

How to Reduce Time Delays in Presentation and Treatment of Testicular Torsion; the Role of Public and Practitioners Education

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ABSTRACT:

BACKGROUND:

Testicular torsion (TT) requires prompt diagnosis and treatment to avoid testicular Loss. Most studies have focused on the ideal work up to rule TT out in cases of acute scrotum. A long response time to the scrotal pain was related to high orchidectomy rate during surgery for acute torsion.

OBJECTIVE:

We attempted here to highlight the causes behind high orchidectomy rate during the surgery for testicular torsion and the advices to decrease this problem.

PATIENTS AND METHODS:

Surgical exploration which was done for suspected testicular torsion in 50 consecutive males with their age (range 1-20 years). All patients were evaluated with detailed history, physical examination and Basic Laparotomy investigations, some patients underwent scrotal ultrasound scan with color-Doppler preoperatively when possible. Patient age, site of pain, duration of symptoms, ultrasound finding, approximate time from admission to surgery, operative findings, and type of the operation and causes of delay for orchidectomy group were recorded.

RESULTS:

Intra operative Testicular torsion was documented in 36 patients, orchidectomy and orchidopexy was performed equally, Delays to reach the hospital for more than 4 hours after the onset of pain significantly associated with increase the risk of orchidectomy .The risk of orchidectomy significantly increased with increased patient age. Parents neglect appear the most important cause for small age group while self ignorance, social fear and false medical advices for older ages.

CONCLUSION:

A long response time to the scrotal pain and a high orchidectomy rate were exposed by this study. This was thought to be due to ignorance, which could be eliminated through public education.

KEYWORDS: acute scrotum, testicular torsion, orchidectomy , orchidopexy.

INTRODUCTION:

Acute scrotal pain is an important clinical presentation that necessitates great care with a rapid, definite diagnosis and management as it may represent a surgical emergency that needs immediate interference to save the affected testis.

Of the different causes of acute scrotal pain, we are concerned more with the detection of cases with testicular torsion because it is a true urological emergency and must be differentiated from other pathological conditions presented with acute testicular pain. Any delay in diagnosis and management can lead to loss of the affected testicle. ^(1,2,3). Accurate diagnostic tools in acute

testicular torsion are necessary, especially if the clinical diagnosis is equivocal. In this manner, imaging studies are emerging as rapid, useful diagnostic tools include ultrasonography using Doppler flow to assess arterial flow within the affected testis and scrotal scintigraphy. ^(4,5,6,7).

Duration of symptoms before surgery is a well known predictor of outcome in Testicular torsion ⁽⁸⁾. Studies showed that Testicular infarction begins after 2 h of ischemia and become irreversible after 6 h with complete infarction after 24 h. ^(9,10,11,12).

PATIENTS AND METHOD:

This is both a retrospective and prospective study that includes all cases with surgical exploration which was done for suspected testicular torsion in 50 consecutive males with their age (range 1-20 years) and history of acute scrotal pain referred to the Urology department, surgical specialties

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TESTICULAR TORSION

hospital, Medical city complex, Iraq, between 2010 and 2014.

Intra operative Testicular torsion was documented in 36 patients, while the other 14 patients had other non torsion pathology and were excluded from evaluation.

All patients were evaluated with detailed history, physical examination and Basic Laparotomy investigations, some patients underwent scrotal ultrasound scan with color-Doppler ultrasound (CDU) preoperatively when possible.

When testicular torsion is diagnosed or suspected, we tried manual de torsion first and then we prepared the patient for urgent surgical exploration, after sharply entering the scrotum, the tunica vaginalis opened, the affected testis is re inspected for signs of improved perfusion after de torsion. If the testis appears viable, then orchiopexy is performed by forming a scrotal pouch. In cases where there was discoloration indicating borderline ischemia, warm packs were applied before fixation of viable testis. Non viable testis was removed and all removed testicles underwent histopathological examination. The contra lateral testis was also fixed in all the above cases. Findings of epididymitis, torsion of the appendix testis or other abnormalities

resulted in no fixation of either testis and were excluded from the study.

