



## Original Article

# A Retrospective Study of Incidence of Torsion Testes in Acute Scrotum

Authors

**Dr K.Ravichandran<sup>1</sup>, Dr R.Ramesh<sup>2</sup>, Dr M.V. Pradeep Anand<sup>3</sup>, Dr V.Uvaraj<sup>4</sup>**

<sup>1</sup>Associate Professor of Surgery, Dept of Surgery Rajah Muthiah Medical College, Annamalai University, Annamalainagar, Chidambaram, Tamil Nadu

<sup>2</sup>Professor of Surgery, Dept of Surgery Rajah Muthiah Medical College, Annamalai University, Annamalainagar, Chidambaram, Tamil Nadu

<sup>3,4</sup>Post Graduate Student, Dept of Surgery Rajah Muthiah Medical College, Annamalai University, Annamalainagar, Chidambaram, Tamil Nadu

## Abstract

**Aim:** *The main aim of this study is to note the prevalence and epidemiology of acute scrotum, their presentation, to find out the incidence of torsion testes in patients who presented with acute scrotum there by facilitating an approach in identifying those patients who need early intervention to decrease associated morbidity and mortality.*

**Objectives:** *To find out the 1.Various causes of acute scrotum, 2.Age distribution, 3.Pre disposing factors, 4.Presenting symptoms, 5.Incidence of torsion testes, 6.Management, 7.intra –operative findings ,8.post operative study , 9.morbidity and 10.mortality.and the outcome in patients who presented with acute scrotum in Rajah Muthiah Medical College Hospital.*

**Materials and Methods:** *The study was conducted by a retrospective analysis of the patients who were admitted with acute scrotum, in all the surgical units of the Department of General Surgery, in Rajah Muthiah Medical college and hospital between May 2015 and October 2017. To study 1.various causes of acute scrotum. 2. To know the mode of presentation, investigations required and the treatment outcome of various causes of acute scrotum with special reference to torsion of testis.*

**Keywords:** *Scrotum, Testes, orchitis, epididymis, Torsion, USG, Doppler.*

## Introduction

Germ cells from the yolk sac migrate to form the genital ridge by 3<sup>rd</sup> week of gestation. Germ cells develop into primordial testis between 4<sup>th</sup> to 8<sup>th</sup> week of gestation. The two genital swellings fuse to form scrotum by 9<sup>th</sup> week of gestation. Under the influence of testosterone Wolffian Ducts develop into epididymis, vas deferens and seminal vesicles. By 13 weeks of development there develops an out pouching from the parietal

peritoneum which forms into processus vaginalis. This out pouching herniates through the anterior abdominal wall muscles to enter the developing scrotum. The testis lies in the internal inguinal ring for about 2–3 months during development. This out pouching of processus vaginalis is dependent on the intra-abdominal pressure. During 8<sup>th</sup> to 9<sup>th</sup> month of gestation testis enters into the scrotum along the processus vaginalis. At term the neck of processus vaginalis closes thus

obliterating the communication between abdominal cavity and scrotum. As Wolffian duct develops into the epididymis, vas deferens and seminal vesicles, some remnants of it may persist at the head of epididymis which is called as appendix of epididymis.

### Testis

The testis is a paired reproductive organ situated in the scrotum, separated from each other by a median septum, whose length of about 3.5-5 cm, width of 2.5-3 cm and an anteroposterior diameter of 3-3.5cm. It is placed obliquely in the scrotum, with its superior pole directed slightly anterior and lateral. Inferiorly, the testis is attached to the scrotum at its lower pole by the remnant of gubernaculum which forms the scrotal ligament. The glandular part of testis consists of 200 – 300 lobules. Each lobule contains 2 – 3 seminiferous tubules. The seminiferous tubules join together to form 20 – 30 straight tubules which enter the mediastinum testis and anastomose together to form rete testis. Rete testes in turn give rise to 12 – 20 efferent ductules which enter the epididymis. The testis is supplied by testicular artery, a lateral branch of aorta at the level of L2 vertebra. The veins emerging from the testis form the pampiniform plexus of veins. The plexus condenses into four veins at the superficial inguinal ring, into two at the deep inguinal ring and ultimately one vein is formed which drains into inferior vena cava on the right side and left renal vein on the left side. The lymphatics from the testis ascend along the testicular vessels and drain into the para-aortic nodes at the level of L2 vertebra.

