

*Original article*

**Epidemiological, diagnostic and therapeutic aspects of spermatic cord torsion
at the Principal Hospital of Dakar about 20 cases**

Aspects épidémiologiques, diagnostiques et thérapeutiques de la torsion du cordon spermatique
à l'Hôpital Principal de Dakar à propos de 20 cas

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Résumé

Introduction: La torsion du cordon spermatique (TCS) est une urgence urologique absolue, mettant en jeu le pronostic fonctionnel testiculaire au-delà de 06 heures de temps. L'objectif de notre étude est de rapporter les aspects épidémiologiques, diagnostiques et thérapeutiques des TCS au service d'accueil des urgences (SAU) de l'Hôpital Principal de Dakar.

Méthodologie : Il s'agissait d'une étude rétrospective et descriptive sur une période de 56 mois allant du 01er Janvier 2016 au 31 Aout 2020. Étaient inclus les patients reçus au SAU de l'Hôpital Principal de Dakar pour suspicion de torsion du cordon spermatique, qui était confirmée à la scrototomie exploratrice. Les paramètres suivants étaient étudiés : l'âge, la profession, les motifs et délai de consultation, l'examen physique, les résultats de l'échographie Doppler des bourses, le délai d'intervention, l'exploration et les gestes opératoires, les suites opératoires à court et moyen terme et les résultats anatomo-pathologiques

des pièces d'orchidectomie.

Résultats : L'âge médian des patients était de 22,85 ans avec des extrêmes de 15 et 40 ans. Les professions d'étudiants et d'élèves étaient les plus représentées avec 70% des patients (n=14). La grosse bourse aigue douloureuse était le motif de consultation chez 14 de nos patients soit 70%. Le délai moyen de consultation était de 65 heures et 6 minutes avec des extrêmes de 1,5 heure et 312 heures. Le signe du Gouverneur était positif chez 65% des patients (n=13). L'échographie Doppler scrotale était réalisée chez 13 patients (65%). Le diagnostic de TCS était confirmé chez 12 parmi eux. À la scrototomie exploratrice, le testicule était viable chez 13 patients (65%). Trente-cinq pourcent des patients avaient une orchidectomie unilatérale et une orchidopexie controlatérale dans le même temps opératoire. **Conclusion :** Dans notre étude, ce retard de prise en charge est dû à un long délai de consultation. Ceci explique le taux élevé d'orchidectomie dans notre contexte.

Mots-clés : torsion du cordon spermatique, urgence, échographie-Doppler, orchidectomie, andrologie.

Abstract

Introduction: Spermatic cord torsion (SCT) is an absolute urological emergency, involving testicular functional prognosis beyond 06 hours of time. The objective of our study is to report the epidemiological, diagnostic and therapeutic aspects of SCT to the emergency department of the Main Hospital of Dakar. **Methodology:** This was a retrospective and descriptive study over a period of 56 months from 01 January 2016 to 31 August 2020. Included were patients admitted to the UAS of the Principal Hospital of Dakar for suspected torsion of the spermatic cord, which was confirmed by exploratory scrototomy. The following parameters were studied: age, occupation, reasons and delay of consultation, physical examination, Doppler ultrasound results of bursae, intervention time, exploration and operative gestures, short- and medium-term post-operative outcomes and anatomical-pathological results of orchietomy specimens.

Results: The median age of patients was 22.85 years with extremes of 15 and 40 years. Student and pupil occupations were the most represented with 70% of patients (n=14). Acute acute bursa pain was the reason for consultation in 14 of our patients, i.e. 70%. The mean time to consultation was 65 hours and 6 minutes with extremes of 1.5 hours and 312 hours. The Governor's sign was positive in 65% of patients (n=13). Scrotal Doppler ultrasound was performed in 13 patients (65%). 12 of them were confirmed to have been diagnosed with SCT. At exploratory scrototomy, the testis was viable in 13 patients (65%). Thirty-five percent of patients had unilateral orchietomy and contralateral orchidopexy at the same operative time. **Conclusion:** In our study, this delay in treatment is due to a long delay in consultation. This explains the high rate of orchietomy in our context.

Keywords: spermatic cord torsion, emergency, Doppler ultrasound, orchietomy, andrology.

