

- **Prehen's sign**

Relief of scrotal pain by elevating testicle.

Investigations

- Diagnosis of testicular torsion is a clinical one and any tests should be done only under the proviso they do not delay surgical exploration in cases of suspected torsion.
- They are generally useful to confirm a suspected alternative diagnosis such as epididymo-orchitis. If there is diagnostic uncertainty, surgical exploration is the only infallible diagnostic test.

Doppler ultrasound

- **Doppler ultrasound** may show absent blood flow to the testis but in cases of torsion with less than a 360° twist, some blood flow may still be apparent; therefore, ultrasound cannot be relied upon to accurately exclude a torsion.

Cont …

- Laboratory tests may be normal or report mild white cell count **(WCC) and C-reactive protein (CRP)** elevation corresponding with tissue ischaemia within the testis.

Treatment: Surgery

- **Immediate surgical exploration with intraoperative detorsion and fixation of the testes.**
- Delay in detorsion of a few hours may lead to progressively higher rates of nonviability of the testis.
- Detorsion and fixation of both the involved testis and the contralateral uninvolved testis should be done since inadequate gubernacular fixation is usually a bilateral defect.
- Longer periods of ischemia **(>12 hours)** may cause infarction of the testis with liquefaction requiring orchiectomy.

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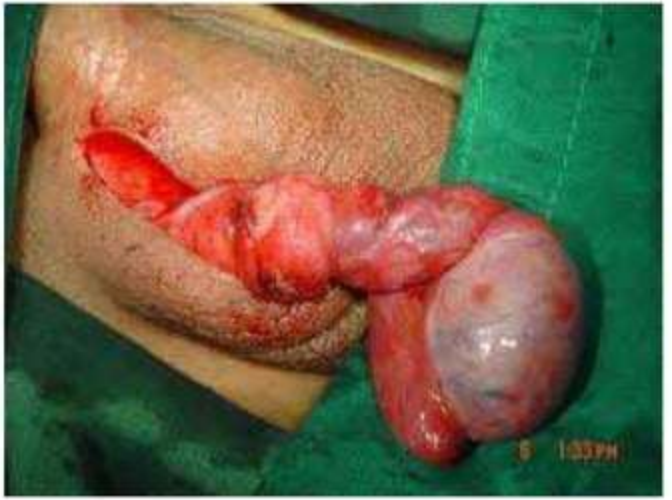


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2. Torsion of the appendix testis

- Testicular pain from torsion of the appendix testis is usually more gradual than with testicular torsion and it is the leading cause of acute scrotal pathology in childhood.
- Torsion of the appendix testis rarely occurs in adults .
- It is not uncommon for patients to have several days of scrotal discomfort before they present for evaluation.
- Pain ranges widely from mild to severe.

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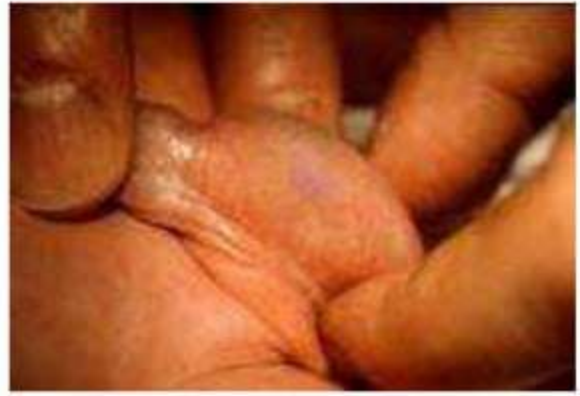
- *Careful inspection of the scrotal wall at this location may detect the classic "blue dot" sign caused by infarction and necrosis of the appendix testis.*



Management

- Management of acute torsion of the appendix testis usually includes **conservative** treatment, which includes rest, ice, and **NSAIDs**.
- Recovery is generally slow with this approach, and pain may last for several weeks to months.
- **Surgical excision** of the appendix testis is reserved for patients who have **persistent pain**.

3. Epididymo-orchitis

- Epididymo-orchitis is an infective process affecting the testis (orchitis), epididymis (epididymitis) or both (epididymo-orchitis).

