

Torsion of the Spermatic Cord: Clinical and Therapeutic Aspects in the Region of Thies (Senegal)

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Abstract

Introduction: The purpose of this work is to evaluate the epidemiological, clinical and therapeutic aspects of spermatic cord in our context. **Patients and Methods:** This is a retrospective study over a period of 4 years from January 1, 2014 to June 30, 2018. **Results:** We collected 55 cases divided into 26 cases, 44.27% for the Thies Regional Hospital, 21% or 38.18% for the Mbour EPS and 8 cases representing 14.55% for the Saint Jean de Dieu Hospital. We found an average age of 20.03 years with extremes of 4 years and 56 years. In 28 patients or 50% of cases, we found no particular pathological history, while in 4 patients or 7.14%, we found a notion of recurrent ipsilateral testicular pain. We recorded 67.27% (n = 37) of the cases received for testicular pain; 15 patients or 27.27% presented a large painful pouch. Two patients (3.64%) were received for inguinal swelling and 1 patient (1.82%) presented testicular atrophy. The average consultation time is 16.9 hours with extremes of 2 hours and 96 hours. The torsion was in 59.61% of cases (n = 32) located on the right versus 40.38% (n = 22) on the left. There was no bilateral form. The pick-up time was 3 hours with extremes of 1 h to 24 h. All patients benefited from an exploratory scrotomy. We found a total of 22 patients or 40% of cases with ischemic testis, 8 cases or 14.55% of patients with necrotic testis and 2 cases or 3.64% where the testis was normal. Orchidopexy was performed in 46 patients or 83.63% and orchiectomy in 9 patients. **Conclusion:** Care is urgent. There is a need for better awareness of the population and the medical staff for the early diagnosis.

Keywords

Spermatic Cord Torsion, Young Subject, Exploratory Scrotomy, Orchiectomy

1. Introduction

The twisting of the spermatic cord is defined as strangulation of the spermatic cord around its vascular axis leading to ischemia or even testicular necrosis. It is an andrological emergency. Its incidence is estimated in France, at one per 4000 males younger than 25 years [1]. It represents 24% of andrological frequencies for Valla *et al.* [2] and 29.2% for Cavusoglu *et al.* [3]. In Benin, spermatic cord torsion represents 17% of andrological emergencies [4]. In Cameroon, they have a frequency of 11.34% of acute scrotal disease in children [5].

It is a pathology of the young subject about 65% of cases occurring at puberty [6].

The preservation or not of the testicle depends essentially on the duration of evolution, the degree of the spermatic torsion, and the time of management [7]. In our context, the management of twists of the spermatic cord is difficult. Among other things, the weight of taboos in society, ignorance of the urgency of care, and the difficulties of rapid reference lead to a significant delay in diagnosis and treatment [8]. The medico-legal aspect of the management of twists of the spermatic cord takes an increasingly important place in the everyday life of the practitioners.

The aim of this work is to study the clinical and therapeutic aspects of spermatic cord torsion in the Thies region.

2. Patients and Methods

This is a multicenter retrospective study over a period of four (4) years, from May 31, 2014 to June 1, 2018. The study involved all patients with sperm cord torsion and received in the structures. sanitary facilities in the Thiès region, including the Regional Hospital Center, the Saint Jean de Dieu Hospital and the Mbour Public Health Facility.

Inclusion criteria: All patients with spermatic cord torsion confirmed by exploratory scrotomy and managed in these reference services. Criteria for non-inclusion: Patients with incomplete files were not included in the study.

The parameters studied were: marital status, medico-surgical antecedents, mode of admission, reasons for consultation or hospitalization, delay of consultation of support, the circumstances of occurrence, the data of the clinical examination, the balance sheet urgently requested, the treatment established in emergency, the future of the patient and the follow-up of the patient.

The data was entered on a computer and analyzed with the Epi info 3.5.1 software (version 7.2.2.6) in its French version, and the Excel software. The anonymity of the patients has been respected.

