

Our Experience in the Management of Spermatic Cord Torsion (SCT) in Adults in Urology at Cocody-Abidjan University Hospital in 10 Years (2014-2023)

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How to cite this paper: Fofana, A., Tuo, L.S.M., Yao, K.E., Coulibaly, I., Yeo, D.D. and Adebayo, B.T. (2025) Our Experience in the Management of Spermatic Cord Torsion (SCT) in Adults in Urology at Cocody-Abidjan University Hospital in 10 Years (2014-2023). *Open Journal of Urology*, 15, 139-147. <https://doi.org/10.4236/oju.2025.155016>

Received: March 28, 2025

Accepted: May 20, 2025

Published: May 23, 2025

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Abstract

Background: SCT is an absolute surgical emergency. It threatens the functional and vital prognosis of the testicle. This can harm subsequent fertility. **Objective:** To study the factors influencing testicular viability during SCT in adults. **Methods:** Retrospective cohort of 31 patients in the urology department of the Cocody University Hospital over a 10-year period from January 2014 to December 2023. **Results:** The mean age of the patients was 25.39 years, with extremes of 18 and 54 years. The mean consultation time was 48.5 hours (2 days 30 minutes) with extremes of 1 hour 20 minutes and 4 days. The pain of the scrotum represented the main reason for consultation in 30/31. The right testicle was the most affected, with 20/31 against 11/31 for the left testicle. 31 exploratory scrotal incisions were performed on 31 suspected cases of SCT. The mean time of management was 9.06 hours, with extremes of 2 and 48 hours. 19 (19/31) patients consulted late (after 6 hours), and 14 (14/31) consulted early (before 6 hours). A total of 12 (12/31) orchietomies were performed, of which 3 (3/14) were consulted before 6 am but operated late and 8 (8/19) late. There were multiple turns of coils in all patients (12) with testicular necrosis. There was no significant correlation between laterality, pathology associated with the testis, and testicular necrosis (statistical test X² with a significant P value at the 5% threshold). The mean length of hospitalization was 3.68 days, with extremes of 2 and 6 days. **Conclusions:** SCT also occurs in young adults. The delay in consultation and the existence of several turns of spirals explain the high rate of orchietomy. Awareness of the population and medical personnel is necessary to reverse this clinical profile, which will have disastrous consequences on the subsequent fertility of patients.

Keywords

Spermatic Cord Torsion, Testicular Necrosis, Orchiectomy, Orchidopexy, Number of Coils

1. Introduction

Spermatic cord torsion (SCT) is the rotation of the spermatic cord around its vascular-deferential axis, leading to strangulation of the blood vessels supplying the testicle, resulting in a more or less complete cessation of its vascularization. There are two types of testicular torsion (intra- and supra-vaginal). The two age groups affected are newborns and young adults, with the intravaginal form being more common in the latter. This is a rare pathology in adults. SCT is an andrological emergency with an estimated frequency of one case per 4000 men under 25 years of age [1]. No paraclinical examination has proven its usefulness for the definitive diagnosis of SCT, which makes it one of the rare urological conditions where a simple clinical suspicion authorizes surgical exploration. In Africa, more than 75% of patients are operated on after 24 hours, and the preservation rate is only 58%, making it one of the main causes of secondary infertility on the continent. In Africa, the time for consultation and treatment is delayed. In West Africa, specifically in Burkina Faso, Kabore *et al.* conducted a study on the management of SCT. In this study, which dates from 2011, he was only able to preserve 45% of the testes [2]. At the University Hospital Center (UHC) of Cocody-Abidjan, little work focused on this pathology and its management in adults. When it occurs in adults, it most often results in an orchiectomy, thus compromising subsequent fertility.

The aim of the study was to investigate the factors promoting testicular necrosis in SCT leading to orchiectomy.

