Original Article

Acute Scrotum in Children; Should All Testes Still Be Explored?
Ahmed Khairi*, Nour El-Kholi*, Khaled Ashour*, Mohamed Abd El-Azim*, Mohamed Sami¥

*Pediatric Surgery Unit, Department of Surgery, ¥Department of Radiology, Alexandria University Faculty of Medicine, Alexandria, Egypt

Background/ Purpose: Surgical exploration has been recommended in all children with acute scrotum. Torsion of the testis (TT) is a surgical emergency because the likelihood of testicular salvage decreases as the duration of torsion increases. However, in many situations, the history, the clinical examination as well as the colour Doppler ultrasonography (DUS) study does not support the diagnosis of TT; and yet many pediatric surgeons still go for surgery in such cases. The aim of this study is to find out if this policy is justified.

Materials & Methods: This is a retrospective study of cases of acute scrotum managed by the authors over a period of 7 years. The files were reviewed regarding the history, the clinical examination, DUS findings; if done, and findings at surgery; if done. Cases were divided into 3 groups; I: cases with clinical picture suggestive or doubtful of TT treated surgically, II: cases with clinical picture not suggestive of TT, treated surgically, and group III: cases with clinical picture, with DUS, not suggestive of TT and treated conservatively. Findings at follow up (range 3 – 6 months) were also reported.

Results: Fifty-five cases of acute scrotum were managed by the authors. In Group I (34 Cases), 17 cases (50%) were found to have TT at surgery; 7 cases (20.5%) had orchidectomy for gangrenous testes and in 10 cases (59%) the testes could be salvaged. The remaining cases had testicular appendages torsion (TAT) (7) (20.5%), epididymitis (EP) (4) (11.7%), and strangulated inguinal hernia (6) (17.6%). In group II (10 Cases); although the clinical picture did not suggest TT, however, based on the principle that “acute scrotum should be explored”, surgical exploration was done. At surgery; 4 cases (40 %) had TAT and (4) (40%) had EP and 2 cases (20%) had infected hydroceles. No case had TT. In group III (11 Cases); the clinical picture was not suggestive of TT, and the DUS showed normal or increased vascularity to the central part of the testes; cases were treated conservatively; (8)(72.7%) as EP, 2 (18%) as trauma and (1)(9%) as idiopathic scrotal edema. They were followed up for 3-6 months. All showed normal testicular size.

Conclusion: If any doubt exists regarding the possibility of TT, emergency scrotal exploration should be done without any delay. However, in situations where the clinical picture is not suggestive of TT and the DUS showed normal or increased vascularity to the central part of the testis, we believe that scrotal exploration is not justified.

Index Word: Scrotum, testis, torsion, epididymitis.

INTRODUCTION

Acute scrotum in children frequently presents a diagnostic dilemma. Surgical exploration was recommended in all children. Torsion of the testis (TT) is a surgical emergency because the likelihood of testicular salvage decreases as the duration of torsion increases. However, in many situations, the history, the clinical examination as well as the color Doppler ultrasonography (DUS) does not support the diagnosis of TT; and yet many pediatric surgeons still go for surgery in such cases. The aim of this study is to find out if this policy is justified.
PATIENTS AND METHODS
This is a retrospective study of cases of acute scrotum managed by the authors over a period of 7 years. The files were reviewed regarding the history, the clinical examination, DUS findings; if done, and findings at surgery; if done. Cases were divided into 3 groups: I: cases with clinical picture suggestive or doubtful of TT (including cases with equivocal color DUS; if done) treated surgically, II: cases with clinical picture not suggestive of TT, treated surgically, and group III: cases with clinical picture, with DUS (Fig. 1), not suggestive of TT and treated conservatively. Clinical findings at follow up, including DUS, (range 3–6 months) were also reported.

RESULTS
Between November 1999 and November 2006, 55 cases of acute scrotum were managed by the authors. Age ranged between 7 days and 12 years (mean 3.7 years). In Group I (34 Cases), 17 cases (50%) were found to have TT at surgery; 7 cases (41%) had orchidectomy for gangrenous testes and in 10 cases (59%) the testes could be salvaged. In all, contra-lateral prophylactic orchidopexy was done as a routine. The remaining cases had testicular appendages torsion (TAT) (7) (20.5%), epididymitis (EP) (4) (11.7%) and strangulated inguinal hernia (6) (17.6%); of which 4 (67%) required resection & anastomosis for gangrenous bowel.