3. Results

We collected 55 cases divided into 26 cases, 44.27% for the Thies Regional Hospital, 21% or 38.18% for the Mbour EPS and 8 cases representing 14.55% for the Saint Jean de Dieu Hospital. The mean age of patients was 20.03 years (range, 4 to 56 years), median was 18 years, mode was 16 years (**Figure 1**).

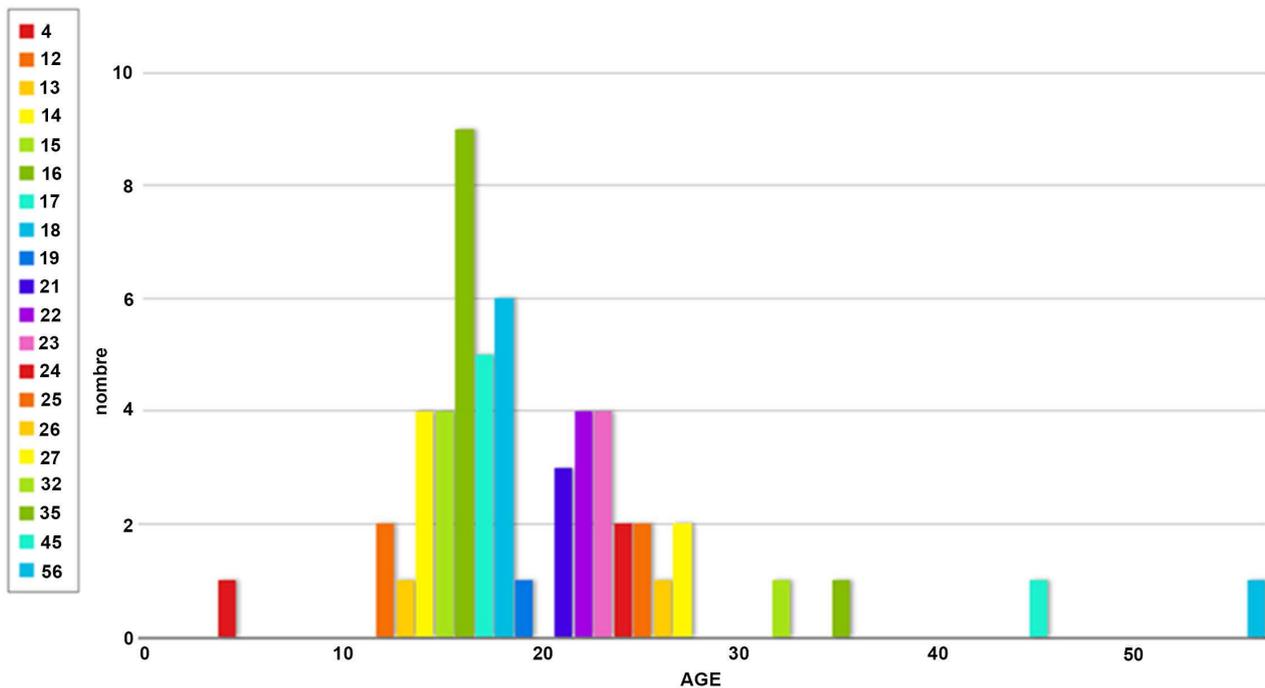


Figure 1. Distribution of cases by age.

In 28 patients or 50% of cases, we found no particular pathological history, while in 4 patients or 7.14%, we found a notion of recurrent ipsilateral testicular pain. In 1 patient (1.79%) homolateral orchidopexy on torsion of the spermatic cord was performed and 1 case of contralateral orchid-epididymitis was mentioned. In 37.5% (n = 21) of the cases, the antecedents were not specified.

For the functional signs, we recorded 67.27% (n = 37) of the cases received for testicular pain, 15 patients or 27.27% presented a large painful pouch. Two patients (3.64%) were received for inguinal swelling and 1 patient (1.82% for scrotal vacuity) (**Figure 2**).