2. Methods

2.1. Study Type and Population

This was a retrospective cohort study conducted in the Urology-Andrology department of the Cocody-Abidjan University Hospital. Data collection covered the period from January 2014 to December 2023.

Inclusion criteria: patients diagnosed with SCT. Sudden onset of scrotal pain in a non-febrile context with positive governor sign and negative prehn sign and operated on and followed up in the urology department of the Cocody University Hospital.

Exclusion criteria: patients diagnosed in the department but whose treatment and follow-up were carried out in another (private) center.

2.2. Sample and Method

Included were all patients received with a large acute bursa, in whom the diagnosis of SCT was suggested and confirmed during surgical exploration and treated in

the urology department of the University Hospital of Cocody-Abidjan.

Thus, a sample of 31 patients was retained. All patients were operated on in emergencies under local-regional anesthesia. The approach was transverse scrotal. After detorsion, the testicle had a blackish appearance (necrotic), and an orchidectomy was performed immediately. If the testicle was bluish or purplish, testicular warming was performed in a physiological serum bath. A minimum of 5 to 10 minutes of recoloration was allowed to pass before deciding on an orchidopexy.

The 5 relevant variables that were analyzed were the time elapsed between the start of SCT and detorsion, the number of turns of the coils, the history of unoperated torsion or sub torsion, the history of scrotal and/or testicular pathology and laterality. Correlation between the occurrence of testicular necrosis and the treatment time, and the number of coil turns with statistical test X² with a significant P value at the 5% threshold.

3. Results

During the study period, 31 files of patients admitted for SCT were collected, which represents a frequency of 0.95% of all hospitalizations in the urology department of Cocody-Abidjan.

The mean age (**Table 1**) of the patients was 25.39 years, with extremes ranging from 18 to 54 years and a standard deviation of 7.597 years. The [18 - 25] age group was the most represented, *i.e.*, 64.5%. The mean consultation time (**Table 2**) was 48 hours and 30 minutes, with extremes of 1 hour, 20 minutes, and 4 days. Among the patients, 14 (45.16%) had consulted before 6 am. The other 19 (54.89%) came after the 6th hour. 12 patients (38.7%) had consulted between 6 and 24 hours, and 5 patients (16.13%) had consulted after 24 hours. Surgical exploration confirmed SCT in 31 (31/31) patients, an epididymal cyst in 1 patient (1/31), and testicular atrophy associated with necrosis in one patient (1/31). A total of 12 orchidectomies were performed and associated with contralateral orchidopexy, *i.e.*, 38.71%. Then, 19 contralateral orchidopexies, *i.e.*, 61.71%. There were correlations between late consultation time and necrosis (8/19) (**Table 3** and **Table 4**). Also, between the time to treatment, the number of turns of the coils is greater than or equal to 2 (12/12). However, there was no correlation between the type of torsion and necrosis, nor was there any correlation between laterality (right or left) and necrosis. All patients who had pathology associated with the strangulated testicle had necrosis (2/2), but there was no significant statistical link due to the small sample size.

Table 1. Distribution of patients according to age groups.

Age group (year)	Number of cases	Percentage (%)
[18 - 25]	20	64.5
[25 - 35]	09	29.0
[35 - 45]	01	03.2
[45 - 55]	01	03.2

Table 2. Distribution of patients by consultation time.

Consultation time (in hours)	Effective	Frequency (in %)
<6 h	14	45.16
6 h - 12 h	12	38.7
>24 h	5	16.13
Total	31	100.0

Table 3. Correlation between consultation time and surgical procedure.

Type of treatment		Consultation time (hours)		
		<6	[6 - 24]	>24
Orchidopexy	Yes	14 (45.2%)	12 (38.7%)	5 (16.1%)
	No			
Orchiectomy	Yes	3 (25.0%)	5 (41.7%)	4 (33.3%)
	No	11 (57.9%)	7 (36.8%)	1 (5.3%)

Table 4. Correlation between surgical management time and surgical procedure.

