

Testicular Torsion: District Hospital Experience

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ABSTRACT

Introduction: Testicular torsion is a true urologic emergency, and represents the most common cause of testicular loss in adolescents. The aim of this study was to investigate some clinical findings and their value in diagnosis.

Methods: This retrospective study included all patients who underwent surgical exploration for suspected torsion between 2013 and 2018. Patients' medical files were reviewed for specific epidemiological and clinical information. Data were analysed using SPSS version 23, and calculations of the sensitivity, specificity and predictive value of the clinical signs were carried out.

Results: Forty-eight patients were included in the study, of whom 32 were found to have torsion upon surgical exploration. The mean age of patients was 17 years. The salvage rate was dependent on the duration of symptoms. The cremasteric reflex, which was found to have 100% sensitivity in predicting testicular torsion, was examined in less than one-third of cases. Cold weather was found to be a predisposing factor for torsion.

Conclusion: Complete history and physical examination are critical to avoid delays in diagnosing testicular torsion, which can result in testicular loss.

Keywords: Testicular disease; Spermatic cord; Male; Orchiopexy.

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Introduction

First described in 1840,¹ testicular torsion is a true urologic emergency. It must be differentiated from other complaints of testicular pain because a delay in diagnosis and management can lead to loss of the testicle.² It is the most common cause of testicle loss in adolescents. Torsion of the testis may occur at any age, including intrauterine life,³ and it is the most common cause of acute scrotum in children.⁴ In approximately two-thirds of patients, history and physical examination are sufficient to make an accurate diagnosis.⁵ If the findings suggest torsion, the patient is taken directly for surgical exploration without wasting time performing other procedures. In only a few equivocal cases, imaging studies like ultrasound with colour-flow Doppler, radionuclide imaging or perfusion CT scans are required.

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There are many symptoms and signs of torsion with variable clinical significance. Also, we have noted variability between examiners, as some attribute greater importance to one point in the history or physical examination than others. The aim of this study was to review some history and physical findings of torsion and their diagnostic value.

Methods

This retrospective study included all patients who underwent emergency scrotal exploration for suspected torsion in the period from 2013 to 2018. The study was carried out at Prince Hashim Bin Abdullah II Hospital (PHMH).

Patients were recruited from the operation room records of PHMH, then the patients' files were reviewed. Information collected from the files included the name, age, month of presentation, previous history of scrotal pain attacks (suggesting intermittent torsion), duration of symptoms, side of involvement, Prehn sign status, cremasteric reflex status, lie of the involved testicle and operative findings.

Data were analysed using SPSS version 23 for Windows. Descriptive statistics and student's t-tests were used for the mean and frequency calculations. The chi-square test and logistic regression were used for binary variables while linear regression was used for other variables. A P-value less than 0.05 was considered statistically significant. The sensitivity, specificity, predictive value and accuracy were calculated for some signs of torsion.

Results

Of the 48 patients who underwent exploration for suspected torsion, 32 (67%) were found to have testicular torsion. The remaining 16 had other diagnoses, shown in Figure 1. Testicular torsion characteristics and some clinical features of patients are depicted in Table I. The mean age of patients was 17 years, with 50% aged between 13 and 20 years.

Figure 1: Distribution of patients according to intraoperative findings.

