

## Original Article

# Intermittent Testicular Torsion

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ABSTRACT

**Objective:** The aim of this study is to highlight the clinical characteristics of patients with intermittent testicular torsion and draw attention to this underreported condition. **Methods:** Clinical and demographic data of all patients treated for intermittent testicular torsion from January 2007 to June 2015 were prospectively collected in a pro forma and analyzed. A diagnosis of intermittent torsion was made on the basis of recurrent scrotal pain, presence of abnormal testicular lie in otherwise normal testes, absence of urinary symptoms, and negative urine cultures. This diagnosis was confirmed by resolution of symptoms following bilateral orchidopexy. All patients had bilateral orchidopexy at the next operative day and were followed up for 12 months. **Results:** Forty-five patients with a mean age of 20.9 years ( $\pm 4.02$ ) were seen within the study period. The left testis was more often involved than the right: 53.3% versus 37.8%. The condition was bilateral in 4 patients (8.9%). A total of 84 testes were evaluated. Horizontal lie was the most common anomaly causing intermittent testicular torsion 49%, followed by the clapper-bell deformity 27.5%. Patients experienced a mean of 2.8 ( $\pm 1.74$ ) acute pain episodes before testicular fixation. Bilateral orchidopexy resulted in resolution of symptoms and preservation of testicular volume. **Conclusion:** Horizontal lie of the testis is the most common cause of intermittent testicular torsion. The condition is more common on the left than the right testis and is predominantly unilateral. Intermittent testicular pain in the presence of abnormal testicular lie should warrant a diagnosis of intermittent testicular torsion. Early bilateral orchidopexy is efficacious.

**KEYWORDS:** Intermittent torsion, orchidopexy, testes

### Date of Acceptance:

02-Jun-2017

## INTRODUCTION

Testicular torsion is a common urological emergency that results from varying degrees of twisting of the spermatic cord. The resultant testicular ischemia if not promptly relieved may result in loss of the affected testis. A calculated annual incidence of 1 in 4000 for persons younger than 25 years old has been documented.<sup>[1]</sup> Testicular torsion may occur at any age, but two peaks are commonly reported; most cases occur around puberty with a much smaller peak in the first year of life.<sup>[1,2]</sup> It may be acute or intermittent (recurrent). Unlike acute torsion, intermittent testicular torsion is characterized by recurrent episodes of severe hemiscrotal pain of sudden onset and short duration and punctuated by pain-free intervals that may last for hours, days, weeks, or months.<sup>[3]</sup> It is a diagnosis of exclusion and has been documented to be

the etiology in 6% of cases of recurrent hemiscrotal pain in males.<sup>[4-7]</sup> Its diagnosis is purely clinical and elective orchiopexy at the next operating day is recommended to prevent possible acute torsion episode.

Intermittent testicular torsion has been recognized since 1895,<sup>[8]</sup> but it is underreported.<sup>[4]</sup> The clinical syndrome of intermittent testicular torsion needs emphases because it has been documented that 29%–50% of patients with a history of intermittent torsion may go on to have acute torsion.<sup>[9,10]</sup> Similarly, other authors have shown that 50% of males diagnosed with acute torsion have had prior episodes of testicular pain, suggesting that they may have had intermittent torsion before complete

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### Access this article online

#### Quick Response Code:



**Website:** [www.njcponline.com](http://www.njcponline.com)

**DOI:** 10.4103/njcp.njcp\_218\_16

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**How to cite this article:** Obi AO. Intermittent testicular torsion. Niger J Clin Pract 2017;20:1273-6.

acute torsion.<sup>[6,7,11-13]</sup> Acute testicular torsion may lead to testicular loss, and intermittent torsion in itself may lead overtime to gradual atrophy of the testes.<sup>[5,14,15]</sup> It is, therefore, important to draw attention to this clinical entity, especially as emergency surgical services may not be readily available or may be delayed at the time of an acute torsion. The outcome in such circumstances may be devastating. In the light of this, we seek to highlight the characteristics of this group of patients and draw attention to the need for a high index of suspicion for intermittent torsion in patients presenting with intermittent hemiscrotal pain.

## METHODS

We prospectively evaluated patients presenting in our urology service and treated for intermittent testicular torsion, from January 2007 to June 2015. A diagnosis of intermittent torsion was made on the basis of recurrent scrotal pain, presence of abnormal testicular lie in otherwise normal testes, absence of urinary symptoms, and negative urine cultures. This diagnosis was confirmed by resolution of symptoms following bilateral orchidopexy.

Biodata, nature of pain, side involved, number of episodes of pain before presentation, testicular abnormalities on physical examination, intraoperative findings, and postoperative outcomes were collected and analyzed.