### Acute Scrotum

Acute scrotum is defined as, "the acute onset of pain and swelling of the scrotum that requires either emergency surgical intervention or specific medical therapy." Several acute scrotal conditions can present in similar way, testicular torsion is by far the most significant. Testicular torsion is a true surgical emergency because the testis cannot be

salvaged if the patient presents late after the onset of symptoms.

Differential diagnosis for acute scrotum:

1. Torsion of testis
2. Acute Epididymitis
3. Acute Epididymo-orchitis
4. Torsion of appendix of testis
5. Torsion of appendix of epididymis.
6. Infection of scrotum - Abscess of scrotal wall / scrotal erysipelas
7. Gangrene of scrotum - Fournier's gangrene
8. Trauma to scrotum.
9. Miscellaneous –
  - i. Idiopathic scrotal oedema
  - ii. Scrotal fat necrosis
  - iii. Henoch-Schonleinpurpura
  - iv. Hurricane Testicular tumour
  - v. Ischemic orchitis.

**Testicular torsion:** It is a condition in which testicle rotates and strangulates its blood supply at the level of spermatic cord. Torsion of testis is uncommon because a fully descended normal testis is well anchored and cannot rotate. There must be presence of one or more anatomical abnormalities for torsion to take place. Testicular torsion is predisposed most commonly by 1. Inversion of testis, 2. High investment of tunica vaginalis. And precipitated by Straining at stools, lifting heavy weight and coitus are all precipitating factors. Trauma. Occasionally torsion may develop spontaneously during sleep. About 1 in 4000 males less than 25 yrs age develop testicular torsion. It most commonly involves the left side. There are more chances of salvaging the testis (chances reaching up to 100%) if the patient presents within 6hrs of symptom onset. The chances of salvage keep on decreasing as the duration increases with 20 % chance by 12hrs and virtually nil by 24hrs. Patients usually present with sudden onset of severe scrotal pain. Pain might be preceded by trauma, straining or no activity. Nausea and vomiting might be complained by some patients. Torsion of testis must be the first differential diagnosis in all patients presenting with sudden onset severe

scrotal pain irrespective of the age of the patients. Examination of scrotum shows tense and tender testis which may be placed high up in the scrotum with a transverse lie. Most often, patient will not allow anyone to touch the scrotum for the fear of severe pain it induces. Careful palpation might reveal twisted cord at the upper pole of testis. As the duration increases, progressive edema of the skin and the scrotal tissues occurs and by 18 – 24hrs the findings might be almost similar to epididymo-orchitis.

Torsion of testicular or Epididymal appendages mimics testicular torsion and is more common in pediatric age group. Patients usually present with unilateral scrotal pain but examination reveals normal testis. Occasionally a small mass can be palpable at the upper pole of the testis. In fair skinned individual and if the appendage is echymotic, it can be seen through the scrotal skin, the sign called as “Blue Dot sign”.

Epididymitis and epididymo-orchitis are common differential diagnosis for a case of acute scrotum. Commonly of bacterial origin with coliforms being the dominant causatives.

Fournier’s gangrene, scrotal wall infections, trauma contributes other causes of painful scrotum.

### Methodology

A total of 55 patients who presented with acute scrotum to department of General Surgery in Rajah Muthiah Medical College and hospital were included in the study. All patients were subjected to detailed history taking and physical examination. Patients underwent basic investigations like complete blood counts, bleeding time, clotting time and renal function tests, cardiac evaluation by ECG and echocardiography, if warranted and a Chest X ray. Then all the patients were subjected to USG scrotum with Doppler studies. Based on the clinical diagnosis and USG/Doppler scrotum reports, patients were subjected to appropriate surgery if warranted. Cases of acute epididymo-orchitis were managed conservatively.

Patient’s intra op findings were noted and post operatively monitored for any complications.