Surgical gesture		Support time (hours)			
		<6	[6 - 24]	[24 - 48]	[48 - 72]
Orchidopexy	Yes	19 (61.3%)	6 (19.4%)	5 (16.1%)	1 (3.2%)
	No				
Orchiectomy	Yes	6 (50.0%)	3 (25.0%)	2 (16.7%)	1 (8.3%)
	No	13 (68.4%)	3 (15.8%)	3 (15.8%)	0 (0.0%)

Correlation between the delay in treatment and the type of intervention ($p = 0.047$). The p -value is less than 0.05, so the difference is significant. There is a correlation between the delay in treatment and orchiectomy. Delay in treatment, therefore, favors orchiectomy.

Correlation between consultation time and type of intervention ($p = 0.038$). The p -value is less than 0.05, so the difference is significant. There is a correlation between consultation time and orchiectomy. Delay in consultation is, therefore, a negative factor because it favors orchiectomy.

4. Discussion

SCT is one of the surgical emergencies. It can occur at any age, with a peak frequency between 18 and 22 years [3]. The series confirms that SCT is not exceptional in adults, and the most affected age group was [18 to 25 years]. 1 patient (1/31) was 47 years old; this particularly caught our attention. We looked for post-men at his place. Regarding his body shape, he was frail and slender. He had an atrophic testicle; therefore, discordance between the container (vaginal) and content (testicle) would further weaken his natural means of fixity. However, there is a selection bias linked to the fact that most children who come for emergency consultation for a large acute painful bursa are treated in the pediatric surgery

department.

The time between the onset of painful symptoms and arrival at the emergency room plays an important role in the prognosis of the testicle. Out of 14 patients (45.16%) who consulted before 6 hours, 11 patients underwent orchidopexy, and 3 patients underwent orchidectomy. Then, out of 12 patients (38.7%) who consulted between 6 and 24 hours, 7 patients underwent orchidopexy, and 5 patients underwent orchidectomy. Finally, out of 5 patients (16.13%) who consulted after 24 hours, 4 patients underwent orchidectomy, and 1 patient underwent orchidopexy. It is noted that consultation time plays a crucial role in the prognosis of torsion because the risk of necrosis increases from 21% before the 6th hour to 80% after 24 hours.

The average consultation time (ACT) was 48.5 hours with extremes of 1 h, 20 min, and 4 days. This time is much higher than the 27.5 hours found by Zini *et al.* [4]. The lengthening of the consultation time in certain centers is often delayed for socioeconomic and cultural reasons. Indeed, pathologies of the external genitalia are surrounded by great modesty in our regions, and the inadequacy of specialized structures associated with the lack of financial means push patients to consult, as a first-line treatment, in peripheral structures, where care is less expensive but often without a specialist. In addition, in certain peripheral structures, it was necessary to perform a scrotal ultrasound to confirm the SCT before referring the patient to the urologist. The ultrasound service, which is often outside this emergency department, has contributed to extending the treatment time. Also, as adults tolerate pain more than children, they often hesitate even to self-medicate before going to the hospital.

Scrotal pain, whether or not associated with swelling, is the main symptom. It allows the diagnosis to be suggested when the onset is sudden and its intensity is violent without signs of infection and urinary signs. Other signs found are the governor's sign (ascension, horizontalization, retraction to the ring) and the abolition of the cremasteric reflex [5].

Scrototomy allowed the confirmation of SCT in 31 patients, an epididymal cyst in 1 patient or 3.22%, and testicular atrophy associated with necrosis in one patient or 3.22%. This high percentage of suspected SCT in the series (31/31) has also been reported by Hodonou *et al.* [6] and Sarr *et al.* Indeed, Hodonou *et al.* [6] had reported 72.72% (24/32). Similarly, Sarr *et al.* reported that 74% of SCTs were confirmed at scrototomy (58/78).