The average consultation time is 16.9 h with (extremes of 2 h and 96 h) with a median of 6 h. We find that 14 patients or 40% were admitted before 6h of evolution, 9 patients or 25.71% between 6 and 12 h. 14.29% of the cases or 5 patients were admitted between 12 and 24 hours while 7 were admitted before 24 hours or 20% (**Table 1**).

These functional signs are associated with digestive signs in 27% or 49.09% of cases and are vomiting type in 7 patients or 12.73% of cases. In 21 patients, we did not find any associated signs.

The torsion was in 59.6% of cases (n = 32) located on the right versus 40.4% (n = 22) on the left. There was no bilateral form (**Figure 3**).

The Prehn maneuver was positive in 31% in 17 patients. The governor's sign was present in 71% of the cases, 39 patients and absent in 16 (29%). Doppler ultrasonography was performed in 16 (29.02%) patients.

The pickup time was 3 hours with extremes of 1 hour to 24 hours. The exploratory scrototomy was performed in all patients and objectified in all cases

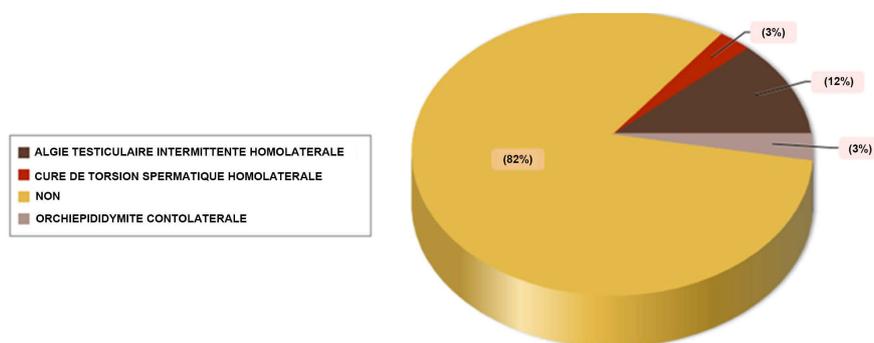


Figure 2: Distribution of cases by reason of admission.

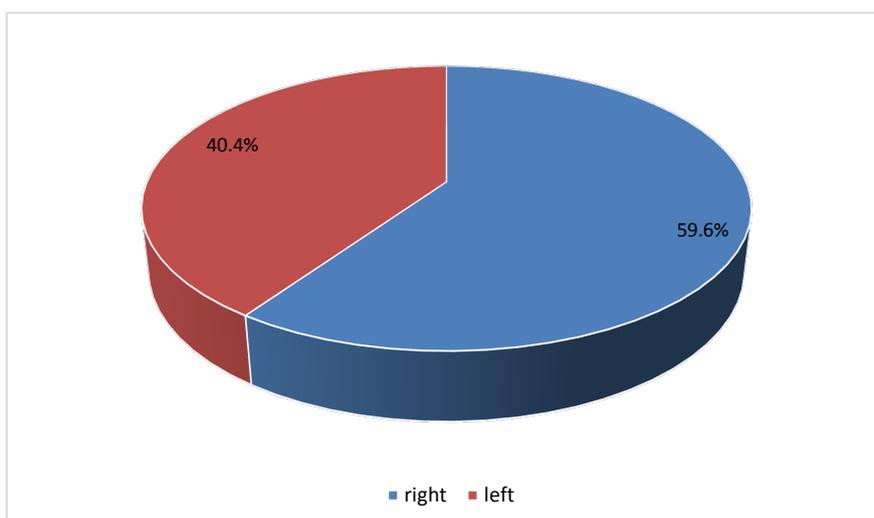


Figure 3. Distribution according to the side of the torsion.

Table 1. Distribution of cases according to the admission period.

