

PROSPECTIVE STUDY OF ACUTE SCROTAL SWELLINGS IN NORTH BIHAR

General Surgery

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ABSTRACT

Background: Acute scrotum is characterized by "the acute development of pain and swelling of the scrotum that requires either emergency surgical intervention or conservative management". **Materials and Methods:** This prospective study included patients between the ages of 10y and 70y exhibiting symptoms of acute pain and swelling in the scrotum. Ultra sound scrotum and colour Doppler was carried out on all the subjects. The options for treatment were either surgical or conservative. All patients were followed up for a period of one month. **Result:** Scrotal abscess and epididymo-orchitis were identified in 24 of 60 individuals. Epididymo-orchitis was most common between the ages of 26 and 44, while scrotal abscess was most common between the ages of 50 and 60. Epididymo-orchitis was frequently associated with variables such as recent trauma, urinary symptoms, and urethral instrumentation. Among all the study subjects 68% were treated with conservative treatment and 32% were treated with surgical modality. **Conclusion:** Middle aged manual labourers with diabetes are more prone for scrotal abscess and Fournier's gangrene. Ultrasonography and colour Doppler are of utmost aid in the diagnosis and rapid treatment of testicular torsion, however the clinical signs, physical examination findings, and laboratory test results are useful in differentiating the aetiology.

KEYWORDS

Acute Scrotum, Epididymo-orchitis, Torsion Of Testis, Fournier's Gangrene

INTRODUCTION

Scrotal pain and swelling that develops suddenly and need prompt medical attention or emergency surgical intervention is meant by the term "acute scrotum." There is a wide range of possible triggers for acute scrotum. Testicular torsion, appendiceal torsion, epididymo-orchitis, scrotal wall abscess, Fournier's gangrene, scrotal haematoma, pyocele, and various conditions such as 'idiopathic scrotal oedema, scrotal fat necrosis, Henoch-Schönlein purpura, ischemic orchitis, etc.



Torsion of Testis

Delasiauve characterized torsion of the testes in 1840. A true surgical emergency, torsion of the testis or spermatic cord cuts off blood supply to the testes, leading to their death and atrophy. In youngsters, scrotal swelling of sudden onset suggests testicular torsion unless otherwise established. About two-thirds of patients can be correctly diagnosed based on patient history and physical examinations. Torsion of the testicles can occur for two main reasons. Torsion of the spermatic cord occurs intravaginally when the testis twists within the tunica vaginalis; torsion of the testis occurs extravaginally in the perinatal period prior to fixation of tunica vaginalis within the scrotum. The age range of 10–25 years is when the condition is most frequently observed. If the torsion is released within 4 hours of the incident, the testis will be completely viable; between 4 and 16 hours, 89% of testes will be salvageable; and after 16 hours, just 25% will be. The testicular viability values show that surgery is always last resort.[5]

Acute epididymitis, Acute epididymo-orchitis and Orchitis: Epididymo-orchitis is defined as an inflammatory process affecting both epididymis and testes. This condition presents with excruciating pain and edema. Epididymo-orchitis was estimated to have a 65% prevalence in a retrospective assessment of 65 children with scrotal pain by Klin et al. In that study 42 (65%) had epididymitis,

5 (8%), torsion of the appendix testis, and 12 (18%) had torsion of the testis. The results of a surgical examination of the scrotum in 70 children with acute pain were described by Ben Chaim et al. Torsion of the testicles accounted for 34% of cases, with acute inflammation accounting for remaining 66%. Potential TB symptoms include focal epididymitis, draining sinus and the beading of the vas deferens with systemic involvement.

Fournier's Gangrene

Fournier's gangrene is necrotizing infection of soft tissue affecting the deep and superficial fascia of the male genitalia. Studying 51 people (49 men and 2 women), Yan-Dong Li et al. found that the average age of onset for FG is 51.6 years (Range: 17–80 years). Although FG is more common in men, the disease has been documented in women at a 10:1 ratio. While scrotal abscess is more common in children with appendicitis.

The diagnosis and treatment of acute scrotal diseases have been documented using a wide range of diagnostic techniques. The tests range from the urine analysis to the more complex ultrasonography and Color Doppler examinations.

Aims & Objectives

- To ascertain various types of acute scrotal swellings.
- To study clinical presentation.
- To make early diagnosis & treatment.

MATERIALS AND METHODS

Place of Study: Upgraded Department of General surgery Darbhanga Medical College, Darbhanga, Bihar

Duration of study: 12 months of study from April 2025 to April 2026.

Study Design: A prospective study.

Source of Data

Patients who reported with acute pain and swelling in the scrotum in the upgraded department of General Surgery, Darbhanga Medical College between April 2025 to April 2026 were included in the study and analysed thoroughly. A total of 60 people were analysed in this study.

Method of Collection of Data

All of the patient's clinical data, including signs and symptoms, diagnostic workup, operational findings, postoperative complications, and death rates, were put into a standardised data entry form for analysis. When necessary, patients were followed up with for more than a month.

Inclusion Criteria

Patients of age between 10y to 70y who reported with acute scrotal pain and swelling were included in the study.