Introduction

First described by Hunter in 1810 [1], followed by Delasiauve in 1840 [2] in a patient with an undescended testicle, spermatic cord torsion has been observed in all age groups since then [3]. Spermatic cord torsion (SCT) or testicular torsion is a rotation of the testicle around its vasculo-deferential axis, thus leading to a more or less complete interruption of the vascularization of the testicle and its appendages [4]. It is an absolute urological emergency, involving the functional prognosis of the testicular beyond 06 hours of evolution. SCT typically has two peaks in frequency, namely the neonatal period and adolescence [3]. In sub-Saharan Africa, delayed diagnosis is the main problem identified by the authors, resulting in a high rate of orchietomy [5, 6]. The objective of our study is to describe the epidemiological, diagnostic and therapeutic aspects of SCT in the emergency department (UAA) of the Principal Hospital of Dakar.

Methodology

This was a retrospective and descriptive study over a period of 56 months from 01 January 2016 to 31 August 2020. Included were patients aged 15 years and older who were admitted to the UAS for suspected spermatic cord torsion confirmed by exploratory scrototomy and who had a complete medical record. The diagnosis of torsion of the spermatic cord was suggested in the presence of a large, acute, painful bursa, with or without a sign from the Governor. Ultrasound coupled with Doppler, when performed in the face of a diagnostic doubt, made it possible to highlight a total or partial cessation of testicular vasculature. Surgical exploration was performed scrotal and confirmed the diagnosis in the presence of spiral towers with or without testicular necrosis. Orchietomy was performed when the testicle was not viable, blackish in appearance and not recoloring, after 10 to 15 minutes of untwisting and soaking in lukewarm saline. In case of restraining, an orchidopexy was performed and was bilateral when the operator

judged that the local conditions were not risky for the contralateral testis. Patients were seen at check-up one month after surgery to assess the healing of the surgical wound, the size and consistency of the untwisted testicle and also for a possible contralateral orchidopexy when it was not performed immediately. All patients were treated at the surgical emergency department of the main hospital in Dakar and then hospitalized in the urology department for further treatment. The following parameters were studied: age, occupation, reasons and delay of consultation, therapeutic pathway, physical examination, results of Doppler ultrasound of bursae, intervention time, intraoperative exploration and operative gestures, short- and medium-term post-operative outcomes and anatomical pathology results of orchiectomy pieces. Data were collected from patients' medical records and operating room records using an operating sheet, then entered into Microsoft Word for Mac 2011 and analyzed using Microsoft Excel for Mac 2011 and its statistical tools. A total of 27 CHT records were collected during the period, 20 of which were included in the study.

Results

Our study covered a 56-month period from January 2016 to August 2020 during which 27 cases of suspected SCD were collected, i.e. a frequency of 5.4 cases per year. During this period, 1862 patients were operated on in the ward, representing a prevalence of 1.4% for SCT. Twenty patients were included in the study. The median age of patients was 22.85 years with extremes of 15 and 40 years. Eighty percent (n=16) of patients were younger than 25 years of age. Student and pupil occupations were the most represented with 70% of patients (n=14). Acute acute bursa pain was the reason for consultation in 14 of our patients, i.e. 70%. The mean time to consultation was 65 hours and 6 minutes with extremes of 1.5 hours and 312 hours. Fifty percent of patients had consulted after 24 hours of progression (n=10) (Figure 1).

Thirty percent of patients (n=06) had first consulted a

health facility, before being referred to the HPD UAS. On examination, the painful bursa was present in all patients. The Governor's sign was present in 65% of patients (n=13) and Prehn's sign was absent in 40% of patients (n=08) (Figure 2). The torsion was located on the right side in 60% of the patients. There were no cases of bilateral twisting.

Scrotal Doppler ultrasound is performed in 13 patients (65%). 12 of them were confirmed to have been diagnosed with SCT. Only one case of false negative was noted. From admission of patients to the UAS to surgery, the mean time from 05 hours and 28 minutes with extremes of 01 and 48 hours. At exploratory scrototomy, the testis is viable in 13 patients (65%). Of these, six required a recoloration maneuver for testicular ischemia (30%). Figure 3 shows the distribution of patients according to the results of exploratory scrototomy.

All patients seen before the 6th hour had viable and well-colored testicles. The mean number of turns of turns was 1.75 with extremes of 1 turn and 3 turns of turns (Figure 4). Sixty percent of patients had at least 2 turns of turns. In total, in the 13 patients with viable testicles, eleven bilateral orchidopexies were done at the same time and the other two had unilateral orchidopexy. Thirty-five percent of patients had unilateral orchiectomy and contralateral orchidopexy at the same operative time (Figure 5).