Admission deadline	Number	Frequency
[0 h - 6 h[14	25.45
[6 h - 12 h[9	16.37
[12 h - 24 h[22	40
[24 h et plus]	10	18.18
TOTAL	55	100.00

the torsion of the spermatic cord. It was preceded by 3 patients or 5.45% of an external detorsion maneuver. We have 14 patients or 63.64% of the cases who had 2 turns of turn against 4 patients for 1 turn of turn. Only one patient presented 3 turns of coil in intraoperatively.

Orchidopexy was performed in 46 patients or 83.63% and orchidectomy in 9 patients (16.37%) (**Figure 4**).

We found a total of 22 patients or 40% of cases with ischemic testis, 8 cases or 14.55% of cases with a necrotic testicle and 2 cases or 3.64% where the testicle had a normal appearance (**Figure 5**).

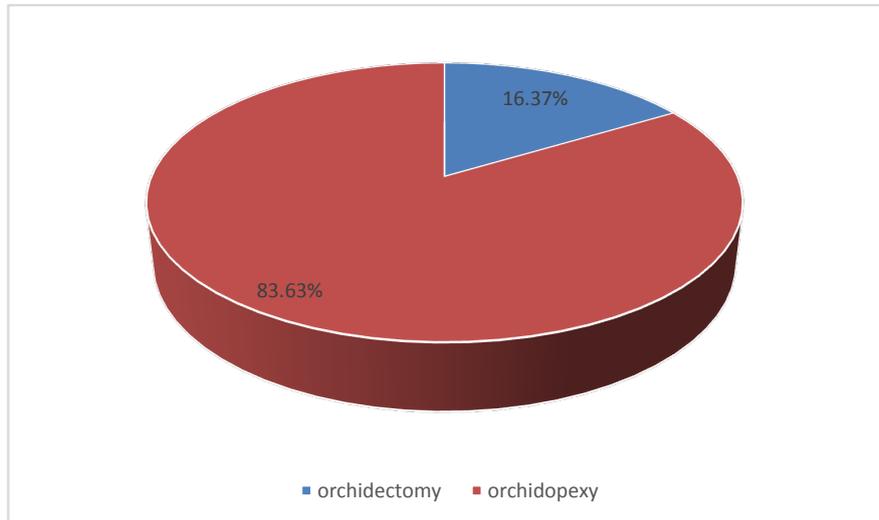


Figure 4. Distribution according to the operative gesture.

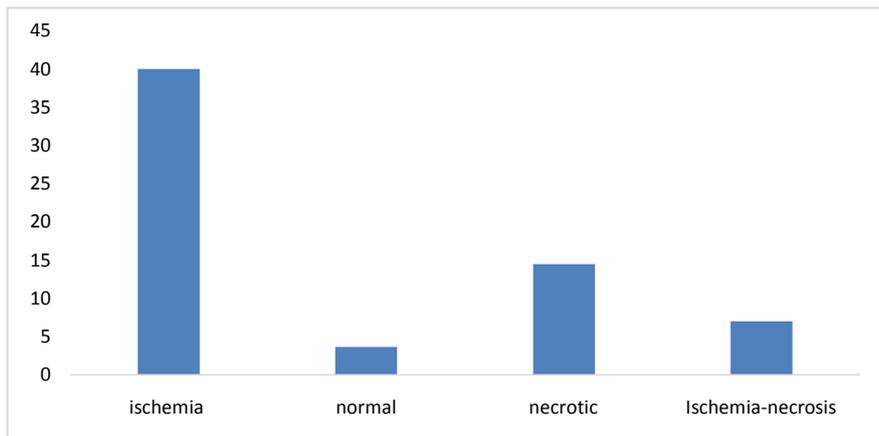


Figure 5. Distribution of cases according to the appearance of epididymo-testicular blocks.

We found 10 cases of ischemia when the admission time is less than 6 hours and 6 cases for an admission period between 6 and 12 hours. All cases of necrosis were received beyond 12 hours with 2 cases between 12 and 24 hours and 4 cases over 24 hours (Table 2).