Patients' age, site of pain, duration of symptoms, ultrasound finding, approximate time from admission to surgery, operative findings, and type of the operation and cause of delay for orchidectomy group were recorded.

Statistical analysis:

We use X^2 Test (Chi-square) test for categorical data, When expected frequency in one data less than 5 then we use fisher exact test, when the association increased by increased of value we use linear by linear association. P value considered significant when it's less than 0.05.

RESULTS:

Emergency scrotal exploration was done for 50 male patients with acute scrotal pain aged between 1-20 years, Testicular torsion was identified in 36 patients (72%) and the left side (74%) affected more than the right side (26%), (Table 1).

Surgical management was divided equally (50%) between orchidectomy and orchidopexy.

Delays to reach the hospital for more than 4 hours after the onset of pain significantly associated with increase the risk of orchidectomy rather than orchidopexy and increase the risk of testicular loss. (Table 1).

Table 1: Relationship of study sample by duration of pain with type of surgery.

		Type of Surgery		Total
		Orchidopexy	Orchidoectomy	
duration of pain	<4 h	10 (90%)	1(10%)	11
	4-8 h	4 (40%)	6(60%)	10
	>8 h	4 (26%)	11(74%)	15
Total		18	18	36
$X^2 = 6.521$, d.f. = 2, p = .038 Linear-by-Linear Association = 5.478, d.f. = 1, p = .019 Sig.				

We estimate the time from admission to the Emergency department to the time of the operation

and we found that it doesn't significantly correlate with type of surgery (table 2).

TESTICULAR TORSION

Table 2: Relationship of study sample by time from admission to surgery by type of surgery.

		Type of Surgery		Total
		Orchidopexy	Orchidoectomy	
Time from admission to surgery	<1 h	2	1	3
	1-2 h	13	12	25
	>2 h	3	5	8
Total		18	18	36
Fisher's Exact Test=.965, p=.759				
Linear-by-Linear Association=.849,df=1, p=.541 Non Sig.				

The risk of orchidectomy significantly increased with increased patient age (Table 3).

Table 3: Relationship of study sample by age group with type of surgery.

		type of surgery		Total
		Orchidopexy	Orchidoectomy	
Age group	1-5	6	0	6
	5-10	6	6	12
	10-15	2	10	12
	15-20	4	2	6
	Total	18	18	36
Fisher's Exact Test =12.080 , p = .005 Sign.				

The following figure showed the important causes of delayed presentation for patients with testicular torsion (Figure1). Parents neglect appear to be the

most important cause for small age group while; self ignorance, social fear and false medical advices for older patients.

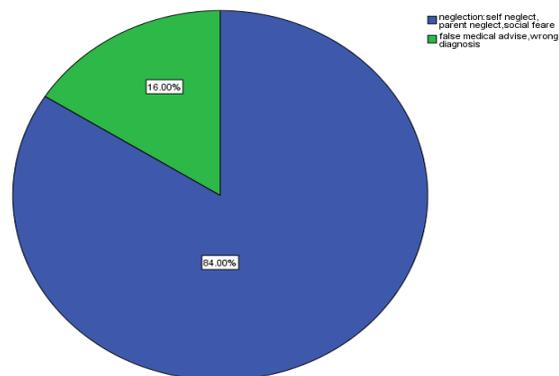


Figure 1: Causes of delay of cases of acute scrotal pain.

Doppler ultrasonography was done for 21 patients the cause of acute scrotal pain in 85.7% of cases. (42%) of cases and it was accurate in diagnosing

DISCUSSION:

Acute scrotal pain is a very common presenting symptom for many testicular pathological disorders ranging from mild, non-emergency conditions to severe emergency situations that necessitate rapid surgical interference like testicular torsion.⁽¹³⁾

One study done Between July 1986 and March 2006, 102 patients underwent an operations for acute scrotum. Median age was 12.0 years old (range 0-51). Post-operative diagnosis revealed 50 cases (49%) of spermatic cord torsion⁽¹⁰⁾.