Aetiology

The aetiology varies between age groups.

- In young, sexually active men, sexually transmitted infections (STIs) due to **chlamydia or gonorrhoea** are the most likely causes,

- while in older men ascending Gram-negative infections, predominantly with ***Escherichia coli*** from the urinary tract, on a background of poor bladder emptying is the more common cause

Etiology and clinical features of acute epididymo-orchitis

A A Ibrahim [1], A Refeidi, A A El Mekki

Affiliations + expand

PMID: 17372435

Abstract

Seventy-nine patients presenting with acute epididymo-orchitis (AEO) were prospectively analyzed i order to study the etiology and pattern of the disease. Bacteriological, serological, biochemical, imaging, and endoscopic studies were undertaken to look for urinary tract infection (UTI), brucellosi gonorrhea, diabetes mellitus (DM), bladder outflow obstruction (BOO), and other urinary tract pathology (UP). Thirty-nine patients also underwent, on their urethral scrapings, the direct immunofluorescence test with monoclonal antibodies (DIF) for Chlamydia trachomatis. The mean ag was 44 +/- 20.4 years (median = 40 years) and 43% of the patients were married. Only one patient had urethritis, which nongonococcal. Thirty-five percent presented with pyrexia and only one had brucellosis. Fifty-three percent had significant pyuria but only 22 patients (285) had bacteriuria and I coli was the etiological agent in 19/22 patients (86%). Eleven out of 39 patients (28%) were positive

Hx & Presentation

- Gradually increasing **pain** and swelling of the hemiscrotum
- with or without associated **fevers** is typically reported.
- It is important to enquire about **sexual behaviour**, lower urinary tract symptoms **(LUTS)** and previous episodes and risk factors for **tuberculosis (TB)** as this will guide appropriate management.

Examination

- Typically, the affected hemiscrotum looks **markedly enlarged and erythematous**, but changes may spread and involve the contralateral testis.
- It is crucial to inspect the entire scrotal skin, including the perineal aspect in order not to miss any areas of skin necrosis that may suggest the development of **Fournier's gangrene**
- **Palpate and percuss** the suprapubic area to assess for a distended urinary bladder.
- Rectal examination of the prostate looking for an enlarged gland due to benign prostatic enlargement (BPE) causing bladder outlet obstruction (BOO) and for prostatitis or prostatic abscess.

Investigations

- **A urinalysis and urine culture** should be performed in all patients suspected of epididymio orchitis, although urine studies are often negative in patients without urinary complaints .

- **A urethral swab** should be obtained in patients with urethral discharge and sent for culture should be performed in patients with acute onset of testicul ar pain to assess for testicular torsion

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- **WCC and CRP** should be tested to assess severity of the infection.

- **Ultrasound :** should be done acutely to exclude a collection or an abscess, or if there is any doubt about the diagnosis, e.g. tumour or missed torsion

Treatment

- Antibiotics should be given orally or IV depending on the severity of infection.

- In the case of significant sepsis, aminoglycosides in the form of gentamicin could be combined with either broad-spectrum penicillins (e.g. co-amoxiclav) or fluoroquinolones (e.g. ciprofloxacin, ofloxacin).

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- young, sexually active men should be treated with fluoroquinolones with activity against *Chlamydia trachomatis* (e.g. **ofloxacin** or levofloxacin); alternatively, doxycycline 100mg twice-daily for two weeks.

- If a STI is not suspected, co-amoxiclav or ciprofloxacin could be given.

4.Scrotal abscess

- A collection of pus within the deep layers of the scrotum is termed correctly as a scrotal abscess.

- Not infrequently, superficial infections within hair follicles or primary perineal abscesses with some scrotal skin involvement are also labelled the same.