This is why the dogma of systematic surgical exploration of any large acute bursa suspected of SCT is still relevant in hospitals with modest equipment, even if elsewhere, progress in imaging encourages moderation.

Torsion was intra-vaginal in 28 (28/31) cases and supra-vaginal in 3 (3/31) cases. These results differ from those of Sarr *et al.*, who reported five cases of supra-vaginal torsion in patients who were all over 15 years old. This shows us that this anatomical form is not exceptional in adolescents and young adults.

This frequency of intra-vaginal torsion in our study can be explained by the

predominance of adolescents who are most exposed to this type of torsion. Due to the rapid increase in testicular mass during their growth. As said by Brandt *et al.* [7] intra-vaginal torsion of the spermatic cord results either from an anomaly of the testicular fixation system or from a disproportion between the volume of the testicle and the fixation systems. It is the most common form outside of neonatal forms.

The orchidectomy rate in the study was 38.71%. This rate is higher than the 15 and 18% reported by Zini *et al.* [8] and Hodonou *et al.* and also lower than the data of Kabore *et al.*, who had found 55% of orchidectomies. Most of our patients who underwent orchidectomy had consulted after 6 hours of evolution of the torsion. This observation confirms that one of the prognostic factors of testicular preservation is the delay between the appearance of the torsion and surgical detorsion. As for BAYNE *et al.* [9], the delay in consultation of our patients was considered the main predictive factor of an orchidectomy for testicular necrosis.

After the detorsion of a testicle that appeared to be necrotic, some authors have found a spectacular recoloration. Sarr *et al.* reported in their study that the high rate of orchidectomy would be linked to the choice of orchidectomy immediately without prior detection of a blackish or chocolate-colored testicle in order to avoid the passage of anti-spermatoid antibodies into the systemic circulation.

Fixation of the contralateral testicle to a SCT is currently recommended by all authors, especially after an orchidectomy Fabiani *et al.* [10], which was respected in the series where contralateral fixation was 100% in castrated patients and 74.19% in patients with preservation of the affected testicle. A bilateral orchidopexy is a preventive treatment for a new ipsilateral or contralateral torsion [11].

At the end of the study, the factors favoring testicular necrosis during SCT were the same as reported in the literature [12]-[20], namely the delay in treatment and the number of coils of the turns. However, some particularities were noted, such as the delay in consultation, the delay in admission to the operating room, and a case in a patient aged 47. As for the long consultation time [21], it was favored by age (elderly person more able to tolerate pain), self-medication, consultation first in a non-urological center before transfer to urology, the absence of ultrasound within said service, the performance of a confirmatory paraclinical examination [22] before transfer. The average consultation and operating room admission intervals are long because, during intern shifts, there were 3 operating rooms reserved for all surgical emergencies. And they were often busy admitting certain patients.

A patient between 45 and 55 years old presented with a case of testicular torsion; this is extremely rare at that age. His testicle was lower than normal, weakening of the means of fixity containing contents. The factors analyzed in this study are already known for their involvement in the prognosis related to testicular preservation.

5. Conclusions

SCT at the Cocody-Abidjan University Hospital occurred preferentially in young

people aged between 18 and 25. Orchiectomy following testicular necrosis was performed in 38.71% of cases. The negative factors were the long consultation time, the length of time taken to take care of the patient, and the number of coils that turned greater than 2. This is an absolute urological emergency that can compromise the endocrine and exocrine functions of the testicle by stricture of the vessels of the cord after the 6th hour. Scrotal Doppler ultrasound can be useful. However, it should never delay surgical exploration, which has diagnostic and therapeutic benefits. Indicators such as the delay in consultation and the lengthening of the time taken to take care of the patient are the main factors favoring orchidectomies in the case of SCT.

The factors analyzed in this study are already known for their involvement in the prognosis related to testicular preservation. However, having an operating room dedicated only to urology, raising awareness of the population on the prognosis of torsion, and continuing training of emergency doctors in peripheral hospitals could reduce the orchiectomy rate during torsion.