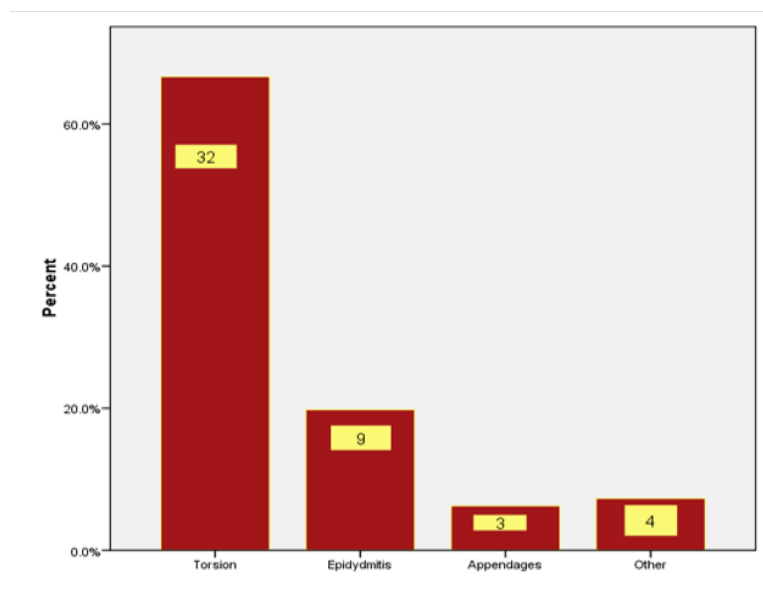
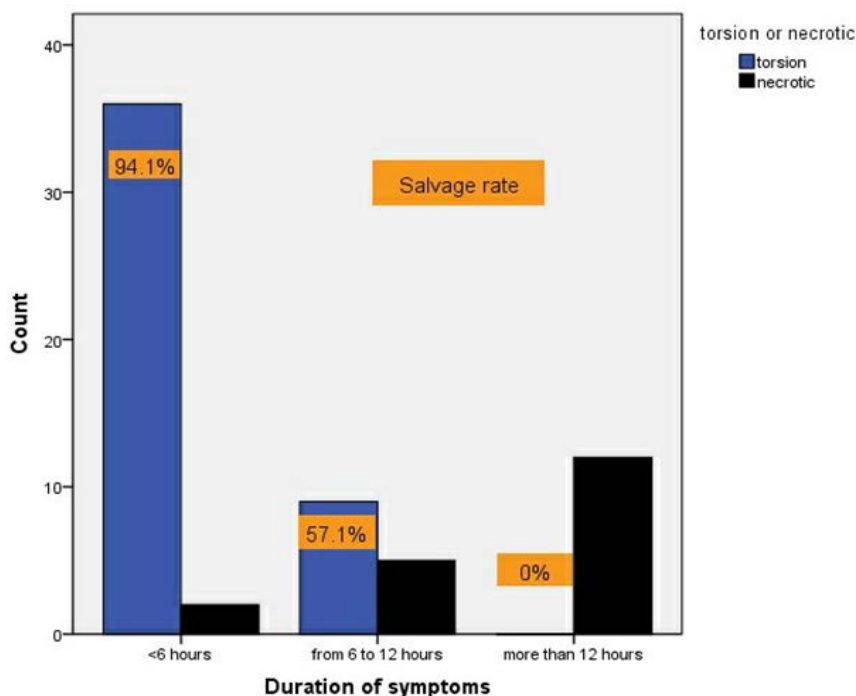


Table I: Characteristics of testicular torsion and clinical features of patients.

Number of patients	32	
Viable testicle	23	
Nonviable testicle	9	
Age (years)		
<i>Mean</i>	17	
<i>Minimum</i>	8	
<i>Maximum</i>	33	
Side		
<i>Left (%)</i>	22 (67.2%)	P = 0.006
<i>Right (%)</i>	10 (32.8%)	
Winter months		
<i>Yes (%)</i>	24 (75%)	P < 0.001
<i>No (%)</i>	8 (25%)	
Mean duration of symptoms (hours)		
<i>Viable testicle</i>	4.85	P < 0.001
<i>Nonviable testicle</i>	39.65	
Previous history of intermittent torsion		
<i>Yes</i>	14	
<i>No</i>	11	P = 0.49
<i>No inquiry</i>	7	
Lie		
<i>Normal</i>	9	P < 0.001
<i>Transverse</i>	23	
Prehn sign		
<i>Negative</i>	23	P = 0.17
<i>Positive</i>	9	
Cremasteric reflex		
<i>Present</i>	0	P < 0.001
<i>Absent</i>	11	
<i>Not examined</i>	21	

The duration of symptoms ranged from 1 to 120 hours, with most patients (75%) presenting before 12 hours. This duration strongly influenced the salvage rate of the torsted testicle ($P < 0.001$). The salvage rates were 94.7%, 57.1% and 0% when the duration was less than 6 hours, from 6 to 12 hours and more than 12 hours, respectively (Figure 2).