Postoperative care was simple in all patients. The mean length of hospital stay was 2.2 days with a minimum of 1 day and a maximum of 6 days. Histopathological examination of the 07 pieces of orchiectomy was in favor of a hemorrhagic infarction consistent with a neglected SCT. All patients were between one and two months postoperatively, no cases of testicular atrophy were noted.

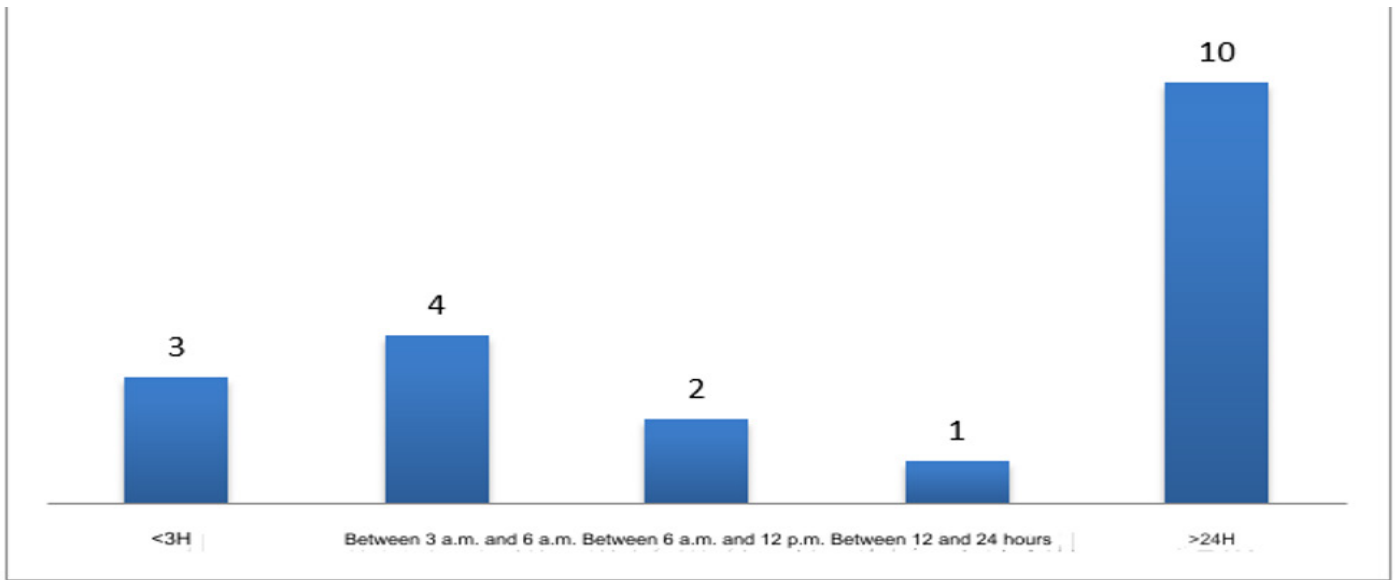