Authors' Contributions

AF and NC wrote the manuscript. IC and EKY participated in patient monitoring and carried out data collection. DDY and MLST carried out the bibliographic research.

Informed Consent

The study was carried out in the urology department of the Cocody University Hospital, requiring the favorable opinion of the head of the department and the medical and scientific director of the Cocody University Hospital, who is responsible for the establishment's ethics committee. We did not require patient consent since this is a retrospective study. Nevertheless, the medical data of each patient were transmitted only to the principal investigator or any person authorized by the latter under conditions guaranteeing their confidentiality.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Sarr, A., Fall, B., Mouss, B., Sow, Y., Thiam, A., Diao, B., *et al.* (2010) Aspects diagnostiques et thérapeutiques de la torsion du cordon spermatique au CHU Aristide-Le-Dantec de Dakar. *Basic and Clinical Andrology*, **20**, 203-208.
<https://doi.org/10.1007/s12610-010-0083-2>
- [2] Kaboré, F.A., Zango, B., Yaméogo, C., Sanou, A., Kirakoya, B. and Traoré, S.S. (2011) Les torsions du cordon spermatique chez l'adulte au CHU Yalgado Ouédraogo de Ouagadougou. *Basic and Clinical Andrology*, **21**, 254-259.
<https://doi.org/10.1007/s12610-011-0151-2>
- [3] Bah, O.R., Rouporet, M., Guirassy, S., Diallo, A.B., Diallo, M.B. and Richard, F. (2010) Aspects cliniques et thérapeutiques de la torsion du cordon spermatique: Étude de 27

