

Testicular Torsion: A Rare and Unknown Urological Emergency in Rural Senegalese

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Abstract: Testicular torsion is an urological emergency most commonly observed in teenagers, and that requires urgent treatment to avoid the loss of testis. This study aimed to report the diagnostic and therapeutic aspects of testicular torsion in a peripheral hospital in Senegal. **Methods:** A total of 17 patients who underwent scrotal exploration for testicular torsion were included. We performed a retrospective and descriptive study between (January 2021 and October 2022) of patients who were diagnosed with testicular torsion and managed at Kolda Regional Hospital, Senegal. **Results:** The mean age was 18± 2.1 years (range, 14 - 22 years) and the mean duration of symptoms was 72.2±76.8 hours range (4h to 10 days). The Doppler ultrasound performed was in favor of torsion of the spermatic cord in all cases in the patients who performed the Doppler ultrasound. The color Doppler had shown 6 cases of testicular necrosis. The testis was retained in 11 (64.7%) patients and resected in 6 (35.3%). We noted a case of delayed healing (one month), and the postoperative course was simple. **Conclusion:** Testicular torsion affects younger under the age of 20. Testicular torsion is a rare emergency in urology which requires an accurate and timely diagnosis in order to avoid testis loss. The rate of orchidectomy is higher our hospital center.

Keywords: Delays, Doppler Ultrasound, Necrosis, Orchidectomy, Testicular Torsion

1. Introduction

Testicular torsion, involves the spontaneous twisting of the spermatic cord leading to compromise of testicular blood flow. It is a condition that most often affects adolescent males younger than 25 years old [1]. However, there are two peaks of the incidence; with one peak in the neonatal period and the second peak around puberty. Neonatal torsion usually occurs extravaginally and have a poor salvage rate of around 9%, while teenager torsion typically occurs intravaginally and is associated with a significantly higher salvage rate [2]. The vital prognosis of the testicle can be engaged at the 6th hour. Although cases of testicles lost before the sixth hour have been reported [3]. Currently the most common diagnostic imaging modality is Color Doppler Ultrasound (CDU), if available. The sensitivity of ultrasonography for

testicular torsion ranges from 85% to 100%, and the specificity ranges from 75% to 100% [4]. Nevertheless, direct surgical consult should be considered for patients at high risk of torsion and should not be delayed for ultrasonography confirmation when not readily available. Unfortunately, at surgical exploration, one third of testes will be considered dead and orchidectomy is performed [5].

In this study, we report the diagnostic and therapeutic aspects of testicular torsion in a peripheral hospital in Senegal.

2. Methodology

We carried out a retrospective and descriptive study, between (January 2021 and October 2022) of 17 cases of testicular torsion, received and supported at the regional

hospital of Kolda during the period of the study. Patients who had have a testicular torsion and who had been taken care of in our service were included. We excluded from the study, patients with acute scrotum such as acute infective epididymitis, strangulated inguinoscrotal hernia, or typical scrotal trauma and hemorrhage. The parameters studied were: age, reason for consultation, evolution of symptoms and the affected side. All patients were operated under locoregional anesthesia and under antibiotic coverage. At surgical exploration: the aspect of the testicle was assessed. If the testicle was not viable, it must be removed, and a contralateral fixation was systematically performed. In the event of a viable testicle, we had proceeded to a bilateral orchidopexy. Patients were followed at least 3 months. This study was conducted with the approval of our hospital's ethics committee. This ethics committee is made up of the department heads. Anonymity was also respected. The statistical analyses were conducted using Epi-info 7.1.1.1.

3. Results

The mean of age was 18 ± 2.1 years (range, 14 - 22 years). The 15 to 19 year old age group was the most affected 82.3%. The average time from the onset of pain until the presentation in the hospital was 72.2 ± 76.8 hours (range, 4h to 10 days). Two patients were received before the 4th hour and only 9 patients consulted before the 24h.

The torsion of the spermatic cord involved the right testis in 11 (64.7%) and the left in 6 (35.3%). The clinical presentation was an acute scrotum in all cases, but the pain was present in only 11 cases at the reception of the patient. Only 12 (70.6%) of the patients were able to perform a Color Doppler Ultrasound (CDU). The Doppler ultrasound performed was in favor of torsion of the spermatic cord in all cases in the patients who performed the Doppler ultrasound. The color Doppler had shown 6 cases of testicular necrosis.

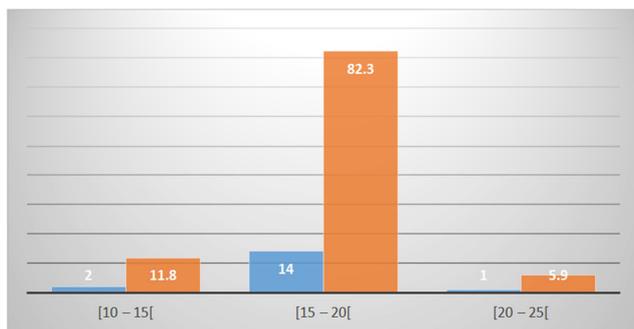


Figure 1. Age.