Figure 1: Distribution of patients by consultation time

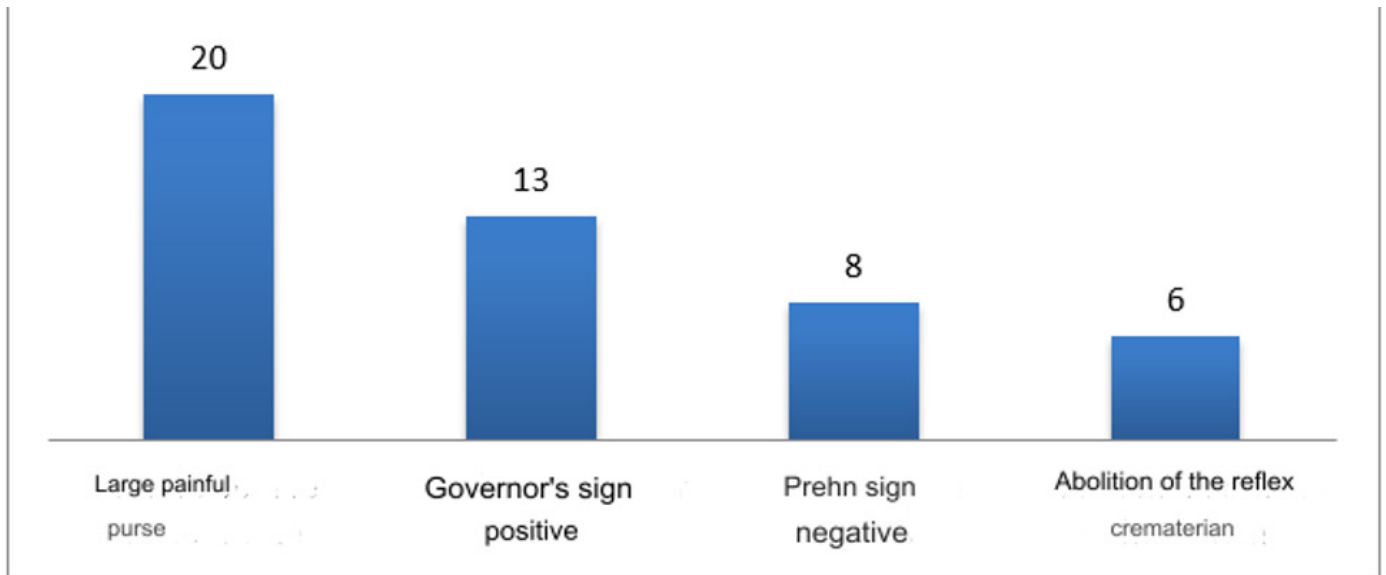


Figure 2: Distribution of patients by physical signs

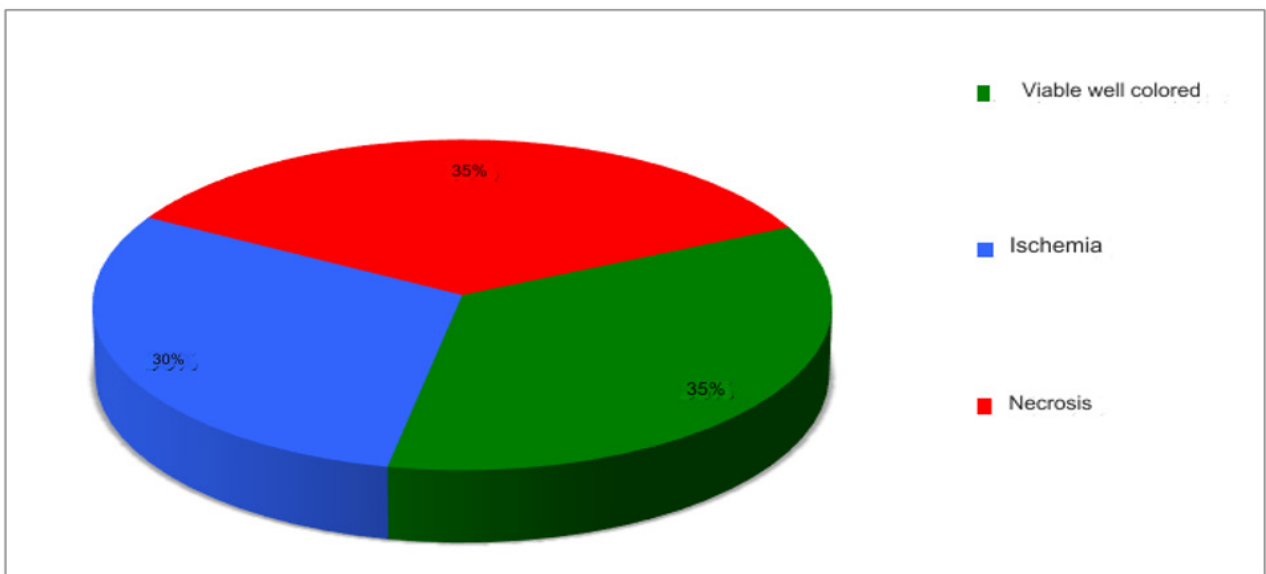


Figure 3: Distribution of patients according to testicular aspects

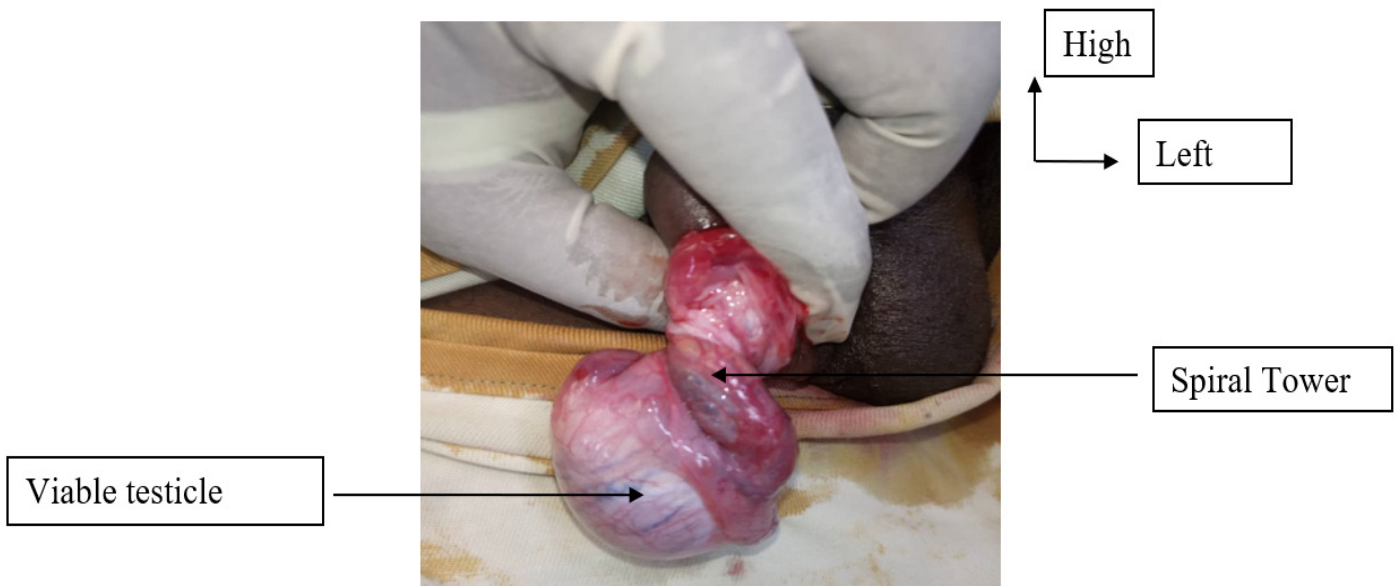


Figure 4: Torsion of the spermatic cord with 1 turn of turns at H3 (HPD image)

