

Testicular Torsion, One Year Clinical Experience In Tertiary Care Of North East India

Prosperwell War¹, Jishan Ahmed², David Pegu³, Dhruvajyoti Gogoi⁴,
Ranjib Konwar⁵, Lipika Sarma⁶, Rahul Kumar⁷, Geever Alex⁸

^{1,6,7,8} junior Resident, ² Professor, ³ associate Professor, ^{4,5} assistant Professor, Department Of General Surgery, Assam Medical College And Hospital, Dibrugarh, Assam, India

Abstract

Background: Testicular torsion is a urological emergency characterised by the rotation of the spermatic cord, leading to compromised blood flow to the testicle. Prompt diagnosis and surgical intervention are crucial to salvage testicular viability and preserve fertility. This study aims to retrospectively analyse the clinical presentation, management, and outcomes of testicular torsion cases in a tertiary care centre in Northeast India over the course of one year.

Materials and Methods: This retrospective study was conducted in Assam Medical College and Hospital, Dibrugarh from January 2023 to January 2024. Various parameters including information on demographics, clinical presentation, duration of symptoms, diagnostic investigations, surgical interventions, intraoperative findings, and outcomes were extracted from medical records

Results: During the study period, 15 cases of acute testicular torsion were observed, with a mean age of 22.6 years. Incidence peaks were noted in the 14–19-year and 30–34 year age groups. The left testis was more frequently affected than the right, with 10 cases (66.6%) compared to 5 cases (33.3%). A history of intermittent torsion was present in 26.6% of cases. Abdominal pain emerged as the most common associated symptom, followed by vomiting in 6 cases (40%) and 4 cases (26.6%), respectively. Delays in both presentation and surgical intervention were evident, with only 26.6% of patients seeking medical attention within 6 hours of symptom onset, and merely 26% undergoing surgery within 6 hours of presentation. The most prevalent intraoperative finding was the transverse lie of the testes (40%). The testicular salvage rate was 40%.

Keywords: intermittent torsion, urological emergency, surgical intervention, Northeast India.

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I. Introduction

Testicular torsion is a surgical emergency characterised by the rotation of the spermatic cord, resulting in compromised blood flow to the testicle. It predominantly affects adolescents and young adults, with peak incidence occurring between the ages of 12 and 18 years¹. Prompt diagnosis and surgical intervention are imperative to salvage testicular viability and prevent long-term complications, including testicular atrophy and infertility². Despite being a relatively uncommon condition, testicular torsion represents a significant clinical challenge due to its potential for irreversible ischemic damage to the testicle if not promptly addressed. Delayed or missed diagnosis can result in adverse outcomes, including loss of the affected testicle and diminished fertility³. Hence, there is a critical need for increased awareness among healthcare providers and the general public regarding the clinical features, diagnostic modalities, and management strategies for testicular torsion. While the classic presentation of testicular torsion includes acute onset of severe scrotal pain, swelling, and nausea/vomiting, the clinical manifestations may vary, leading to diagnostic uncertainty⁴. Moreover, variations in healthcare practices and resource availability across different regions can impact the management approach and outcomes of testicular torsion cases⁵. In Northeast India, where healthcare infrastructure may face unique challenges, understanding the epidemiology and clinical characteristics of testicular torsion is essential for optimising patient care and outcomes. This retrospective study aims to analyse the presentation, management, and outcomes of testicular torsion cases in a tertiary care centre in Northeast India, providing insights that may contribute to improved clinical practices and patient outcomes in this region.

II. Material And Methods

The present study was a retrospective study conducted at the Department of General Surgery and Department of urology, Assam Medical College and Hospital, Dibrugarh, Assam after taking the ethical committee approval. The time period of study was from January 2023 to January 2024. A written consent was

obtained from all parents/responsible care taker in their local language.

Study Design: This is a retrospective study

Study Location: This was a tertiary care teaching hospital based study done in Department of General Surgery and Department of urology, Assam Medical College and Hospital, Dibrugarh, Assam

Study Duration: January 2023 to January 2024

Sample size: 15 patients

Inclusion Criteria

1. Patients of all ages diagnosed with testicular torsion.
2. Medical records available for review.
3. Patients treated at department of general surgery and urology at Assam medical college and hospital, Dibrugarh between January 2023 and January 2024

Exclusion Criteria

1. Patients with incomplete medical records or insufficient follow-up data.
2. Patients who did not receive the majority of their treatment at the centre.
3. Patients with pre-existing conditions that could confound the diagnosis or management of testicular torsion (e.g., history of trauma or previous testicular surgeries).
4. Cases where testicular torsion occurred secondary to underlying testicular pathology (e.g., testicular tumours or torsion of testicular appendages).