In the present study, most of the cases (72%) explored for suspected testicular torsion revealed testicular torsion pathology, this may be due to increase in diagnostic accuracy for such cases because we are a tertiary centre and most patients were referred after examination by other doctors.

In a recent multicentre studies : Testicular torsion has leads to orchiectomy in 23-34% of cases , Duration of symptoms for more than 8 h and a higher age of patients were found to be a risk factors for orchiectomy . Duration of symptoms for more than 8 h has been detected to cause reduced testicular volume^(14,15,16).

In this study we found a higher orchidectomy rate (50%) during surgery for acute testicular torsion. The testicular salvage rate significantly correlate with the duration of symptoms, especially for longer duration than 4 hours. Although factors such as incompleteness of vascular occlusion, spontaneous untwisting and degree of twist may affect the ischaemic process, the single critical factor affecting outcome appears to be the duration of pain at the time of exploration. The finding of testicular survival in some cases beyond this time my depends on the degree of torsion. Testicular infarction may ensures within 2 hours when there are more than two twists, whereas a single, 360-degree twist may permits testicular viability for 12 to 24 hours⁽¹⁷⁾. The increased rate of orchidectomy in older age groups noticed in this study may be due to many factors like social fear, self neglect, and misdiagnosis with epididymoorchitis. Barada et al. warned that patients older than 18 years old are at increased risk of delayed presentation⁽¹⁸⁾.

The evidence for progressive time-dependent testicular damage owing to torsion is based on animal experiments. Graded testicular ischaemia induced in dogs showed that spermatogenic cell death occurs within 4 h and interstitial cell damage

occurs after 8 to 10 h⁽¹⁷⁾. Jefferson et al. reported that in their experience no testicle with a history >12 h could be salvaged⁽¹⁴⁾, Two large clinical studies^(19,20) have reported that a salvage rate of 100% is achieved when surgery is performed within 6 h of onset of symptoms.

Diagnostic work up in acute scrotum is sometimes demanding. The sensitivity of ultrasound has been shown to vary from 57% to 100%^(6,7). In the present study, ultrasound gave a correct diagnosis in 85 % of the investigated patients; however, 58% of patients were considered to have testicular torsion because of the clinical picture and did not undergo ultrasound examination because of non availability of this study at time of the presentation.

We found that the late presentation to hospital was the major cause of testicular loss in patients with torsion. This is in agreement with Johnston et al.⁽²¹⁾; they demonstrated that delay from the time of testicular pain until surgical exploration is important for the chances of testicular salvage and is made up mostly from pre-hospital delays; in our study hospital delays played no identifiable part in determining outcome. Unfortunately, 69.4 % of patients in the present study presented to the hospital for more than 4 h after the onset of pain and most of the patients who underwent orchidectomy fell into this group.

Knowing and managing the causes of delayed presentation to the hospital may reduce the testicular loss. There is a need for public enlightenment on the dangers which are associated with scrotal pain. The most appropriate target population for this, we think that mothers who attend the antenatal clinics, who in turn can inform their male children. This topic may also be incorporated into the school health programs with respect to the age group which is the most vulnerable one. These programs have the potential for reducing the response time to the acute scrotal pain. In order to further reduce the delay between onset of symptoms and surgery for those with suspected torsion, attention must also focus on primary health care, this could include health education in schools, drawing attention to the serious nature of acute torsion and encouraging self referral to hospital. We should encouraged local general practitioners to bypass consultation and refer directly to hospital. In addition, we should arrange triage assessment by an accident and emergency team for patients with scrotal pain

presenting directly to the casualty; such cases are referred directly to the duty surgical team.

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