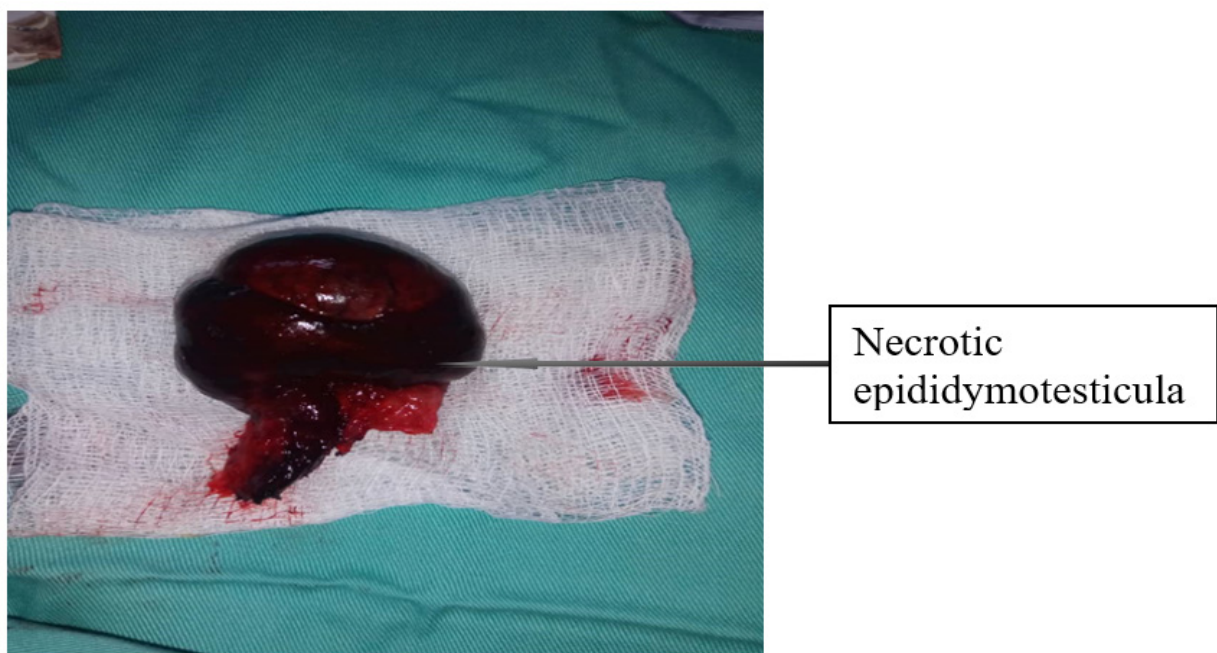


Figure 5: Orchiectomy piece (necrotic testicle) (HPD image)

Discussion

The spectrum of pathologies affecting the scrotum and its contents ranges from benign lesions, where it is sufficient to reassure the patient, to serious lesions (tumor, torsion), some of which must be treated in extreme urgency [7]. Among all these pathologies, testicular torsion is the most feared. The annual

incidence is estimated at 3.8 per 100,000 (0.004%) for boys under 18 years of age. [8]. It is a typical pathology in children but also occurs in adults in nearly 39% of cases [9]. There are two types of testicular torsion, ninety-five percent of which are intravaginal and occur mostly between the ages of three and twenty. The others are extravaginal and occur mainly in utero and in newborns. The age

range of our patients was between 15 and 40 years old, and 80% of the patients were under 25 years old. These data are comparable with those reported in Senegal by Sarr A. et al. [6] with eighty percent of patients under 25 years of age. On the other hand, they were higher than the data reported by Kaboré et al [10] in Burkina Faso and Hodonou et al in Benin [11], with 68% and 70% of patients under 25 years of age, respectively. Three patients (15%) were over 30 years of age. Similar data are reported by Lee et al. [12], with 10% SCT in patients over 30 years of age, some of whom are over 60 years of age. The majority of our patients (70%) were pupils and students. The frequency of SCT in this population can be explained by their age range, between 15 and 25 years, but also by the frequent and often intense physical activity in this period of life. The role of physical activity in the development of SCT is not fully elucidated, but scrotic trauma, sudden movements, and cycling have been cited as precipitating factors [13]. The greatest peak in frequency, totalling 65% of cases, occurs at puberty, concomitant with the rapid increase in testicular mass. Acute acute bursa pain was the reason for consultation in 70% of our patients. Higher results were reported by several authors, including Hodonou [11], Bah [14] and Gnassingbe [5] with 79%, 85.1% and 94.11% of cases respectively. Isolated cluster headache was the reason for consultation in 04 of our patients (20%). Patients who had consulted for this sign were seen in the very first hours of the SCT. However, the mean time to consultation in our study was 65 hours and 6 minutes with extremes of 1.5 hours and 312 hours. This is lower than the 71.43 hours reported by Odzébé A et al. [15], and the 102 hours reported by Sarr A et al. [6]. However, several authors reported much shorter