Data Collection

A comprehensive review of medical records, surgical databases, and imaging studies was collected to identify eligible patients from AMCH MRD office, admission records of urology, general surgery and Ot records.

Data extraction included:

patients age, nature of pain, side involved, other associated symptoms, duration of symptoms before presentation, previous history of testicular pain, nature of the precipitating factors, time interval between presentation and surgery, intraoperative findings, type of surgery done, and complications of surgery.

Methodology

A retrospective observational study was undertaken at the Department of General Surgery, Assam Medical College and Hospital, North East India, focusing on 15 cases diagnosed with testicular torsion between January 2023 and January 2024. Patient history, clinical examination findings, investigative outcomes, treatment approaches, and any ensuing complications were meticulously documented using a standardized proforma. The gathered data underwent comprehensive analysis to fulfill the study objectives.

III. Observation And Result

Table 1: Age wise distribution

Age in years	Number of cases	Percentage
14-19	7	46.6
20-24	2	13.3
25-29	2	13.3
30-34	3	20
35-39	0	0
40-45	1	6

Table 2: Clinical and demographic attributes of patients who present with acute testicular torsion.

Age (years): mean (SD) (range)	22.6 (#7.3)(14-45)
Side affected, n (%)	Right:5(33.3),Left:10(66.6),Bilateral(nil)
Past history of Intermittent torsion, n (%)	Yes:4(26.6),No:11(73.3)
Presence of associated symptoms,	Yes:15(100)

n (%)	
Precipitating factors, n (%)	
Physical activity	4(26.6)
No precipitating factor	8(53.3)
Not documented	3(20)

Table 3: displays the observed accompanying symptoms among 15 patients diagnosed with acute testicular torsion.

Symptoms	n (%)
No associated symptoms	Nil
Abdominal pain	6(40)
Nausea	3(20)
Vomiting	4(26)
Fever	4(26)
Dysuria	1(6)
Abdominal pain + nausea+/-vomiting	2(13.3)
Nausea+/-Vomiting, no abdominal pain	8(53.3)

Table 4: showing time to presentation and time to surgery from presentation

Time	Time to presentation, n (%)	Time to surgery from presentation, n (%)
<6h	4(26)	4(26)
6-12 h	2(13.3)	2(13.3)
12-24 h	2(13.3)	2(13.3)
>24 h	6(40)	6(40)
Not documented	1(6)	1(6)

Table 5: showing management

Management	Number of cases	Percentage
Orchidectomy with contralateral orchidopexy	9	60
Orchidopexy alone	6	40

Table 6 showing intraoperative findings of testicular

Intraoperative	Number of case	Percentage
Transverse lie	6	40
Clappers bell deformity	3	20
Mesorchidism	2	13.3
Polar inversion	1	6
Not documented	3	20

During the study period, 15 patients were observed. (Table 2) presents the clinical and demographic characteristics of these patients. The mean age was 22.6 years, ranging from 14 to 45 years. The majority of patients (7, 46%) were aged 14 or older (Table 1). (Table 1) illustrates the age distribution, revealing two peaks in testicular torsion incidence: one in the 14–19-year age group and another in the 30–34-year age group. Left-sided torsion was more prevalent than right-sided, with 10 cases (66.6%) versus 5 cases (33.3%). A past history suggestive of intermittent torsion was noted in 4 (26.6%) cases. All patients presented with acute onset testicular pain. Additionally, abdominal pain was the most common associated symptom, documented in 6 (40%) patients, followed by vomiting in 4 (26.6%) patients. See Table 3 for details on associated symptoms. Precipitating factors for acute torsion are outlined in (Table 2), with 4 (26.6%) cases occurring during physical activity such as lifting, cycling, walking, or sports. This study observed delays in both presentation and surgical intervention. Only 4 (26.6%) patients presented within 6 hours of symptom onset, and underwent surgery within 6 hours of presentation (Table 4). The most common intraoperative finding was transverse lie of the testis, seen in 6 (40%) followed by clapper bell deformity observed in 3 (20%) patients (Table 6). Orchidectomy with contralateral orchidopexy was performed in 9 (60%) patients due to testicular gangrene, resulting in a testicular salvage rate of 40%(Table 5). All wounds healed primarily, with no instances of recurrent torsion. One patient experienced epidymo-orchitis which was managed conservatively.