- cas. *Progrès en Urologie*, **20**, 527-531. <https://doi.org/10.1016/j.purol.2009.12.011>
- [4] Zini, L., Mouton, D., Leroy, X., Valtille, P., Villers, A., Lemaitre, L., et al. (2003) Faut-il déconseiller l'échographie scrotale en cas de suspicion de torsion du cordon spermatique? *Progrès en Urologie*, **13**, 440-444.
- [5] Long-Depaquit, T., Chiron, P., Bourgouin, S., Hardy, J., Deledalle, F.X., Laroche, J., et al. (2022) Prise en charge de la torsion du testicule par un chirurgien généraliste isolé en Afrique. *Médecine Tropicale et Santé Internationale*, **2**, mtsi.v2i2.2022.230. <http://revuemtsi.societe-mtsi.fr/index.php/bspe-articles/article/view/230>
- [6] Hodonou, R., Soumanou-Kaffo, R. and Akpo, C. (1999) La Torsion du Cordon Spermatique (TCS). *Médecine d'Afrique Noire*, **46**, 69-74.
- [7] Brandt, M.T., Sheldon, C.A., Wacksman, J. and Matthews, P. (1992) Prenatal Testicular Torsion: Principles of Management. *Journal of Urology*, **147**, 670-672. [https://doi.org/10.1016/s0022-5347\(17\)37342-1](https://doi.org/10.1016/s0022-5347(17)37342-1)
- [8] Lysiak, J.J. (2004) Le rôle du facteur de nécrose tumorale alpha et de l'interleukine-1 dans le testicule des mammifères et leur implication dans la torsion testiculaire et l'orchite auto-immune. *Reproductive Biology and Endocrinology*, **2**, 9.
- [9] Bayne, A.P., Madden-Fuentes, R.J., Jones, E.A., Cisek, L.J., Gonzales, E.T., Reavis, K.M., et al. (2010) Factors Associated with Delayed Treatment of Acute Testicular Torsion—Do Demographics or Interhospital Transfer Matter? *Journal of Urology*, **184**, 1743-1747. <https://doi.org/10.1016/j.juro.2010.03.073>
- [10] Fabiani, A., Calabrese, M., Filosa, A., Fioretti, F., Maurelli, V., Scandola, M., et al. (2016) Explorative Surgery for Acute Scrotal Pain: The Importance of Patient Age, Side Affected, Time to Surgery and Surgeon. *Archivio Italiano di Urologia e Andrologia*, **88**, 189-194. <https://doi.org/10.4081/aiua.2016.3.189>
- [11] Korkes, F., Cabral, P.R.d.A., Alves, C.D.M., Savioli, M.L. and Pompeo, A.C.L. (2012) Testicular Torsion and Weather Conditions: Analysis of 21,289 Cases in Brazil. *International braz j urol*, **38**, 222-229. <https://doi.org/10.1590/s1677-55382012000200010>
- [12] Dogra, V.S., Gottlieb, R.H., Oka, M. and Rubens, D.J. (2003) Sonography of the Scrotum. *Radiology*, **227**, 18-36. <https://doi.org/10.1148/radiol.2271001744>
- [13] Cummings, J.M., Boullier, J.A., Sekhon, D. and Bose, K. (2002) Adult Testicular Torsion. *Journal of Urology*, **167**, 2109-2110. [https://doi.org/10.1016/s0022-5347\(05\)65096-3](https://doi.org/10.1016/s0022-5347(05)65096-3)
- [14] Lee, S.M., Huh, J., Baek, M., Yoo, K.H., Min, G.E., Lee, H., et al. (2014) A Nationwide Epidemiological Study of Testicular Torsion in Korea. *Journal of Korean Medical Science*, **29**, 1684-1687. <https://doi.org/10.3346/jkms.2014.29.12.1684>
- [15] Karaguzel, E., Kadihasanoglu, M. and Kutlu, O. (2014) Mechanisms of Testicular Torsion and Potential Protective Agents. *Nature Reviews Urology*, **11**, 391-399. <https://doi.org/10.1038/nrurol.2014.135>
- [16] Güneş, M., Umul, M., Altok, M., Akyuz, M., İsoğlu, C.S., Uruc, F., et al. (2015) Predictive Role of Hematologic Parameters in Testicular Torsion. *Korean Journal of Urology*, **56**, 324-329. <https://doi.org/10.4111/kju.2015.56.4.324>
- [17] He, M., Zhang, W. and Sun, N. (2019) Les paramètres hématologiques peuvent-ils être utilisés pour prédire la viabilité testiculaire en cas de torsion testiculaire? *Andrologia*, **51**, e13357.
- [18] Sharp, V.J., Kieran, K. and Arlen, A.M. (2013) Torsion testiculaire: Diagnostic, évaluation et prise en charge. *American Family Physician*, **88**, 835-840.
- [19] Bašković, M. (2023) La fixation du testicule controlatéral est-elle justifiée après une

-
- détorsion et une fixation réussies du testicule ipsilatéral? *Aktuelle Urologie*, **54**, 313-314.
- [20] Duquesne, I., Pinar, U., Dang, V.T., Mauger de Varennes, A., Benali, N.A., Berchiche, W., et al. (2021) Contralateral Orchiopexy at the Time of Urgent Scrotal Exploration—Is It Safe? A Propensity Score Matched Analysis from the TORSAFUF Cohort. *Journal of Urology*, **206**, 1461-1468. <https://doi.org/10.1097/ju.0000000000002142>
- [21] Zhao, K., Lu, J.Y., Shkolnik, B. and Davis, R.B. (2024) Modèles de pratique affectant les délais de prise en charge de la torsion testiculaire. *Urologie*, **184**, 83-86.
- [22] Kaye, J.D., Shapiro, E.Y., Levitt, S.B., Friedman, S.C., Gitlin, J., Freyle, J., et al. (2008) Parenchymal Echo Texture Predicts Testicular Salvage after Torsion: Potential Impact on the Need for Emergent Exploration. *Journal of Urology*, **180**, 1733-1736. <https://doi.org/10.1016/j.juro.2008.03.104>