average consultation times [5, 10, 16, 17]. Fifty percent (n=10) of patients had seen patients after 24 hours. Of these, six had necrotic testicles at exploration. The average consultation time for patients referred from other health facilities was 98 hours, almost double that of patients who came directly to the HPD UAS (57 hours and 48 minutes) in our study. This difference was noted in the study by

Odzébé et al. [15] where the average consultation time was 71.43 hours, but in the 15 patients who came from the other health centres, the average consultation time was 112 hours. Indeed, consultation in a health center that does not have a technical platform adapted to the diagnosis and emergency treatment of SCT is one of the main factors of delay in care in our context of developing countries. Two situations arise as a result of these consultations. Most often, empiric treatment with analgesics and antibiotics or anti-inflammatories is initiated and the patient is sent home with controlled pain. It is only when the testicular volume persists and increases that the patient decides to consult a higher level centre for better care, often with a delay of more than 24 hours. More rarely, the diagnosis of SCT is evoked and the patient is referred to a surgical UAS, moving with his own means, especially at night, and arrives in a late time well beyond 6 hours [18]. Sarr A et al [6] mentioned in their study that the management of TBI, which remains mostly late, is linked, in their context, to difficulties in accessing health centres, information and socio-cultural considerations related to the fact that sex is still taboo. Indeed, pathologies of the external genitalia are shrouded in great modesty in sub-Saharan Africa, and the inadequacy of specialized structures combined with the lack of financial means pushes patients to consult, as a first line of treatment, in peripheral structures, where treatment is less expensive [6]. However, while it is difficult to influence the time it takes for patients to see a doctor, it would be possible to improve the time between their arrival at the emergency room and surgical management. In our study, Doppler ultrasound of bursae was performed in 13 patients (65%) and was contributory in 12 patients in whom surgical exploration confirmed the diagnosis of SCT. This confirms the high sensitivity of Doppler ultrasound of bursae in the diagnosis of SCT. Odzébé et al. [15] reported a sensitivity of 85.18% of Doppler ultrasound. Nevertheless, its performance should not delay surgical management, which is the only guarantee of a definitive diagnosis [16, 17]. The orchietomy rate was 35% in our study and the average

