

of spontaneous resolution (75%) and expectant management of six to nine months is recommended [249]. In ASH the rate of spontaneous resolution appears lower, although it has been reported [250]. In exemption to the above, the suspicion of a concomitant inguinal hernia or underlying testicular pathology necessitates early surgery [251]. In other cases initial conservative treatment may reduce the number of procedures without increasing morbidity, however persistence of hydrocele is an indication for surgical correction.

Surgical treatment

In the paediatric age group, surgical correction consists of inguinal ligation of the patent processus vaginalis via inguinal incision with the distal stump being left open. In hydrocele of the cord the cystic mass is excised or unroofed [244, 252, 253]. In expert hands, the incidence of testicular damage during hydrocele or inguinal hernia repair is very low. Laparoscopic hernia repair with percutaneous ligation of the patent inguinal processus vaginalis is a minimally invasive alternative to open inguinal herniorrhaphy [254, 255]. In line with these techniques, various laparoscopic techniques for hydrocele correction have been described. No technique appears to be superior [239].

Laparoscopic correction of a contralateral patent processus may be considered, however a recent meta-analysis found insufficient evidence to recommend this for inguinal hernia [239] and hydrocele was not reported. The incidence of patent contralateral processus appears much higher than the percentage of children developing metachronous hernia (63% vs 8%) [239]. Thus, to prevent metachronous inguinal hernia the number needed to treat is relatively high (NNT=18) [256]. For acquired, non-communicating hydrocele the scrotal approach (Lord or Jaboulay/Winkelmann technique) is used.

In ASH most case series describe resection of the abdominal component which is connected to the scrotal, but not to the inguinal processus vaginalis. The incidence of complications for this procedure is higher than in regular hydrocele repair [250] and can result in testicular loss and atrophy, causing some to question if resection is necessary [242, 250]. Larger series are needed to assess optimal management. Testicular dysmorphism may recover following surgery [241]. Sclerosing agents should not be used because of the risk of chemical peritonitis in communicating processus vaginalis [244].

3.5.4 Summary of evidence and recommendations for the management of hydrocele

Summary of evidence
In the majority of infants, surgical treatment of hydrocele is not indicated within the first twelve months due to the tendency for spontaneous resolution. Little risk is taken by initial observation as progression to hernia is rare.
In acquired hydrocele initial expectant is recommended, unless hernia or testicular pathology are suspected.
In the paediatric age group, an operation would generally involve ligation of the patent processus vaginalis via inguinal incision.

Recommendations	Strength rating
Observe hydroceles in the majority of infants prior to considering surgical treatment.	Strong
Perform early surgery if there is suspicion of a concomitant inguinal hernia or underlying testicular pathology.	Strong
Perform ultrasound in case of doubt about the character of an intrascrotal mass, or suspicion of an abdominoscrotal hydrocele.	Strong
Close the processus vaginalis at the inguinal ring.	Strong
Do not use sclerosing agents in children with hydroceles, because of the risk for chemical peritonitis.	Strong

3.6 Acute scrotum

3.6.1 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 [257-262]. Other causes of acute scrotal pain are idiopathic scrotal oedema, mumps orchitis, varicocele, scrotal haematoma, incarcerated hernia, appendicitis or systemic disease (e.g. Henoch-Schönlein purpura) [263-275]. Trauma can also be a cause of acute scrotum as it can relate to post-traumatic haematomas, testicular contusion, rupture dislocation or torsion [276-281]. Scrotal fat necrosis has also been reported to be an uncommon cause of mild-to-moderate scrotal pain in prepubertal overweight boys after exposure to cold [282].