All patients diagnosed of intermittent testicular torsion were offered bilateral orchidopexy at the next operative day. The tunica albuginea of the upper and lower poles of the testes was fixed to the dartos fascia at 3–4 points using nonabsorbable 3/0 or 2/0 nylon sutures. All patients were discharged within 12–24 h of surgery and seen again at the surgical outpatient clinic on the 8<sup>th</sup> and 22<sup>nd</sup> postoperative days for review. Subsequent follow-up was at 3, 6, and 12 months in the surgical outpatient clinic.

Means and standard deviations were calculated using SPSS Version 17, Chicago, IL, USA.

## RESULTS

A total of 45 patients with intermittent testicular torsion

were seen within the study period. Their ages ranged from 15 to 30 years with a mean of 20.9 years ( $\pm 4.02$ ). The left testis was involved in 24 patients (53.3%) and the right testis in 17 patients (37.8%). The condition was bilateral in 4 patients (8.9%). A total of 84 testes were evaluated and 6 were not available for evaluation. Of these 6, 2 patients had previous orchidectomy, 2 patients had vanished testes from previous neglected torsion, and 2 patients had previous unilateral orchidopexy. Of the 84 evaluated testes, 6 were normal. Of the 78 remaining testes with anomalies, 54 had a single anomaly, and 24 had a double anomaly. Thus, 102 anomalies were identified in 78 testes. Details of the anomalies found intraoperatively to be responsible for intermittent torsion are listed in Table 1. Horizontal lie was the most common anomaly followed by the clapper-bell deformity. The double anomalies consisted of combinations of horizontal lie and clapper-bell deformity. The details of these are in Table 2. The mean number of acute pain episodes before testicular fixation was 2.8 ( $\pm 1.74$ ).

None of the patients had antecedent history of sexual exposure, fever, or urinary tract infection within 2–4 weeks before presentation.

One patient had recurrent testicular pain up to 3-month postsurgery. He had to be reexplored, and testicular refixation was carried out with a satisfactory outcome.

There was no postoperative complication; all wounds healed primarily and subjectively assessed preoperative testicular volumes were preserved.

**Table 2: Combinations of anomalies seen in 24 testes with more than one anomaly**

Combinations of anomaly	Number of testes affected (%)
Horizontal lie and clapper-bell deformity	10 (41.7)
Horizontal lie and mesorchium	8 (33.3)
Clapper bell and mesorchium	3 (12.5)
Clapper bell and polar inversion	2 (8.3)
Horizontal lie and testicular maldescent	1 (4.2)
Total	24 (100)

**Table 1: Testicular anomalies in 45 patients with intermittent testicular torsion**

Type of testicular anomaly	Total anomalies detected, n (%)	Number of anomalies found on the affected side, n (%)	Number of anomalies on the contralateral side, n (%)
Horizontal lie	50 (49.0)	28 (42.4)	22 (61.1)
Clapper bell	28 (27.5)	18 (27.3)	10 (27.8)
Mesorchium	14 (13.7)	10 (15.2)	4 (11.1)
Testicular hypotrophy	6 (5.8)	6 (9.1)	0
Polar inversion	2 (2.0)	2 (3.0)	0
Testicular maldescent	2 (2.0)	2 (3.0)	0
Total	102 (100)	66 (100)	36 (100)

## DISCUSSION

Intermittent testicular torsion was documented more than a century ago.<sup>[8]</sup> It is a clinical condition that is characterized by repeated episodes of sudden onset unilateral scrotal pain that lasts from a few minutes to about an hour. The pain subsides spontaneously, and the affected scrotum usually has a testis in abnormal lie. The pain is relieved by orchidopexy.<sup>[3,8]</sup> Studies have shown that up to 29%–50% of patients with a history of intermittent torsion go on to have acute torsion.<sup>[9,10]</sup> Prompt recognition and treatment of this condition not only relieves the unpleasant symptom of recurrent testicular pain but also prevents subsequent torsion. Despite its clinical significance and in spite of having been documented for over a century, there are scanty reports on intermittent torsion in the literature. The purpose of this paper, therefore, is to draw attention to this condition.