consultation time was more than 24 hours in these patients. Several risk factors for testicular necrosis are cited in the literature, namely adulthood, number of turns, and consultation time [19]. Among the latter, the time between the appearance of the first signs and surgical management remains the most recognized and important factor [20]. In fact, during the first 6 hours, the testicle can be preserved in 90% to 100% of cases [21]. Testicular preservation rates decrease to 70% between 6 and 12 hours of ischemia and drop to 20% between 12 and 24 hours [21]. After 24 hours of ischemia, the testicle is preserved in less than 10% of cases [21]. Typically, reperfusion of the testicle should occur within 6 hours of the onset of symptoms, which explains the need for prompt diagnosis and management [13, 21]. Thirty-five percent (n=7) of the patients in our study were seen before the 6th hour and all had viable testes. The six-hour delay is a statistical data point and not a safe time frame, as there are cases of orchiectomy before the sixth hour although the majority of testicular loss occurs after this time [22, 23]. While bilateral orchidopexy at the same operative time when the testis is viable is applied systematically, the choice between immediate contralateral orchidopexy or delayed orchidopexy in testicular necrosis is still debated in the literature [14]. In our study, the thirteen viable testes were fixed with contralateral orchidopexy in 11 cases at the same operative time. The two cases of unilateral orchidopexies corresponded to a case of single-testicular SCT and another in which contralateral orchidopexy was performed in a second operative step at 1 month postoperatively for an unreported reason. In our study, the long time to consultation was the main factor in testicular necrosis. This delay was especially long in patients referred from a health facility and in those who had received a Doppler ultrasound from bursaries.

Conclusion

Torsion of the spermatic cord is an absolute urological emergency, involving the functional prognosis of the

testicular beyond 6 hours. In sub-Saharan Africa, data on SCT point to delayed care as the main problem. In our study, this delay in treatment is due to a long delay in consultation. This explains the high rate of orchiectomy in our context. Raising awareness and informing the population in general, parents and young adolescents in particular, about the need to consult an emergency department quickly in the first hours before acute testicular pain would improve this still poor prognosis. Currently in Senegal, the number of urologists is quite large and every major city has at least one in its referral center. This should be a guarantee for the improvement of the prognosis of urological emergencies, and of spermatic cord torsion in particular.

Funding: None

This article is read and validated by the Ethics Committee of the Principal Hospital of Dakar.

All authors participated in the diagnostic and therapeutic management of the patients, in the writing and final correction of the article.

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Available online : April 30, 2024

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Conflicts of interest : None