IV. Discussion

Testicular torsion has a bimodal age distribution, primarily affecting neonates and adolescents⁶. However in my study the mean age was 22.6 years, with an age range of 14–45 years, two peaks in testicular torsion incidence: one in the 14–19-year age group and another in the 30–34-year.

Testicular torsion was slightly more common on the left side compared to the right in this study; 10 (66.6%) versus 5 (33.3%). Most studies report left-sided preponderance of testicular torsion^{7,9,16}. The left-sided preponderance of testicular torsion has been attributed to the anatomic fact that the left spermatic cord is usually slightly longer than the right, making the left testis more mobile and therefore more likely to undergo torsion.

Documented past history of intermittent torsion was found in 4 cases (26.6%) compared to 11 cases (73.3%) in this study. When diagnosed correctly, intermittent spermatic cord torsion can be effectively treated through elective testicular fixation, leading to favorable outcomes. However, misdiagnosis may result in a group of boys with intermittent spermatic cord torsion who are vulnerable to developing acute, unresolved torsion and subsequent risk of testicular loss⁸.

Apart from scrotal pain, which presented universally in all patients, additional symptoms were noted in every case. Lower abdominal pain emerged as the most prevalent associated symptom, occurring in 6 patients (40%), followed by vomiting and nausea in 4 (26%) and 3 (20%) patients, respectively. Another study highlighted that abdominal pain is a common presenting symptom of testicular torsion, often contributing to delayed diagnosis and treatment, thereby increasing the risk of testicular loss^{10,12}.

In this study, a precipitating factor was identified in 4 cases (26.6%). Various studies have acknowledged precipitating factors for testicular torsion^{11,13,14,16}. These include activities such as sexual intercourse, exposure to cold weather, and physical exertion which are commonly associated with sports participation, cycling, and lifting heavy objects.

The most prevalent predisposing factor for testicular torsion in this study was a transverse lie of the testes, accounting for 6(40%), followed by clapper bell deformity at 3(20%), presence of mesorchium at 3(13.3%), and polar inversion at 1(6%). Other studies have also identified transverse lie as the most common anomaly associated with testicular torsion¹⁷, while some have reported clapper bell deformity as the predominant anomaly¹⁶.

This study observed delayed in both presentation and surgical intervention. Only 4 (26.6%) patients presented within 6 hours of symptom onset, and underwent surgery within 6 hours of presentation. The severity of torsion correlates with the duration of symptoms. It's widely acknowledged that symptom duration of less than 6 hours significantly predicts testicular salvage. Howe et al.'s animal study using rats indicated adverse histologic findings and reduced fertility rates starting at 3 hours of torsion, with markedly decreased fertility rates observed after 9 hours¹⁸.

In this study Orchidectomy with contralateral orchidopexy was performed in 9 (60%) patients due to testicular gangrene, resulting in a testicular salvage rate of 40%. Filho et al. also noted a correlation between torsion duration and surgical outcome. Their analysis of 117 patients with testicular torsion revealed a median torsion duration of 8.4 hours in salvageable cases. Reported testicular salvage rates range from 90% to 100% if surgical exploration occurs within six hours of symptom onset, dropping to 50% after 12 hours, and typically falling below 10% after 24 hours. Filho et al. emphasized that there's no absolute timeframe beyond which infarction is inevitable. In their study, one organ was found necrotic after only 4 hours of ischemia, while two testicles remained viable even after 25 days of symptoms¹⁹.

V. Conclusion

Our one-year clinical experience in managing testicular torsion cases at Assam Medical College and Hospital in Dibrugarh, North East India, underscores the significant burden of this urological emergency in the region. Despite the well-established principles advocating for timely diagnosis and surgical intervention, our observations reveal notable challenges stemming from delayed presentation, diagnostic ambiguity, and limited access to specialised care.

Nevertheless, our study illustrates that prompt diagnosis and appropriate management, including timely surgical intervention, can yield favourable outcomes such as testicular salvage in a considerable proportion of cases. Nonetheless, there remains a pressing need to enhance diagnostic precision, streamline referral processes, and broaden access to specialised urological services to further optimise testicular torsion management and mitigate the risk of testicular loss among our population.

Looking ahead, initiatives focusing on healthcare provider education, community engagement, and the implementation of standardised protocols for testicular torsion assessment and treatment offer promising avenues for enhancing outcomes and alleviating the burden of this potentially debilitating condition. Further research endeavours are warranted to assess the efficacy of such interventions and devise strategies tailored to address the unique challenges associated with testicular torsion in the context of North East India.

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