### Results

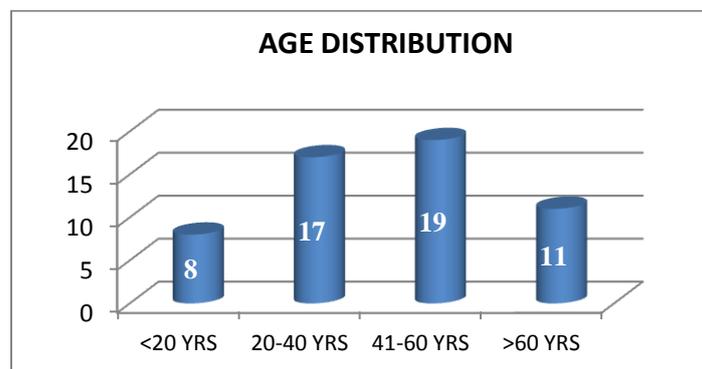
A total of 55 cases were included in the study group.

#### 1 Incidence of Various Causes of Acute Scrotum

| Sl. No. | Diagnosis                     | No. of Cases | Percentage |
|---------|-------------------------------|--------------|------------|
| 1       | Epididymo-orchitis            | 19           | 38%        |
| 2       | Torsion of testis             | 13           | 23.6%      |
| 3       | Torsion of appendix of testis | 3            | 5.4%       |
| 4       | Fournier’s gangrene           | 7            | 12.7%      |
| 5       | Hematocele                    | 5            | 9.09%      |
| 6       | Pyocele                       | 6            | 10.9%      |
| 7       | Scrotal wall abscess          | 2            | 3.6%       |

#### 2. Age Incidence

| Age     | No of Cases | Percentage |
|---------|-------------|------------|
| <20     | 8           | 14.5       |
| 20 – 40 | 17          | 30.9       |
| 41 – 60 | 19          | 34.5       |
| >60     | 11          | 20         |



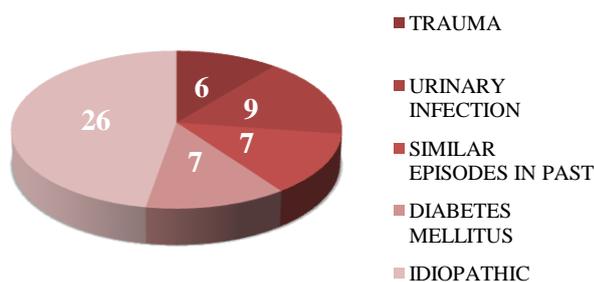
#### 3. Duration of Symptoms

| Duration   | No. of Cases | Percentage |
|------------|--------------|------------|
| 0 – 24 Hrs | 10           | 18.1       |
| 1 – 3 Days | 20           | 36.3       |
| 4 – 7 Days | 15           | 27.2       |
| >7 Days    | 10           | 18.1       |

#### 4. Predisposing Factors

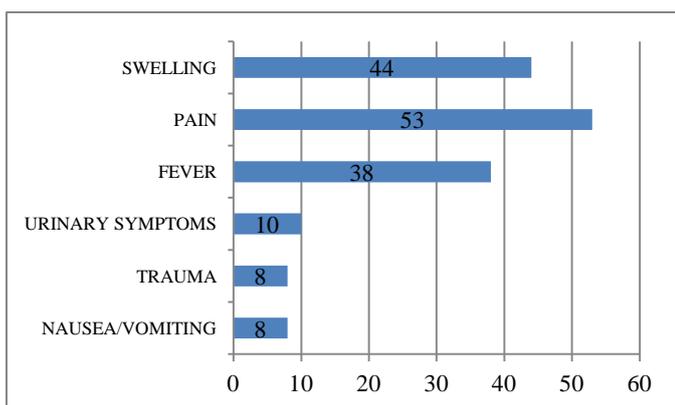
| Factor                   | No of Cases | Percentage |
|--------------------------|-------------|------------|
| Trauma                   | 6           | 10.9%      |
| Urinary Infection        | 9           | 16.3%      |
| Similar episodes in past | 7           | 12.7%      |
| Diabetes Mellitus        | 7           | 12.7%      |
| Idiopathic               | 26          | 47.2%      |

