

Management of Testicular torsion in Mulago Hospital over a 5-year period.

Ibingira C B R. M Med (Surg).
Lecturer in Anatomy,
Makerere University Medical School.
P O Box 7072, Kampala, UGANDA.

Key words: Testis, testicular, torsion, and management.

A retrospective study of patients seen in Mulago Hospital with a clinical diagnosis of testicular torsion between 1993 and 1997 inclusive was undertaken. There were a total of 102 cases of torsion of the testis. Their ages ranged between 16 and 20 years. Over 50% of the patients reported to the hospital more than 48 hours after the onset of their symptoms and in 75% of the cases, the testes were already gangrenous on admission.

The management included exploration, derotation and fixation of both testes if found viable or orchidectomy and fixation of the contra lateral testis if gangrenous. The study showed that there is need for increased level of awareness of this disease among health workers, parents, teachers and adolescents if delay in diagnosis is to be avoided.

Introduction

Testicular torsion was first described by Delasiauve in 1840. Since then it has been known to occur in infancy and among adults. The condition is one of the most delicate surgical emergencies for if not recognized for what it is at the first consultation, it may well be too late to

initiate any effective treatment so as to save the testicle at the second or subsequent consultations even if it is recognized^{1,2,3}. The first clinician to see the patient must have a high index of suspicion of the condition so as to give appropriate treatment or promptly refer the patient. Very often testicular torsion is mistaken for epididymo-orchitis. Interestingly, the longer the torsion is not recognized, the more it comes to look like an epididymo-orchitis, which, lulls the doctor into a false sense of security. He thus describes antibiotics and waits. That marks the beginning of the end of the testis and interestingly too, after several hours, the patient develops a low fever that further “confirms” the doctor’s suspicion of an infection¹. However, in such circumstances, an absent cremasteric reflex is the most sensitive physical finding for diagnosing testicular torsion because it remains present in other differentials such as epididymitis, orchitis or torsion of the appendix testis^{4,5}.

Factors believed to predispose to the occurrence of testicular torsion include:

- 1) abnormal investment of tunica vaginalis around the testicle,
- 2) an unusually capacious tunica vaginalis,

- 3) absence of gubernaculum testis and posterior mesorchium,
- 4) absence of scrotal ligaments and
- 5) abnormal length, and loose attachment of tunica vaginalis portion of the cord⁴.

Torsion may be intravaginal or extravaginal rotation of the testis. The effect on the testicle depends on the degree of rotation. If there is incomplete obliteration, oedema and congestion follow especially for the epididymis, which is more distensible than the testis. If venous return is entirely obstructed, congestion is greater and necrosis follows immediately.

Experiments in animals (dogs) have shown that:

- 1) Spermatogenic cells are slightly damaged after 2 hours, severely after 4 hours and alienated after 6 hours of ischaemia,
- 2) Leydig cells get severely damaged after 8 hours of ischaemia and get eliminated after 10 hours of ischaemia and that
- 3) Ten hours or more of ischaemia results into complete fibrotic replacement of the testis^{1,6,7}.

In view of all these, it is extremely important that the first consultation finds a remedy⁸.

This paper presents results of analysis of the clinical findings, operative findings and outcome of management of cases of testicular torsion seen at Mulago Hospital between 1993 and 1997.

Material and methods

This was a retrospective study of cases of testicular torsion seen over a 5-years period from 1993 to 1997. Data was collected from records of 102 patients with a clinical diagnosis of testicular torsion.

Results

A total of 102 cases of testicular torsion were seen at Mulago between 1993 and 1997. The right side was affected more commonly (71%) than the left one (29%). The majority of the patients (61%) were aged between 11 and 20 years. The peak age incidence was in the 16-20 years age group. Only 5 (5%) of the patients were aged below 10 years while 35 (35 %) were above 20 years. None of the patients was above 40 years (Table 1).

