**INTRODUCTION**

Torsion of testes, usually denoted by twisting of spermatic cord, is an acute emergency as loosing one or both testis may affect a young male’s viability and future fertility.\(^1\)\(^2\) The annual incidence is 4.5 per 10\(^5\) person.\(^3\) In males who have an inappropriately high attachment of tunica vaginalis (clapper bell deformity), testis can rotate freely (seen in 12 % males and 40% bilateral cases).\(^3\) This predisposes to torsion of testis. Torsion occurs as testicles rotate between 90-180 degrees. Complete torsion occurs when there is a twist of 360 degrees or more. This may extend up to 720°.\(^3\)

Scrotal exploration is the procedure of choice and if the symptoms persist for more than 24 hours, fertility of testis is diminished and orchaedectomy is considered. Most common symptom of presentation is acute scrotal pain.\(^4\) But in some cases, it may present as acute abdominal pain. If unrecognized at early stage, the twisted tests become non viable. The aim of this study is to determine etiological factors, presenting symptoms and management of torsion testis.

**MATERIAL AND METHODS**

This is a retrospective observational study performed in a unit of general surgery, Safdarjung Hospital, New Delhi from July 2014 to June 2019 of all patients who were presented to emergency department as a case of acute scrotum and were diagnosed as a case of testicular torsion on the basis of colour doppler. Total patients evaluated were 27. The data was tabulated and results made using SPSS 21.0 system.

**Results:**- The mean age was 20 years (range 13- 36 years). Most common etiology was of trauma (14 patients) followed by spontaneous onset (13 patients). Median duration of symptoms was 36 hours (range 4 hours to 120 hours). Left testis was more commonly involved (20:7). Most common presenting symptom was severe ipsilateral pain and swelling (20 patients), vomiting (12 patients). Delayed presentation was seen in 7 patients. Most common local sign was local site pain (22 patients), lower abdominal pain (8 patients) and absence of cremasteric reflex (10 patients). Colour doppler findings showed abnormal testis with decreased/ absent blood flow in all patients. All patients underwent scrotal exploration, orchaedectomy and fixation of contralateral testis was done in 23 patients and in 4 patients (15%), testis was salvaged. Rotation was seen from 180° to 720°.

**Conclusion:**- Testicular torsion is an acute emergency and need to be dealt meticulously and aggressively. Presenting as a lower abdominal pain can be misleading and hence, it should be kept as a differential diagnosis in case of acute abdomen.

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**ABSTRACT**

**Introduction:**- testicular torsion is described as twisting of spermatic cord, resulting in acute pain and ischaemia. If untreated, it leads to atrophy of ipsilateral testis and suppression of contralateral. Scrotal exploration is considered procedure of choice for acute scrotum.

**Material and methods:**- This is a retrospective observational study performed in a unit of general surgery, Safdarjung Hospital, New Delhi from July 2014 to June 2019 of all patients who were presented to emergency department as a case of acute scrotum and were diagnosed as a case of testicular torsion on the basis of colour doppler. Total patients evaluated were 27. The data was tabulated and results made using SPSS 21.0 system.

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proven using colourdoppler with absence/decrease of blood flow.

**Exclusion Criteria**

- Patients with typical features of epididymoorchitis (proven clinically and radiologically).
- Incarcerated inguinal hernia.
- Trauma patients with lacerated testis with normal/decreased vascularity.

**RESULTS**

During the study period of five years (July 2014 to June 2019), 27 patients were diagnosed as a case of torsion testis on basis of colourdoppler and were explored. Following findings were noted.

- **Age distribution:** mean age was 20 years (13 years to 36 years).
- **Laterality:** left sided more common than right side (L:R = 20:7).

**Etiology**

<table>
<thead>
<tr>
<th>Etiological factor</th>
<th>Frequency</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Trauma with foreign body (ball, stone, assault)</td>
<td>10</td>
<td>37.04%</td>
</tr>
<tr>
<td>b) Trauma with road traffic accident</td>
<td>4</td>
<td>14.81%</td>
</tr>
<tr>
<td>c) Spontaneous onset</td>
<td>13</td>
<td>48.14%</td>
</tr>
</tbody>
</table>

Hence, the most common cause of testicular torsion is trauma overall and spontaneous onset being most common.

**Duration of symptoms:** Median duration of symptoms was 36 hours (range 4 hours to 120 hours). This delay in presentation was due to delay in noting of the patients of the symptoms especially those with spontaneous onset of the testicular pain (13 patients). 6 patients presented to emergency within 6 hours of pain in testicular region out of which 4 were salvaged by derotation of the twist and then fixation of bilateral testis.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Severe ipsilateral pain with swelling (acute onset)</td>
<td>20</td>
<td>74.07%</td>
</tr>
<tr>
<td>2. Nausea/vomiting</td>
<td>12</td>
<td>44.44%</td>
</tr>
<tr>
<td>3. Delayed presentation of painless swelling</td>
<td>7</td>
<td>27.92%</td>
</tr>
</tbody>
</table>

Hence, most common presentation was acute pain with swelling which depicts acute ischaemic episode with engorgement of the testis and scrotum with venous blood followed by swelling.