In group II (10 Cases); although the clinical picture did not suggest TT, however, based on the principle that “acute scrotum should be explored”, surgical exploration was done. No DUS were requested as surgery was scheduled anyway. At surgery; 4 cases (40 %) had TAT and (4) (40%) had EP, and 2 cases (20%) had infected hydroceles. No case had TT.

In group III (11 Cases); the clinical picture was not suggestive of TT, and the DUS showed normal or increased vascularity to the central parts of the testes (Fig. 1); cases were treated conservatively; (8) (72.7%) as EP, 2 (18%) as trauma and (1) (9%) as idiopathic scrotal edema. They were followed up for 3-6 months (mean 4months). None showed reduction in testicular size. The mean age for TT was 2.2 years, TAT 6 years, EP 6.7 years, strangulated inguinal hernia 1.8 months, and trauma 3.5 years.

Fig 1. 6-year-old boy presented with right acute scrotum. Although the clinical picture was not suggestive of torsion testis, exploration was done on the basis of equivocal Doppler U/S picture. (Epididymitis was diagnosed intra-operatively).

Fig 2. 3-year-old boy presented with left acute scrotum. Clinically it was not torsion testis; Doppler U/S shows increased vascularity to the central parts of the left testis (compared with the contra-lateral normal side). Exploration was not justified and not done.
DISCUSSION

Testicular torsion must be considered in any patient who complains of acute scrotal pain and swelling.\textsuperscript{5, 7} Surgical exploration was recommended as a routine in all children presenting with acute scrotum.\textsuperscript{5-7} However, many authors recently concluded that the majority (71\%) of children with an acute scrotum did not require immediate surgical exploration and routine scrotal exploration is no longer necessary for all children.\textsuperscript{8,9,11}

The differential diagnosis mainly is TAT and Epididymitis (rarely epididymo-orchitis).\textsuperscript{1,4,6,10,21} Less frequent causes are idiopathic scrotal edema, trauma, strangulated inguinal hernias.\textsuperscript{2,3,10}

The incidence of TT is 15-30 \% of acute scrotum cases.\textsuperscript{1,12,13, 21} The management of other pathologies is completely different. TAT is a self-limited condition, and treatment is directed to alleviate scrotal pain and EP is treated by antibiotics and requires checking for any underlying genitourinary anomalies.\textsuperscript{14}

In young infants (less than 2 months), strangulated inguinal hernia needs special attention. In our study, 6 cases presented mainly as acute scrotum; 4 (67\%) out of them required resection & anastomosis for gangrenous bowel.

None of the conditions responsible for acute scrotal pain or swelling has a single pathognomonic finding, but the combined background information and physical findings frequently suggest the correct diagnosis.\textsuperscript{9} Harriet et al\textsuperscript{11} showed that less experienced examiners suspect TT more frequently.

DUS is being used increasingly in the evaluation of suspected TT. It is non-invasive and can differentiate between intra-testicular & scrotal wall blood flow.\textsuperscript{15-18} It can also be used to assess other pathologic conditions involving the scrotum. Some pediatric surgeons even do the Doppler study by themselves, claiming that this combines the radiological information with the clinical experience and facilitates the decision making.\textsuperscript{19}

If any doubt exists regarding the possibility of TT, emergency scrotal exploration should be done without any delay (group I in the study). Fifty percent of this group, in our study, had TT, with additional 18\% having surgical problem (strangulated inguinal hernia). The examination might not be possible in a non-cooperative child. Also DUS is notorious for being unable to identify clearly the testicular vascularity of small testes (< 1 cc).\textsuperscript{15,16,20} In these situations, again emergency exploration should be done without any delay.

The threshold for diagnosing TT should be low. Sixty-two percent of the cases of acute scrotum presented to the authors were explored. However, in many situations the child was setting calm, not in pain and talking to his relatives, and the examination showed normal testes, and the swelling and tenderness were mainly of the para-testicular structures with positive cremasteric reflex. In group II; these cases were taken to surgery based on the principle that “any acute scrotum should be explored”, despite the fact that the surgeon had no doubt whatsoever that this was not TT, which was proved during surgery in all cases.

CONCLUSION

If any doubt exists regarding the possibility of TT, emergency scrotal exploration should be done without any delay. However, in situations where the clinical picture is not suggestive of TT and the DUS showed normal or increased vascularity to the central part of the testis, we believe that scrotal exploration is not justified. (Fig. 3)
REFERENCES


