

Testicular Tumours in Prepubertal Boys, Hydrocele and Acute Scrotum

Testicular Tumours in prepubertal boys

EPIDEMIOLOGY:

Testicular tumours account for approximately 1-2% of all paediatric solid tumours. **Prepubertal boys have a lower incidence and a different histologic distribution compared to the adolescent and adult patients** (teratomas and yolk sac tumours are more common and germ cell tumours are less common). Up to 60-75% of testicular tumours are benign.

CLINICAL PRESENTATION

Painless scrotal mass in more than 90% of the patients, detected by the caregiver, physician or the patient himself. Hydrocele can be found in 15-50%. In boys with early onset of puberty as well as high testosterone and low gonadotropin levels, a Leydig cell tumour should be excluded. In patients presenting with a scrotal mass, paratesticular tumours should also be taken into account.

DIAGNOSTIC EVALUATION AND MANAGEMENT:

Recommendations	LE	Strength rating
High-resolution ultrasound (7.5 – 12.5 MHz), preferably a doppler ultrasound, should be performed to confirm the diagnosis.	3	Strong
Alpha-fetoprotein (AFP) should be determined in prepubertal boys with a testicular tumour before surgery.	2b	Strong
Surgical exploration should be done with the option for frozen section, but not as an emergency operation.	3	Strong
Organ-preserving surgery should be performed in all benign tumours.	3	Strong
Staging (MRI abdomen /CT chest) should only be performed in patients with a malignant tumour to exclude metastases.	3	Strong
Magnetic resonance imaging should only be performed in patients with the potential malignant Leydig or Sertoli-cell-tumours to rule out lymph node enlargement.	4	Weak
Patients with a non-organ confined tumour should be referred to paediatric oncologists post-operatively.	4	Weak

If a testicular tumour is suspected, surgery with the option of intra-operative frozen section should be performed.

Organ-preserving surgery should be performed, whenever possible.

Orchiectomy (inguinal approach) could be considered only if normal testicular parenchyma is no longer detectable in the preoperatively high-resolution ultrasound and/or the AFP is > 100 ng/mL in a > 12-month-old boy: highly suspicious of a yolk sac tumour.

Hydrocele

EPIDEMIOLOGY, AETIOLOGY AND PATHOPHYSIOLOGY:

Hydrocele is defined as a collection of fluid between the parietal and visceral layers of the tunica vaginalis. Incomplete obliteration of the processus vaginalis peritonei results in formation of communicating hydrocele. Non-communicating hydroceles, based on an imbalance between the secretion and re-absorption of this fluid, are found secondary to minor trauma, testicular torsion, epididymitis, varicocele operation or may appear as a recurrence after primary repair of a communicating or non-communicating hydrocele.

DIAGNOSTIC EVALUATION:

It may be diagnosed by history-taking and physical investigation. If there are any doubts about the character of an intrascrotal mass, scrotal US should be performed and has nearly 100% sensitivity in detecting intrascrotal lesions.

MANAGEMENT:

Recommendations	LE	Strength rating
In the majority of infants, observe hydrocele for twelve months prior to considering surgical treatment.	2a	Strong
Perform early surgery if there is suspicion of a concomitant inguinal hernia or underlying testicular pathology.	2b	Strong
Perform a scrotal ultrasound in case of doubt about the character of an intrascrotal mass.	4	Strong
Do not use sclerosing agents because of the risk for chemical peritonitis.	4	Strong

In the paediatric age group, an operation would generally involve ligation of the patent processus vaginalis via inguinal incision.

Acute Scrotum

EPIDEMIOLOGY, AETIOLOGY AND PATHOPHYSIOLOGY:

Acute scrotum is a paediatric urological emergency, most commonly caused by torsion of the testis or appendix testis, or epididymitis/epididymo-orchitis. Trauma can also be a cause of acute scrotum due to posttraumatic haematomas, testicular contusion, rupture, dislocation or torsion. Torsion of the testis occurs most often in the neonatal period and around puberty, whereas torsion of the appendix testis occurs over a wider age range. **Most cases of perinatal torsion are extravaginal, in contrast to the usual intravaginal torsion which occurs during puberty.**

DIAGNOSTIC EVALUATION:

Patients usually present with scrotal pain, except in neonatal torsion. The sudden onset of invalidating pain in combination with vomiting is typical for torsion of the testis or appendix testis.

Diagnosis of testicular torsion is based on presentation and physical exam. Doppler US is an effective imaging tool to evaluate acute scrotum and comparable to scintigraphy and dynamic contrast-enhanced subtraction MRI.

MANAGEMENT:

Manual detorsion of the testis is done without anaesthesia, and should be attempted in all patients if possible, because it is associated with improved surgical salvage rates.

Recommendations	Strength rating
Testicular torsion is a paediatric urological emergency and requires immediate treatment.	Strong
In neonates with testicular torsion perform orchidopexy of the contralateral testicle. In prenatal torsion the timing of surgery is usually dictated by clinical findings.	Weak
Base the clinical decision on physical examination. The use of Doppler ultrasound to evaluate acute scrotum is useful, but this should not delay the intervention.	Strong
Manage torsion of the appendix testis conservatively. Perform surgical exploration in equivocal cases and in patients with persistent pain.	Strong
Perform urgent surgical exploration in all cases of testicular torsion within 24 hours of symptom onset. In prenatal torsion the timing of surgery is usually dictated by clinical findings.	Strong