Delayed presentation is due to the missed diagnosis in peripheral centre as the patients (7 patients) gave history that they had initial inguinoscrotal pain which subsided on medication. After a few days the testis was swollen, painful and pulled up.

**Table 3 Signs and their frequency**

<table>
<thead>
<tr>
<th>Sign</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Swollen testis with pain</td>
<td>22</td>
</tr>
<tr>
<td>2. Lower abdominal tenderness on ipsilateral side</td>
<td>8</td>
</tr>
<tr>
<td>3. Absent cremasteric reflex</td>
<td>10</td>
</tr>
</tbody>
</table>

Hence, the most common sign was swollen testis with pain on palpation followed by lower abdominal pain along the inguinal region.

<table>
<thead>
<tr>
<th>Table 4 colourdoppler findings:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Scrotal wall edema</td>
<td>27</td>
</tr>
<tr>
<td>2. Haematoma</td>
<td>10</td>
</tr>
<tr>
<td>3. Decreased/absent blood flow to testis</td>
<td>27</td>
</tr>
<tr>
<td>4. Swollen testis</td>
<td>25</td>
</tr>
</tbody>
</table>

Hence, most common finding on colourdoppler is scrotal wall edema and absent of colour flow to testis (figure 1) underwent orchiectomy by scrotal approach at superficial inguinal ring. Contralateral testis was fixed using prolene suture (figure 2). 4 out of 27 patients testis was salvaged by derotation. Routine colourdoppler done in follow up showed normal flow and normal testicular echotexture.

**DISCUSSION**

Testicular torsion is an acute emergency and necessity for early recognition and treatment to avoid testicular infarction. Studies have shown that testicular exploration within six hours is
associated with 93% success in salvaging testis whereas it lowers to 10% if explored after 24 hours. It is seen that testicular infarction begins within first two hours of onset, irreversible damage occurs after 6 hours and complete infarction develops after 24 hours and is associated with inevitable decrease in fertility. 5, 6, 7 Fabini et al. believed that elapsed time between onset of symptoms and exploration represented only prognostic factor for testicular viability.

In our study conducted over 5 years on 27 patients, since the presentation of patient to the hospital was delayed (median 36 hours), the management according to on-table findings was scrotal approach with orchiectomy in 23 patients. 6 patients presented within 6 hours of symptoms out of which in 4, testis was salvaged (15% salvage rate). This delay was attributed to inability to detect early symptoms as well as aberrant presentation in the form of lower abdominal pain in 8 out of 27 patients (29%) mimicking appendicitis, gastroenteritis (such that external genitals were not examined). Similar findings were noted by Anderson and William et al (22% patients), Mellick et al, Pogorelic et al (20.5%) 13, Gaither and copp et al 12 and Fujun wang 12 et al (12%).

Colourdoppler findings were consistent with absence of vascularity and swollen testis in almost all patients. In our study, patients with suspected torsion testis were directly taken to the emergency if explored after derotation were not able to regain flow and hence presented within 6 hours of symptoms and out of these, 4 orchietomy was performed. Lian et al reported half of patients with salvaged testis later developed testicular atrophy. Fujun et al considered to conserve as much testis as possible at time of operation unless the twisted testis has died. This difference is due to difference in mean duration of symptoms of 4 hours as compared to minimum symptomatic duration of 4 hours (mean 36 hours) in our study.

Orchiectomy rate in our study was 85% owing to delay in the presentation of the patients to the hospital as well as high degree of rotation (180°-720°) along axis. Similar was the result of study by You et al which had orchiectomy rate of 71% and mean duration of symptoms of 30 hours with median angle of rotation of 45° (ranging 90° to 1080°). In other series too, orchiectomy rates vary from 39- 71%.

CONCLUSION

Orchiectomy if required is a state of mental stress for the person. Hence, early diagnosis with management is the gold standard treatment. Our study typically depicts about the outcome of the patients who present late for treatment. Abdominal pain as presenting feature is important differential for torsion testis and hence, should not be missed.

References

10. Mellick L: torsion of the testicle: it is time to stop tossing the dice: pediatric emergency care: 2012; 28, 80-86.

Dheer S. Kalwaniya et al., Testicular Torsion and its Presentation: A Retrospective Analysis of 27 Patients And Review of Literature