4. Discussion

Twisting of the spermatic cord is one of the most common surgical emergencies in adolescents [4]. Its prevalence varies according to the authors and also according to localities. In the United States, the prevalence of twisting of the spermatic cord is estimated to be 8.6% of all urological urgencies in young people between 10 and 19 years of age [6]. According to Audenet [7], its incidence is estimated at one per 4000 men under 25 years of age.

We find two peaks of spermatic cord torsion prevalence: in newborns and adolescents around the age of 15 [9]. Zhao *et al.* [10] also found this bimodal

Table 2. Distribution according to the intraoperative aspect in relation to the admission period.

Intraoperative aspects of the epididymo-testicular blocks	< 6 h	<12 h	<24 h	>24 h	TOTAL
Ischemia	11	8	0	1	20
Necrosis	0	0	2	4	6
Normal	3	1	3	0	7
Testicular atrophie	0	0	0	2	2
TOTAL	14	9	5	7	35

distribution around the neonatal period and around the age of 14 years. According to Even *et al.* [11], neonatal twists of the spermatic cord represent about 10% of torsion cases. In the same series, the author placed the median age at age 13 (0.18 - 14.97) with a peak occurring between 11 and 15 years of age [11].

Torsion is an affection of the young subject. In Africa, especially in the sub-region, we find a single peak of frequency around the pubertal period. Indeed, Sarr A. *et al.* [8], found an average age of 21 years. Diabate I *et al.* [12] found a slightly advanced age average of 26.57 years. In the case series of Hodonou *et al.* [13], the authors found 36% of patients aged between 15 and 19 years. In Togo, Gnassingbé *et al.* [14] have, meanwhile, achieved an average age of 9 years with extremes of 7 days and 15 years. In Cameroon, the average age was 19 years [5]. These values are similar to those found in our study, which is 20.03 years old.

This demonstrates that the range between 12 and 17 years are more exposed. As has been pointed out, for most authors in our context an existence often a single peak frequency [8]. Therefore, the peak of neonatal frequency usually underlined is little mentioned.

This finding can be explained by a selection bias related to the fact that most of the children who come for emergency consultation, for a large acute painful purse, are generally received in the pediatric surgery departments and these are the older children or teenagers. who present themselves in emergency surgical services in urology.

The antecedents are a decisive element to take into account. Indeed, there may be resolving episodes of torsion, cases of anterior torsion on the contralateral side. We found 7.14% of recurrent ipsilateral testicular pain. The presence of certain malformations including cryptorchidism, which constitutes proven risk factors for torsion of the spermatic cord. For this reason, the interrogation must be well conducted to prevent spermatic torsion.

The admission period is variable in the literature and depends on several factors. In our study, the average consultation time is 16.9 hours. These results are similar, some found in the literature, including Even *et al.* [6] have an average delay of 19.5 hours and 17 hours, respectively.

On the other hand for Sarr A. *et al.* [8], the average time between onset of

painful symptomatology and admission to emergency is 102 hours. Forty-seven patients were received after the sixth hour. Whereas for Hodonou [13], the average consultation time was 08 days.

These delays are well above the 27.5 hours found by Sessions AE *et al.* [15]. This long delay is explained on the one hand by the lack of information concerning the affection, which relates to the urgency of care and on the other hand the taboo phenomenon which is the object of these young people who prefer to suffer silently. Another problem is related to the diagnostic errors on the part of the health staff because of the ignorance of the affection. The distance from the reference structures must be taken into account.

The most common functional sign in the literature is acute and unilateral scrotal pain. This is the master symptom. Interrogation makes it easy to highlight and guide the diagnosis quickly. This pain is constant in most studies. Indeed, in the series of Ameh EA *et al.* [16], the pain was found with a frequency of 80.8%. This frequency is 62% in the series of Mondet *et al.* [17] and 72% in the series of Ralahy FM *et al.* [18]. These results are consistent with those found in our study with 67.27% unilateral scrotal pain. It is a symptomatology that often pushes patients to come for emergency consultation. Moreover, it is associated with variable frequencies in the literature to other signs such as vomiting in 35.5%, nausea with 67.9% of cases according to the meta-analysis of Cummings JM *et al.* [19].