References

- [1] Hunter J. A treatise on the venereal disease. London: W. Bulmer and Co. for G. and W. Nicol 1810;29-30.
- [2] Delasiauve L. Descente tardive du testicule gauche, prison pour une hernie étranglée. *Rev. Med. Fr.Etrang* 1840;1:363.
- [3] Skoglund RW, McRoberts JW, Ragde H. Torsion of the spermatic cord: a review of the literature and an analysis of 70 new cases. *J Urol* 1970;104:604-7.
- [4] Burgher SW. Acute scrotal pain. *Emerg Med Clin North Am* 1998; 16:781,809.
- [5] Gnassingbe K, Akakpo-Numado KG, Songne-G B, Anoukoum T, Kao M et Tékou H. Les torsions du cordon spermatique chez l'enfant. *Afr J Urol*. 2009; 15(4):263-7.
- [6] Sarr A, Fall B, Mouss B, Sow Y, Thiam A, Diao B, Fall PA, Diagne BA. Aspects diagnostiques et thérapeutiques de la torsion du cordon spermatique au CHU Aristide-Le-Dantec de Dakar. *Androl*. 2010;20:203-8.
- [7] Douaihy N, Benamran DA, De Gorski A, Poletti PA et Iselin CE. Torsion testiculaire : une urgence piège. *Rev Med Suisse* 2011;7:2404-8.
- [8] Zhao LC, Lautz TB, Meeks JJ, Maizels M. Pediatric testicular torsion epidemiology using a national database: incidence, risk of orchiectomy and possible measures toward improving the quality of care. *J Urol*. 2011;186(5):2009-13.
- [9] Cummings JM, Boullier JA, Sekhon D. Adult testicular torsion. *J Urol* 2002;167:2109-10.
- [10] Kaboré FA, Zango B, Yaméogo C, Sanou A, Kirakoya B, Traoré SS. Les torsions du cordon spermatique chez l'adulte au CHU Yalgado Ouédraogo de Ouagadougou. *Andrologie* 201;21:254-259.
- [11] Hodonou R, Soumanou-Kaffo R, Akpo C. La torsion du cordon spermatique : facteurs étiopathogéniques, diagnostiques et thérapeutiques à propos de 33 cas au CNHU de Cotonou. *Med Afr Noire* 1999;46:69–74.
- [12] Lee LM, Wright JE, McLoughlin MG. Testicular torsion in the adult. *J Urol* 1983;130:93–4
- [13] Chevreau G, Peyromaure M. Torsion du cordon spermatique et des annexes testiculaires. EMC (Elsevier Masson SAS, Paris), Médecine d'urgence 2010;25-180-B-30.
- [14] Bah OR, Roupret M, Guirassy S, Diallo AB, Diallo MB, Richard F. Aspects thérapeutiques de la torsion du cordon spermatique : étude de 27 cas. *Prg Urol* 2010; 20:527-31.
- [15] Odzébé AWS, Banga MRB, Ondziel OAS, Atipo OAM, Damba JJ, Léré WLK et al. Torsion du cordon spermatique et des annexes testiculaires chez le sujet adulte au CHU de BRAZZAVILLE. *Uro'Andro Janvier* 2018 ;1(9):433-7.
- [16] Zini L, Mouton D, Leroy X, Valtille P, Villers A, Lemaitre L, et al. Faut-il déconseiller l'échographie scrotale en cas de suspicion de torsion du cordon spermatique ? *Prog Urol* 2003;13:440–4.
- [17] Sauvat F, Hennequin S, Ait Ali Slimane M, Gauthier F. Un âge pour la torsion testiculaire ? *Arch Pediatr* 2002;9:1226–9.
- [18] Diaw EM, Ndiath A, Sine B, Sow O, Ndiaye M, Sarr A et al. Torsion du cordon spermatique : Aspects épidémiologiques, cliniques et thérapeutiques au Centre hospitalier universitaire Aristide Le Dantec. *Jaccr Africa* 2020;4(4): 56-60.
- [19] Audenet F. Torsion du cordon spermatique et des annexes testiculaires : physiopathologie, diagnostic et principes du traitement. *EMC-Urologie* April 2012 5(2):1-7.
- [20] Nandwani GM, Anwar A, Singh R, Stewart AB, Forster JA, Addla SK. Assessment of age and duration of symptoms on outcomes of emergency scrotal exploration for acute scrotal pain. *J Coll Physicians Surg Pak* 2020;30(2):201-204.
- [21] Davenport M. ABC of general surgery in children. Acute problems of the scrotum. *BMJ* 1996; 312:435-7.
- [22] Della-Negra E, Martin M, Bernardini S, Bittard H. Les torsions du cordon spermatique chez l'adulte. *Prog Urol* 2000; 10: 265-270.

[23] Van Glabeke E, Khairouni A, Larroquet M, Audry G, Gruner M. Acute scrotal pain in children: results of 543 surgical explorations. *Pediatr Surg Int* 1999; 15:353-7.

To cite this article :

ST Faye, EHN Diop, MM Sangwa, M Dembélé, GAV Ntimba, AM Ndiaye et al. Epidemiological, diagnostic and therapeutic aspects of spermatic cord torsion at the Principal Hospital of Dakar about 20 cases. *Jaccr Africa* 2024; 8(2): 252-260