TABLE 1. Age distribution of testicular torsion patients

Age (yrs)	No. Of pts	%
0 - 5	3	2.9
6 -10	2	2.0
11 -15	24	23.5
16 -20	38	37.2
21 -25	20	19.6
26 -30	7	6.9
31 -35	6	5.9
36 -40	2	2.0
41+	0	0
Total	102	100

TABLE 2. Duration of symptoms and effect on testis

Duration	Total No. of patients	Gangrenous Testes		Viable Testes	
		Number	%	Number	%
1 - 12 Hours	24	6	25.0	18	75.0
13-24 Hours	23	8	34.8	15	65.2
2 Days	11	7	63.6	4	36.4
3 - 14 days	39	39	100	0	0
14 -21 days	1	1	100	0	0
1 month	1	1	100	0	0
2 months	2	2	100	0	0
12 months	1	1	100	0	0
Total	102	65	63.7	37	100

TABLE 3. Operative findings

Findings	No. of patients	%
Torsion with gangrene	52	51.0
Torsion and viable	36	35.3
Atrophy and fibrosis	13	12.7
Torsion of appendages	1	1.0
Total	102	100

Intravaginal Torsion = 90 patients (88.2%)

Extravaginal torsion = 10 patients (9.8%)

TABLE 4. Operative management of torsion

Procedure performed	No. of patients	%
Orchidectomy	65	63.7
Untwisting and orchiopexy of affected testis only	37	38.3
Bilateral orchiopexy	67	65.7
Opposite side not fixed	35	

Table 2 shows the duration of symptoms prior to admission and its relationship to the viability of the testis. Sixty-five of the 102 patients reported with gangrenous testes. Only 24 (23.5%) patients reported within 12 hours of the onset of the symptoms of which 18 had viable testicles. Among the 23 patients who reported between 13 and 24 hours, 8 had gangrenous testes.

Out of the 53 referrals to Mulago Hospital with testicular torsion, only 13 (25%) were found to have viable testes on admission.

Table 3 shows operative findings. Torsion and gangrene was found in 52 patients. The testes were found viable in 36 patients. Table 4 shows the operative procedure done. It was observed that in 35 cases (34.3%), there was no orchiopexy performed on the contra lateral side, thus leaving the testis at risk of torsion (Table 4).

Discussion

The number of cases of testicular torsion seen at Mulago Hospital in Uganda has been on the increase over the past two decades. In 1989, Kayonga⁹, in a 10-year survey, recorded a total of 26 cases with an annual average of 2 to 3 cases compared to the average of 10 per year reported in this study. In a similar study, Dunne and O'Loughlin¹ in Brisbane Hospital, Australia saw 99 cases in 5 years beginning in 1990. The peak incidence seen in the 16-20 years age group was similar to that reported from Britain¹⁰. Testicular torsion is rarely seen in the 30-40 years old group^{6,11,12,13}. Like in previous studies^{4,14,15}, none of the patients was aged above 40 years.

Only 24 (23.5%) of our cases reported to hospital within the first 12 hours and even among those, 5 were found to have gangrenous testes on exploration. Apart from use of the duration of symptoms to predict testicular viability, where a range of 6-12 hours is the limit^{3,16}, pre-operative

testicular Doppler ultrasonography (DUS) can be used¹¹. However, a combination of three methods namely the 6-12 hours limit for duration of symptoms, pre-operative testicular Doppler ultrasonography and testicular tissue bleeding during surgery could provide a sure assessment of gonadal viability and hence a satisfactory decision to salvage the testis or to do orchidectomy¹. Such a decision is very crucial especially these days when testicular torsion is an active area of medical malpractice litigation because of diagnostic uncertainty, delays in diagnosis and treatment, diagnostic errors and resultant testicular loss^{1,8}. It is important therefore, that first doctor to handle the case must have a very high index of suspicion of the condition and refer the case promptly where necessary. The acute scrotum is a diagnostic dilemma² and testicular torsion is of primary interest because of the possibility of infertility, which occurs, in about 25% of the patients after unilateral testicular torsion⁷.

In this study, all the patients who presented beyond 48 hours of onset of symptoms had their affected testicles non-viable. However it should be noted that among the 58 patients who presented within 48 hours of onset of symptoms, 20 (34.5%) had gangrenous testicles. This means that apart from the viability time limit of 6-12 hours^{1,10}, there are other factors that determine how fast the testis becomes gangrenous such as the number of turns of the intravaginal or extravaginal torsions and failed attempts of external derotations⁵.