The approach consisted of a transverse scrototomy, followed by the opening of the various envelopes. On exploration, we noted 6 (35.3%) cases of necrosis and an orchietomy followed by a contralateral fixation was performed. Spontaneous recoloration was noted in 11 (64.7) other patients. We had then proceeded to a bilateral orchidopexy with three stitches fixing the testicle to the bottom of the scrotum. The postoperative course was simple.

We noted a case of delayed healing (one month) on the orchidectomy side in a patient who had right orchidectomy followed by left orchidopexy.



Figure 2. Testicular torsion.



Figure 3. 2 minutes after detorsion.



Figure 4. 10 minutes after detorsion.



Figure 5. Testicular necrosis after 36 hours.

4. Discussion

Testicular torsion is a condition of adolescent under the

age of 25. About one in 4000 children is affected by testicular torsion [6]. The average age in this study is comparable to other studies. Bah et al. [3] Reported an average age of 19.5 years with range of 2 and 35 years. There are two peaks of the incidence; with peak in the first year of life and at 12 years of age, and nearly 1 in 1500 boys will undergo surgery for testicular torsion by the age of 18 [7].

The time between to the onset of symptoms and treatment plays an important role in the prognosis of the testis. An Austria study [8] demonstrated that, the rates of orchietomy were directly linked to the timing of patient presentation after symptom onset. The researchers concluded that, late presentation to hospital is the major cause of delay leading to orchidectomy in patients with testicular torsion and they used a 6-hour cutoff to define early and late presentations to the Emergency Department (ED). In this study, the average consultation time was 72.2 ± 76.8 hours. In a study carried out in Senegal, Sarr and al. [9], reported an average delay of 102 hours. In Guinea; Bah and al. [3] reported that 40.7% of their patients had consulted before the 6th hour. However, the six-hour deadline is a statistic notion and not a safety delay. Saxena [8] reported 4 cases of orchidectomy performed in patients who consulted before the 6th hour and that the consultation after the 6th hour led to an orchietomy in 56% of the patients.

In the case of torsion of the spermatic cord, the classic presentation is sudden onset of severe unilateral testicular pain associated with nausea and vomiting. At physical examination, Prehn's sign is usually positive in some patients. We found the presence of pain in 64.7%. In the literature, pain can be present in more than 96% [3]. Nevertheless, in the present study, some patients started with peripheral health centers where they received analgesic and anti-inflammatory treatment. Guo X [10] reports inaugural symptomatology in only 40.3% and an inflamed scrotum in 85.9%. In cases of intermittent torsion, patients typically report recurrent episodes of acute unilateral scrotal pain. The pain usually resolves spontaneously within a few hours. Clinical examination and imaging are often normal [11].

Most urologists would agree that, if the clinical history and examination are highly suspicious for torsion, immediate surgical exploration is indicated, without radiologic evaluation [12], but the Color Doppler ultrasound (CDU) is routinely used as a diagnostic imaging modality for testicular torsion. Testicular torsion is diagnosed when CDU shows no detectable blood flow in the involved testis [13]. Ultrasonography findings shows decreased blood flow, impaired echogenicity, and hydrocele in 42%, 33%, and 25% of patients respectively [14]. The CDUs performed by our patients were in favor of testicular torsion, of which 6 cases were in favor of testicular necrosis.

Testicular torsion is a true surgical emergency. Because the viability of the testicles depends on the early diagnosis. When the clinical examination strongly suspects the testicular torsion, an emergency scrotal exploration must be performed. In a large review of 17478 boys presenting with testicular torsion and who underwent surgical management

between 1998 and 2010. Akshay S and al [15] report that 6,711 patients (38.4%) lost their testis. Before performing orchidectomy, the testis is untwisted, wrapped in warm physiological serum, and observed for improvement in color. In our study, the orchidectomy rate was 35.2%. In a single center study carried out in India, the orchidectomy rate was 76% due to nonsalvageability of affected testis at the time of surgical exploration [16]. Delay presentation the patients at hospital seems to be the major factor responsible for the low salvage rate [17, 18]. The contralateral testis is fixed with nonabsorbable sutures.

Some of our patients lived far from our center and consulted the peripheral health center first. Misdiagnosis was frequent in those centers. This is why some of our patients have been prescribed analgesics and anti-inflammatories, further delaying the consultation period. Similar to our findings, the authors reported that in a study, the patients who underwent orchietomy also had longer pain duration and lived farther away from the hospital [19]. According to the authors [20], testicular function, and the testis itself, can only be preserved or salvaged in patients who receive a differential diagnosis and undergo surgical procedures without delay.

5. Conclusion

Testicular torsion affects younger under the age of 20. The most significant risk of testicular torsion is the loss of the testicle. The most common causes of testicular necrosis after testicular torsion are the delay in treatment subsequent to misdiagnosis in peripheral health centers. Teenagers with acute scrotum should be referred quickly for emergency care to increase their chances of testicular recovery.

6. Recommendation

We recommend to health workers that, the teenagers under the age of 25 who present to a health facility with an acute scrotum, testicular torsion should be systematically discussed. Antalgics and anti-inflammatories should be avoided and the patient should be referred to a specialist center for consultation to minimize the risk of testicular loss. Parents of boys to systematically consult a health facility in case of acute testicular pain.

Conflict of Interests

All the authors do not have any possible conflicts of interest.

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