There is no predominance of side. We note a side variability for torsion of the spermatic cord. Indeed, A. Sarr *et al.* [8] who found 52% torsion cases located on the right. On the other hand for Sauvat R *et al.* [20] and Gnassingbe [14], it predominated on the left. A study conducted by Vanina *et al.* [21] did not show any privileged lateralization. In our series, there was a straight predominance.

At the surgical exploration, all the cases were intra-vaginal torsions compared to A. Sarr [8] who found 8.6% Supra vaginal All over 15 years old. However, the intravaginal twist of the spermatic cord is the most common form outside the neonatal period [3].

In short, no clinical sign is specific to the TCS, hence the attitude to any major painful acute to perform an exploratory scrotomy to the slightest doubt.

Echo-doppler was performed in 29.02% of our cases. However, Even *et al.* [6], found an infrequent recourse to ultrasound and only 77% of contributory ultrasounds.

Zini *et al.* [22] concluded that scrotal ultrasound could be falsely reassuring and delay management. Similarly, other authors even consider ultrasound scanning and possibly Doppler as not very contributive in and that it only delays the time of the intervention [23].

No para-clinical examination should delay its surgical management, which must be urgent in order to limit the duration of ischemia with the risk of testicular necrosis [24]. The visualization of turns is much more reliable with 99% against 76% in the series of Kalfa *et al.* [25]. We found in our study, an



Figure 6. Spermatic cord twist with testicular necrosis.

orchidectomy rate of 16.37%. This rate is low compared to that found in the literature. Indeed, A Sarr *et al.* [8] found 52% of orchidectomy performed against 50% in the series Diabaté I *et al.* [12] and 55% in the series of Kabore *et al.* [23].

On the other hand Tajchner *et al.* [26] reported only one case of orchidectomy for 41 cases of twisting of the spermatic cord. As for Gnassigbé *et al.* [14], they did not perform any orchidectomy in a series of 17 cases. Our results are similar to the rates of Zini *et al.* [22] who found respectively 15% and 18%. Glabeke E *et al.* [9] reported 18.2% orchidectomy versus 20.3% for Even *et al.* [6]. Orchidectomy is performed in cases of testicular necrosis. The vitality of the epididymo-testicular block depends on the delay of management. Indeed, the overall rate of testicular preservation after torsion is 40% to 70% but we have 100% conservation before three hours, 90% before six hours and less than one in two after ten hours [19].

The trophic prognosis of the twisted testis is conditioned by the severity of the acute ischemia, itself directly dependent on the number of turns of the cord and the duration of the torsion [27] (Figure 6).

The medico-legal aspect is becoming more and more important in the day-to-day practice of practitioners and the management of scrotal pathology is a recurring complaint [28]. Tengue K *et al.* [29] showed that 74% of the complaints concerned a misdiagnosis, 48% the absence of specialized opinion and 13% the absence of scrotal exploration.

5. Conclusion

Twisting the spermatic cord is an andrological emergency. Early and adequate management is crucial for the preservation of testicular functions. Diagnostic delay is often linked to a lack of information and ignorance of the urgency of this condition. It is a pathology that can occur at any age but especially in the young subject. The clinical picture is easy in front of an acute and unilateral pain syndrome of a stock exchange. Paraclinical investigations are not essential. The only thing to do is the exploratory scrotomy. Its impact in our context is underestimated, which is accentuated by taboo phenomena.

Conflict of interest

The authors declare that they have no conflict of interest

The Ethics Committee

Approved the protocol file and the study conditions concerning Torsion of the spermatic cord: Clinical and therapeutic aspects in the region of Thies (Senegal).

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