Causes & risk factors

Scrotal abscesses almost exclusively develop on the background of other infective conditions including

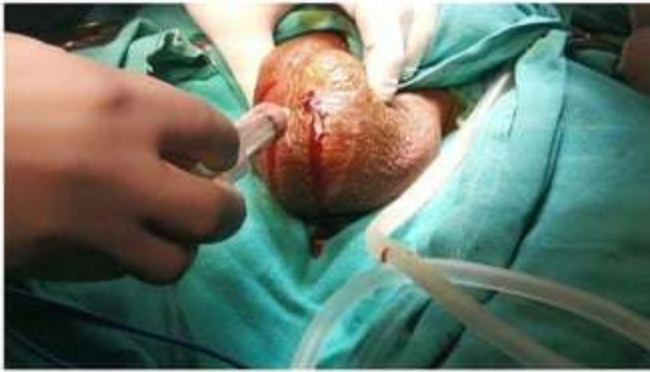
- Immuno-supressive conditions
- Epididymo - orchitis
- UTI
- Urine extravasation (risk including calculus, stricture and urethral injury)
- Post neglected testicular torsion
- Drainage of appendicular abscess to the scrotum via a patent processus vaginalis

Presentation

- Gradually increasing **swelling** and **pain** that develop on the background of another condition
- Febrile episodes

O/E

- **swelling** and **tenderness** associated with **erythema** can be seen on the ipsilateral side
- **Fluctuance** on palpation



Investigations

- Inflammatory markers (**WCC, CRP**) are commonly elevated.

- **Scrotal USS** confirms an underlying collection, which may have characteristics of purulent fluid and may also identify underlying pathology
- **Aspiration for C/S** Can be done in selected cases unto which conservative mx is contemplated

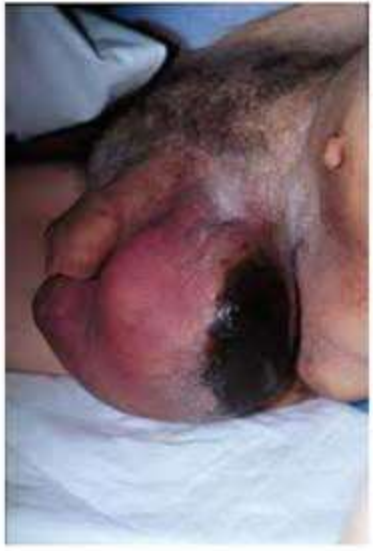
Treatment

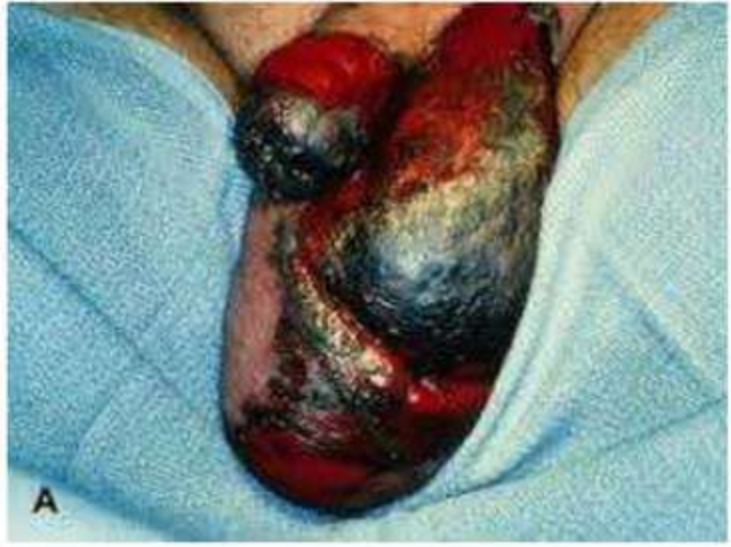
Immediate management constitutes

- Broad-spectrum antibiotic cover.
- Fluid Resuscitation
- pain relief should be considered
- Bladder catheterization might be required if (Post voidal residue) PVR volumes are high.
- In most cases, **surgical exploration** and **drainage** of the abscess is indicated.

Nb: C/S if not done as in selected cases

Feared complication: Fournier's gangrene





Further reading

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- Molokwu CN, Somani BK, Goodman CM. Outcomes of scrotalexploration for acute scrotal pain suspicious of testiculartorsion: a consecutive case series of 173 patients. BJU Int 2011; 107:990.
- Cummings JM, Boullier JA, Sekhon D, Bose K. Adult testicular torsion. J Urol 2002; 167:2109.


Thank You!