Figure 2: Salvage rate according to the duration of symptoms.



Of the patients found to have torsion, 43% were not asked about previous attacks of scrotal pain, and 56% had experienced previous attacks suggestive of intermittent torsion. An absent cremasteric reflex was found to be the most sensitive sign of torsion (100% sensitivity); however, it was assessed in less than one-third of cases. The sensitivity, specificity, predictive value, likelihood ratio and accuracy of some clinical signs are presented in Table II.

Table II: Signs of testicular torsion.

Sign	Sensitivity	Specificity	PPV	NPV	+LR	-LR	Accuracy
<i>Absent cremasteric reflex</i>	100%	89%	96%	100%	9	0	97%
<i>Prehn sign</i>	70%	44%	71%	42%	1.25	0.68	61%
<i>Testicle lie</i>	55%	100%	100%	52%	∞	0.45	70%

PPV, positive predictive value; NPV, negative predictive value; +LR, positive likelihood ratio; -LR, negative likelihood ratio.

Discussion

Testicular torsion results from twisting of the spermatic cord, which impedes blood flow to the testis and impairs venous drainage, resulting in oedema, ischemia and necrosis.⁶ It occurs in approximately 1 of every 4000 males before 25 years of age.⁷ Torsion can be classified as one of two types: intravaginal, and extravaginal. Extravaginal torsion, as a rule, only occurs in neonates and infants under the age of 1 year, although it is occasionally reported in older children.⁸ Intravaginal torsion is more frequent among adolescents, with about 65% of cases presenting between 12 and 18 years of age.⁹ In our study, 50% of patients were aged between 13 and 20 years, with a mean age of 17 years.

Intermittent torsion of the testis is a definite entity characterised by more than one attack of unilateral scrotal pain of sudden onset and short duration (less than 2 hours) that resolves spontaneously. Recognition of this diagnosis, its relation to acute torsion and performing urgent elective orchidopexy may improve testicular salvage rates.¹⁰ We found that only 57% of all patients were asked about a history of previous attacks, and of those, 56% had a positive previous history consistent with intermittent torsion.

Testicular torsion on the left side of the body occurs slightly more frequently than torsion on the right side (about 52% versus 48% of cases).¹¹ In our study, the left side was involved twice as often as the right side (67.2% versus 32.8%, respectively). Many studies have reported that cold weather is a predisposing factor for testicular torsion, with some even calling it winter syndrome.¹² Consistent with this, we found that 75% of torsions occurred in colder months (October to February).

As the records did not provide information on the time elapsed between the patient being seen in the emergency room to surgical exploration, we depended on the duration of symptoms to determine the salvage rate. This rate is strongly dependent on the duration of symptoms ($P < 0.001$), as seen in Figure 2. While 94.7% of testicles were salvaged when the duration was less than 6 hours, no testicles were salvaged when the patient presented after 12 hours. These findings are comparable to other studies.¹³⁻¹⁶

A surprising finding was that the cremasteric reflex was examined in less than one-third of cases, even though its absence has been confirmed to be the most sensitive sign of testicular torsion in other studies¹⁷ in addition to our study (sensitivity of 100%). Until now, there has only been one case report of testicular torsion in the presence of an intact cremasteric reflex.¹⁸ The sensitivity, specificity, predictive value, likelihood ratio and accuracy of some clinical signs are presented in Table II.

Conclusion

The importance of history and physical examination in the diagnosis of testicular torsion cannot be overemphasised, and every point has its own significance and implication. The patient can be advised to undergo surgical exploration solely based on clinical findings, as a delay in diagnosis is the most important variable that can lead to testicle loss.

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