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Research Article

Management of Acute Scrotum in Children: Experience in a Developing Country

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ABSTRACT

Objective: Evaluate the management of acute scrotum in children in Ziguinchor.

Patients and methods: We conducted a retrospective study over a period of 10 years from January 1, 2013 to December 31, 2022, covering patients aged 0 to 15 years received and treated for acute scrotum in the different surgical departments of Ziguinchor.

Results: We collected 86 cases. The average age was 12 years with extremes ranging from 2 months to 15 years. The majority of patients resided in Ziguinchor, i.e. 62% of cases. Eight percent (8%) of our patients were born preterm. Painful scrotal swelling was the main reason for consultation, i.e. 70% of cases. 43.35% of cases were received in specialized consultation after 72 hours of evolution. The right topography was predominant, i.e. 53.49% of cases. The acute scrotum was associated with digestive signs (12.79%) and urinary signs (9.3%). The patients presented in good general condition (97% of cases), pallor (11% of cases) and fever. Ultrasound was performed in 45.35% of cases. Testicle torsion was the most common cause of acute scrotum; it was found in 37% of cases. All our patients benefited from medical treatment, reduction by taxi was successful in 8 patients, surgical procedures consisted of reduction closure of the peritoneovagimal canal, detorsion orchidopexy, orchiectomy. The short-term outcome was favorable in 88.37% and the duration of hospitalization was less than 72 hours in 75% of cases.

Conclusion: Acute scrotum is common in adolescents. It constitutes a diagnostic and therapeutic emergency. The etiologies are dominated by torsion of the spermatic cord. It is imperative to see patients operated on for this pathology again in adulthood to assess long-term complications.

Keywords: Acute scrotum; Children; Testicle torsion; Inguinoscrotal hernia

INTRODUCTION

Acute scrotum is a common situation in pediatric emergencies [1-5]. It corresponds to main diagnoses including torsion of the spermatic cord, torsion of the testicular and epididymal appendages, epididymitis, orchitis, strangulated inguinoscrotal hernia, scrotal trauma, testicular tumor, cellulitis, vasculitis (Hénoch purpura -Schonlein) and finally acute idiopathic scrotal edema [6-10]. The worldwide prevalence rate of acute scrotum varies by region with higher incidence in sub-Saharan Africa and South Asia [11-15]. The aim of our study is to appreciates management of acute scrotum in Ziguinchor regional hospital (senegal).

MATERIALS AND METHODS

We conducted a retrospective study over a period of 10 years from January 1, 2013 to December 31, 2022, covering patients aged 0 to 15 years received and treated for an acute scrotum in the different surgical departments of Ziguinchor. Epidemiological, diagnostic and therapeutic parameters were studied. The data collected from emergency registers, hospitalization and operating room registers were entered into an Excel sheet and analyzed using Jamovi software.

RESULTS

Epidemiology aspects

86 files were collected, representing a frequency of 0.5% of surgical emergencies during the same period. The average age of the patients was 11.83 years ± 6.25 with extremes of 2 months -15 years. The majority of patients, 62%, resided in the Ziguinchor region (urban area) and 97% of patients were of Senegalese nationality. A notion of prematurity was found in 8.14% of cases.

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Aspects diagnostic

All our patients were referred either from a health center in 54.55%, a health post in 33.33% of cases and other public health establishments in 12.12%. Taking into account burden of a large acute bursa was the main reason for referral. In 36.36% of cases the reference was made by a physician and a nurse in 30.91% of cases. The delay for consultation was longer than 72 hours in 39 patients (45.35%). The examination found a good general condition in 97.68% of cases. A fever was found in 41% and clinical anemia in 11% of cases. A right acute scrotum was present in 53.49%. A sign of prehn was found in 10.47% and a gouvernoeur's sign in 3.49%. Urinary tract infection was present in 9.30% of cases. A skin wound was present in 8.14% of cases. case. Digestive signs such as vomiting, intestinal occlusion were present in 12.79% of cases. Paraclinically, an ultrasound was performed in 45.35% of cases and an cytobacteriological urine exam was performed in 16 patients or 18% of cases. These paraclinical explorations made it possible to confirm with the clinical examination mainly the diagnosis of spermatic cord torsion followed by strangulated inguinoscrotal hernia and acute epididymorchitis. Table 1 presents the details of the diagnoses.

Table 1: Main diagnoses found in our patients.

Diagnosis	Number (N)	Percentage (%)
Testicular torsion	32	37%
Strangulated hernia	19	22%
Epididymorchitis	15	17%
Testicular traumatism	9	11%
Orchitis	6	7%
Acute idiopathic scrotal edema	3	3%
Rhabdomyosarcoma	2	2%

Management

All our patients had received treatment based on level 1 analgesics (paracetamol 60 mg/kg/day in 4 doses or level 2 (tramadol 1 mg/kg/day). An anti-inflammatory was combined in all 15 patients. Who presented with acute epididymitis orchid. Antibiotic therapy was initiated in 38.37% of patients. It was based on 3rd generation cephalosporin at 12 mg/kg/day in 2 doses. Detorsion followed by bilateral orchidopexy was done in 46% of cases, an orchiectomy and a contralateral orchidopexy in 18% of cases. A blood transfusion was done in 2 patients (2.3%) and an anti-tetanus sero-vaccination in 4 patients (5%). A reduction by taxi was carried out in 16 patients received for strangulated ingunoscrotal hernia, i.e. 18.5%. The success rate for this reduction by taxi was 65%. Subsequent closure of the persistent peritoneal vaginal canal was done in the 72 hours following the reduction. Surgical treatment of the strangulated hernia was carried out urgently given the failure of the reduction in 35% of cases. It consisted of exploration of the contents of the herniasac followed by reduction plus closure of the peritoneo-vaginal canal in 31% or intestinal resection then closure of the peritoneovaginal canal in 4% of cases. The postoperative course was simple in 89% of cases.