For all the proven gangrenous testes, orchidectomy was done as is the practice elsewhere^{1,3,4,7,14,16}, and was followed by orchiopexy of the contra lateral side in majority of cases^{2,5,14}. In 35 patients, fixation of the opposite testis was not done. Since torsion occurs on the contra lateral side either concurrently or at a later

date in approximately 5% of cases and since the congenital anomaly of tunica vaginalis may present bilaterally, orchiopexy is the recommended prophylactic procedure performed at the time of the original operation^{1,2,3,5,10,11,14,15}

In case the testicle is found viable at exploration and untwisting, fixation is done to prevent recurrence. Sixteen of these patients lost their opposite testicle and it is in this group that torsion of the remaining testis would be catastrophic not only to the patient because of loss of fertility and growth problems but also to the surgeon because of medico-legal implications^{1,7,8,14}. In cases where contra lateral testicular fixation was not possible as well as in those whose testicles were untwisted and fixed, follow up is mandatory so as to assess the salvage rate since the majority of these patients present beyond the proven period of viability^{1,2,6,9,8,14}

Vestigeal remnants attached to the testis or epididymis are present in 90% of the African male population⁵. In the present study, only one patient presented with torsion of the appendix of the testis, a lower frequency than that reported from Britain and elsewhere^{4,9}. Previous studies from Uganda reported no such cases.

In conclusion, testicular torsion requires prompt attention, preferably at the first consultation so as to minimize the risks of gangrene and loss of testicular tissue due to time delays by referral. No procedure substantially improves the clinical diagnosis enough so as to warrant any delay in the definitive surgical intervention². Since it is well known that anomalies of the tunica may be bilateral and hence predispose to torsion on the contra lateral side, fixation of the testis on the opposite side should be done at the same operation¹³.

Follow up should be done especially on cases of torsion with viable testicles to determine the actual salvage rate. An increased level of awareness among doctors and other health workers, both in practice and training, as well as among patients and male adolescents, about the symptoms and signs may help to improve the outcome and especially to curb the delayed intervention as exemplified by Osegbe in Nigeria, who was able to increase the diagnostic rate from 4 per year in 1980 to 40 per year in 1985^{1,2}.

References

1. Dunne PJ, O'Loughlin BS. Testicular torsion time is the enemy. Aust New Zealand J urol 2000; 70:441-2.
2. Ewert EE, Hoffmann HA. Torsion of the spermatic cord. J Urol 1994; 51:551-6.
3. Garel L, Dubois J, Azzie G, Filiatrault, Dgrirgnour A, Yezbeck S. Pre-operative manual detorsion of spermatic cord with Doppler. Ultrasound monitoring in patients with intavaginal acute testicular torsion. Paed Radio 2000; 30:41.
4. Kadish HA, Bolte RG. A retrospective review of paediatric patients with epididymitis, testicular torsion, and torsion of testicular appendages. Paediatrics 1998; 102:73-6.
5. Osegbe D N. Med Digest 1989;15:12.
6. Burton J A. Atrophy following testicular torsion. Brit J Surg 1972; 59:422.
7. Nguyen L, Lievano G, Ghosh L, Radhakrishnan J, Fornel John E. Effect of unilateral testicular torsion on blood flow and histology of contralateral testes. J Paed Surg 1999; 34:680-3
8. Matteson JR, Stock JA, Hanna MK, Arnold TV, Nagler HM. Medico legal aspects of testicular torsion. Urol 2001; 57:783-6 and 786-7.
9. Kayonga C. Testicular torsion. Proc Assoc Surgeons of East Africa. 1992; 15:51.
10. Pavlica P, Barozzi L. Imaging of acute scrotum. Eur radiol 2001; 11:220-8.
11. Arda I S, Ozyaylali L. testicular tissue bleeding as an indicator of gonadal salvageability in testicular torsion surgery. BJU - int 2001; 87:89-92.
12. Hadziselmovic F, Geneto R, Emmons LR. Increased apoptosis in the contralateral testes of patients with testicular torsion as a factor of infertility. J Urol 1998; 160:1158-50.
13. Manicol M F. Torsion of the testis in childhood. Brit J Surg 1974; 61:905-908.
14. Nielsen TG, Holm M, Meyhoff HH. Prophylactic contralateral orchiopexy in patients with testicular torsion. Ugeskr-Laeger 2000; 16:4880-2.
15. Mwako FA. A textbook of Paediatric Surgery in Tropics: The inguinal scrotal region. The Macmillan Press Ltd. 1980;189.
16. Rampaul MS, Hosking SW. Testicular torsion, most delay occurs outside hospital. Ann R Coll Surg Engl 1998; 80:169-72.
17. Nasrallah P, Nair G, Congeni J, Bennet CL, McMuhon D. Testicular health awareness in pupertal males. J Urol 2000; 164:1115-7.
18. Papadatos C ad Moutsoris. Bilateral testicular torsion in the newborn. J Paed 1967; 71:249.