The clinical characteristics of intermittent torsion are somewhat similar to those of acute testicular torsion; indeed, Hayn *et al.*<sup>[3]</sup> have shown that patients with intermittent torsion and those with acute torsion represent the same group of patients that is surgically intercepted at different points on the same time line. Creagh *et al.* reported that acute torsion developed in 10% of patients with intermittent torsion while they waited for surgery.<sup>[4]</sup> In addition, some reports indicate that up to 50% of males diagnosed with acute torsion have had prior episodes of testicular pain, suggesting that they may have had intermittent torsion before complete acute torsion.<sup>[6,7,11–13]</sup>

The mean age of our patients was 20.8 years. Hayn *et al.*<sup>[3]</sup> and Eaton *et al.*<sup>[16]</sup> reported mean ages for intermittent testicular torsion of 12 (range 7–17) and 12.2 (range 4–17), respectively. Two peak incidences are recognized for testicular torsion by Western literature; most cases are said to occur around puberty between the ages of 12 and 18 years with a smaller peak in the first year of life.<sup>[13,17]</sup> However, studies from Nigeria by Udeh,<sup>[18]</sup> Aghaji,<sup>[19]</sup> and others<sup>[20,21]</sup> show that the mean age falls between 20 and 29 years, similar to the finding in this paper. Udeh<sup>[18]</sup> noted that “torsion in Nigeria is an adult disease.” He could not fathom an explanation for this but wondered if it could be related to the finding of filarial worms in gangrenous testes as documented by some authors,<sup>[22,23]</sup> he cited in his paper.

The most common presentation was intermittent hemiscrotal pain that usually resolved within minutes of onset only to reoccur weeks or months later. There was associated nausea and pain referred to the lower abdomen or ipsilateral thigh in 49% of our patients. Vomiting was not recorded. This is similar to the pattern of presentation documented by other authors.<sup>[4,6,11,14,24]</sup>

The mean number of pain episodes before presentation in our series was 2.8 ( $\pm 1.74$ ) (range 1–7). This is similar to the means of 2.0 (range 1–3) documented by Hayn *et al.*<sup>[3]</sup> and 4.3 (range 1–30) by Eaton *et al.*<sup>[16]</sup> In this series, the left testis was affected more often than the right testis (53.3% vs. 37.8%), and the condition was bilateral in 8.9% of cases. Similarly, Eaton *et al.*<sup>[16]</sup> found pain to be more on the left than the right (55% vs. 45%) and predominantly unilateral in 95% of cases. The reason for the left-sided preponderance is unknown.

The most common preoperative and intraoperative finding on the affected side was a horizontal lie. This was seen in 42.4% of cases, followed by clapper-bell deformity which was present in 27.3% of cases. Other anomalies detected on the affected side are shown in Table 1. Several studies have shown that 55%–100% of cases of intermittent torsion are associated with the horizontal lie of the testis and the bell-clapper deformity.<sup>[5,7,11,14,24]</sup> Other anomalies described in the literature include presence of mesorchium, testicular hypotrophy, testicular maldescent, and polar inversion. These were seen in 15.2%, 5.8%, 2%, and 2% of our cases, respectively. In polar inversion, the upper pole of the testis is inferior and the lower pole is superior as evidenced by the attachment of the appendix testis and appendix epididymis. Clinically, most of these abnormalities apart from horizontal lie and testicular maldescent may not be detectable before exploration. We therefore classified anomalies based on intraoperative findings. As in testicular torsion, the contralateral side may or may not be normal.<sup>[20]</sup> In this series, 36 (35.3%) of the total detected anomalies were present on the contralateral side and 66 (64.7%) on the ipsilateral side [Table 1]. Hayn *et al.*<sup>[3]</sup> found 90% of abnormalities on the contralateral side. Due to this, it is important to fix both testes.<sup>[20]</sup> Interestingly, we also observed double anomalies in up to 24 (28.6%) of 84 evaluated testes [Table 2]. These double anomalies have not been previously documented to the best of our knowledge.

We did not observe any postoperative complication; all wounds healed primarily and preoperative clinically estimated testicular volumes were preserved. At follow-up, 98% of patients had a resolution of symptoms. This is similar to the postoperative findings of Eaton *et al.*<sup>[16]</sup> who also observed resolution of pain in 98% of their patients. One patient had recurrent testicular pain up to 6-month postsurgery. He had to be reexplored, and testicular re-fixation was carried out with a satisfactory outcome. Recurrent testicular pain has been noted to occur, and this may be due to missed testicular vasculitis<sup>[16]</sup> or recurrent intermittent torsion despite fixation with nonabsorbable sutures.<sup>[25]</sup> Our index patient had recurrent intermittent torsion.

## CONCLUSION

Horizontal lie of the testes is the most common cause of intermittent testicular torsion followed by clapper-bell deformity. The condition is more common on the left than the right testis and is predominantly unilateral. Like testicular torsion, intermittent testicular torsion is an adult disease among Nigerians. Recurrent scrotal pain in the presence of abnormal testicular lie in otherwise normal testes should warrant a diagnosis of intermittent testicular torsion. Early bilateral orchidopexy has been shown to be efficacious in interrupting the repeated cycles of scrotal pain in up to 98% of cases and is recommended.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

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