Overall morbidity was 11%. It was a scrotal hematoma, a surgical site infection and a digestive fistula. The duration average hospitalization was 2 days with extremes ranging from 1 to 7 days

DISCUSSION

Epidemiology

Acute scrotum in the pediatric population is a common situation requiring early management [1]. Its frequency is variably assessed according to studies ranging from 0.5% to 32% in Africa depending on the countries [8-15]. Pediatric testicular torsion is seen in infancy (8.14% of our cases were seen in nonates with prematurity notion) and then at 12 to 15 years of age [1-10]. Similar findings are noted in our series wich mean age of acute scrotum were 11.83 years with the extremes of 2 and 15 years. The majority of our patient reside in urban area and 97% were Senegalese. In other studies, majority of patients reside in rural areas [15]. All our patients were referred from and other sanitary structure. This fact explains the delay more than 72 hours noted in consultation. Pain, swelling and fever were common presentations of acute scrotum in our study. Vomiting and urinary tract infections were seen respectively in 12.79 ans 9.30% of cases. Our results are comparable to those of GNASSINGBÉ and AMADOU who reported respectively 100 and 76.2% scrotal pain, digestive signs 87.7% and urinary tract infections in 17.5% [8,10]. These results are explained etiologically, by a predominance of torsion of the spermatic cord (without urinary and digestive disorders) in our study. Right localisation of acute srotum was seen in our study. This rate is comparable to the 52.6% reported by GNASSINGBÉ and 69% by AMADOU [8,10]. Localization of acute scrotum is variable according to the studies, there no predilection side that is prevailing to another. According to these results using The TWIST score which is based on the sum (ranging from 0 to 7) of the following findings: Testicular swelling (2 points), hard testicle (2 points), absent cremasteric reflex (1 point), nausea or vomiting (1 point), and high riding testicle (1 point) can help to diagnose early testicle torsion in developing contries [16]. The risk stratifying scores for those at low risk for testicular torsion is 0 to 2 points, inter- mediate risk was 3 to 4 points, and high risk for testicular torsion is 5 to 7 points [16].

Radiological examinations

The diagnosis of large acute bursae is most often clinical. Ultrasound is the first-line examination, we requested an ultrasound in (45.35%) of our patients, including 19 spermatic cord torsions, 6 acute orchiepididymitis, 6 orchitis. GNASSINGBÉ requested an ultrasound in 24.5% of his patients and found the same pathologies and AMADOU reported 9.5% of ultrasound [8,10]. Our result is statistically superior to that reported by GNASSINGBÉ. The diagnosis of spermatic cord torsion can be suspected clinically. ultrasound when it is combined with doppler color give [17-19].

Etiological aspects

Torsion of the spermatic cord represented the majority of our etiologies (37.21%), especially in adolescents between 10–15 years old however GNASSINGBÉ recorded a predominance of strangulated inguino-scrotal hernia. which represented our second etiological group (22.09%) [8]. The predominance of torsion of the testicle and/or its adnexa can be explained by the high frequency of this pathology in adolescents and older children [1-5]. Acute orchiepidimytis, idiopathic scrotal edema and orchitis were the only medical pathologies in our study. They constituted our third etiological group (24.96%), followed by scrotal trauma (10.46%) and finally testicular tumors 2.33%. their low frequency is due to their rarety in the studies [20-26].

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Management

Orchidopexy was done in 47.68% of our cases then treatment of strangulated inguino-scrotal hernias (18.83%) (reduction by taxi followed by surgical management within 72 hours) was done in 4.43%. Testicular necrosis, thus indicating orchiectomy was done in 17.44%. In our study the rate of orchiectomy was higher than those who had management of inguinoscrotal hernia in 10% detorsion+orchidopexy in 5% and orchiectomy in 7.5% [9,10]. This attitude is justified according to the literature review [27-29]. Treatment of orchitis and orchiepididymitis consists of administering antibiotics, anti-inflammatories and rest [1-15]. One case of cancer (rhabdomyosarcoma) and one case of testicular tumor also benefited from an orchiectomy. Orchiectomy is justified in this case basing on the literature review [20].

Evolutionary aspects

2 cases of surgical wound infection and 1 case of post-operative digestive fistula was seen. This rate of infections can be explained by the presence of certain cases of infected hydrocele and that of fistula which are due to operational difficulties, the quality of intestinal tissues, local conditions and surgical technique [8-10]. Good evolution was noted in the majority of cases (88.37%). This rate is comparable to that of GNASSINGBÉ who noted a favorable evolution in all his patients [8].

Hospitalization

Acute scrotum does not require a long hospital stay. The average duration was 1.96 days with extremes of 1 and 7 days. The average duration is less than those of AMADOU which reported respectively 3.45 days; 4.77 days; 3.37 days [10]. This can be explained by the fact that this type of surgical intervention does not require long-term hospitalization.

CONCLUSION

A detailed history, clinical examination, and diagnostic evaluation are most important in patients presenting with acute scrotum. However, emergency scrotal exploration is advocated in patients with suspected cases of torsion testis. Ultrasonography is a noninvasive method, for confirmation of the diagnosis. The study results indicate that non-recognition of the severity of pediatric acute scrotum results in late presentation leading to testicular loss. These patients must be evaluated and managed urgently and whenever a torsion is suspected pediatric surgeons should be prompt for surgical testicular exploration.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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