**PREDISPOSING FACTOR**



**5. Presenting Symptoms**

| Symptom          | No of Cases | Percentage |
|------------------|-------------|------------|
| Swelling         | 44          | 80%        |
| Pain             | 53          | 96.3 %     |
| Fever            | 38          | 69.09%     |
| Urinary Symptoms | 10          | 18.18%     |
| Trauma           | 8           | 14.5%      |
| Nausea/ Vomiting | 8           | 14.5%      |

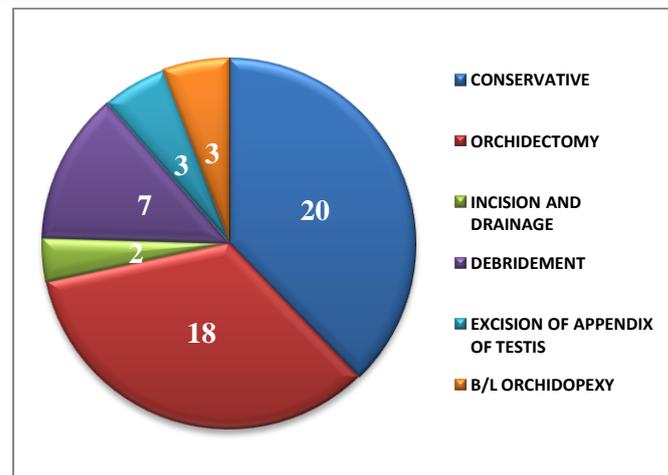


**6. Distribution**

| Side      | No of Cases | Percentage |
|-----------|-------------|------------|
| Left      | 27          | 49.09%     |
| Right     | 18          | 32.7%      |
| Bilateral | 10          | 18.1%      |

**7. Management**

| Treatment Given                | No Of Cases | Percentage |
|--------------------------------|-------------|------------|
| Conservative                   | 20          | 36.3%      |
| Surgical                       | 35          | 63.6%      |
| Incision & Drainage            | 2           | 3.6%       |
| Debridement                    | 7           | 12.7%      |
| Excision Of Appendix Of Testis | 5           | 9.09%      |
| B/L Orchidopexy                | 3           | 5.4%       |
| Orchidectomy                   | 18          | 32.7%      |



**8. Types of Torsion**

| Type of Torsion               | No of Cases | Percentage |
|-------------------------------|-------------|------------|
| Intravaginal                  | 11          | 84.6       |
| Extravaginal                  | 1           | 7.7        |
| Torsion in Undescended Testis | 1           | 7.7        |

**9. Management in Torsion Testes**

| Management   | No of cases-13 | Percentage |
|--------------|----------------|------------|
| Conservative | 0              | 0%         |
| Surgery      | 13             | 100%       |

**10. Surugical Management in Torsion Testes**

| Surgery                    | No of Cases-13 | Percentage |
|----------------------------|----------------|------------|
| Orchidectomy               | 10             | 76.9%      |
| Detorsion With Orchidopexy | 3              | 23.1%      |

**Conclusion**

Acute scrotum is a common case seen in the outpatient department with considerable morbidity which requires prompt evaluation.

This is an observational study comprising of 55 cases of acute scrotum admitted at Rajah Muthiah Medical College and Hospital, during the period of May 2015 to October 2017. Acute epididymo-orchitis was the commonest cause followed by torsion of testis. Most common age group involved was 41-60yrs followed by 21-40yrs. Majority of the patients presented with complaints for about 1-3 days. Pain in the scrotum was the commonest presenting symptom followed by swelling of scrotum. Majority of the patients had right sided involvement. Conservative management was followed in 36.3% patients while the rest required surgical exploration.

Torsion of testis is an important differential diagnosis in case of an acute scrotum which requires emergency scrotal exploration. Any young patient presenting with acute scrotum, torsion of testis must be considered and evaluated. All the cases of acute scrotum must be subjected for USG Doppler of the scrotum. In patients with torsion testis, presenting within 6hours of onset of symptoms, testis can be salvaged. An abnormal testis usually goes for torsion, hence orchidopexy must be done on normal testis to prevent future torsion.

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