Exclusion Criteria Patients with painless scrotal swelling and chronic scrotal pain were excluded

RESULTS

Table1:Incidenceoflesions : In our study Acuteepididymo-orchitis being the commonest cause for the acute scrotal pathology followed by Scrotal abscess and Orchitis. Epididymo-orchitis was seen in 40% cases, scrotal abscess was in 16.6%cases, orchitis was in 5% cases. Torsion of testis was seen in 4 cases (6.6%) and Fournier's gangrene in 5 cases (8.3%)

SiNo	Lesions	No of cases	Percentage
1	Epididymo-orchitis	24	40%
2	Scrotalabscess	10	16.6%
3	Epididymitis	8	13.3%
4	Fournier'sGangrene	5	8.3%
5	Torsionoftestis	4	6.6%
6	Cellulitisofscrotum	3	5%
7	Orchitis	3	5%
8	Pyocele	1	1.6%
9	TraumaticScrotalHematoma	2	3.3%

Table2:DistributionofAge:The overall age incidence is shown in table. The maximum incidence of acute scrotal swellings occurred between the age group of 41-50 years. In our study the age incidence for acute epididymo - orchitis was maximum in the 41-50 group (30%).

Age in years	No Of Cases	Percentage
11-20	5	8.33%
21-30	8	13.3%
31-40	7	11.66%
41-50	18	30%
51-60	15	25%

Table 3: Incidence of lesion in diabetic nd non diabetic patient
Epididymitis Scrotal abscess Fournier'sgangrene

Diabetic	5	12	13
Non diabetic	10	10	10

Table 4: Incidence of lesion according to age group

Epididymo-orchitis Scrotal abscess Fournier's gangrene

Children	13	2	0
Young age	10	5	0
Middle age	2	8	5
Old age	0	6	9

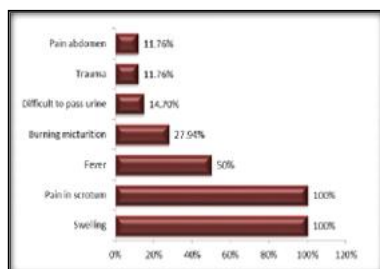


Figure3:PresentationofSymptoms

At presentation, there was enlargement of the scrotum and pain in all instances. Fever was reported by 50% of patients, and burning micturition was reported by 28%. About 15% of people experienced burning micturition. Both trauma and abdominal pain were reported by 11.76 percent of people.

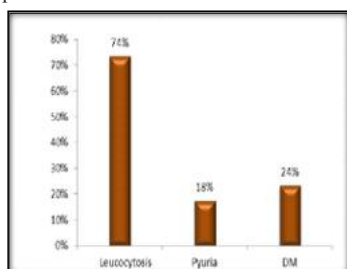


Figure4: Investigations

Haemogram, urine analysis, blood sugar, and Doppler ultrasound were performed on all 60 patients. Urine microscopy revealed pyuria in 11 of our 60 cases and leucocytosis in 44. In 14 instances, the blood sugar was high. Uncontrolled Diabetes was associated with Scrotal abscess and Fournier's gangrene. Doppler USG of the scrotum was performed in every patient, and its sensitivity was 92% and its specificity was 99%. When ultrasonography was used to diagnose acute epididymo-orchitis, the testis was seen to be hypoechoic and enlarged all throughout. Swelling and increased echoic activity in the epididymis. Pyocele was characterised by heterogeneous echogenicity around the testis, indicating purulent accumulation within a swollen scrotal sac. Haematocoele exhibited a pattern similar to this.

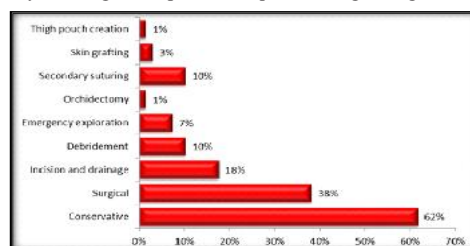
Treatment Given

Conservative Treatment

37 patients (62%) out of 60 received only conservative care. 24 cases of epididymo-orchitis, 8 cases of epididymitis, 3 cases of orchitis, and 3 cases of cellulitis of the scrotum were all treated conservatively with rest, scrotal support, antibiotics, analgesics, and surgical removal in 3 cases. The recommended period of confinement ranged from fifteen to twenty days.

Surgical Treatment

Scrotal abscess and pyocele were surgically treated by incision and drainage on six patients. 5 patients were diagnosed with Fournier's gangrene, although only 4 underwent debridement. 6 patients required secondary suturing, and 2 patients required skin grafting.



Results of Treatment

Patients who responded well to conservative care improved significantly. 27 of the 30 patients who had surgery recovered without any complications, while 3 others were hospitalised with wound infections.

Patients receiving conservative treatment spent average of 3 days in the hospital. The median length of hospitalisation for patients with Fournier's gangrene is 10 days.

Followup

Each individual was tracked for a month. Ninety-five percent of the patients in this study had a full recovery without any complications; five percent made a partial recovery with complications.

DISCUSSION

Prognostic Factors

1. Age

Acute scrotal swellings were most common between the ages of 41 and 50. The highest prevalence of acute epididymo-orchitis in our study occurred between the ages of 41 and 50 (45%). Even though the recovery was slightly delayed in this group, all patients responded well to the treatment. As a result, age shouldn't be a factor in whether or not active management is provided.

2. Diabetes Mellitus

In the past, diabetes mellitus was seen as a very negative indicator of health. The mortality rate can be lowered by early diagnosis, rigorous first surgical debridement, and tight control of diabetes.

3. Delayed Presentation

Patients who presented late that are more than 2 days, they recovered late than the patients who presented early.

4. Comorbid Conditions

The results of this study showed that patients with various co-morbid illnesses, such as diabetes, renal failure, hepatic dysfunction, had a longer mean hospital stay of 10 days before reaching a stable condition.

5. Recurrent UTI

It was noticed from the study that, patients who had recurrent UTI, developed epididymo-orchitis more frequently than non-UTI patients.

6. Urethral Instrumentation

Patients who had recent instrumentation had developed epididymo-orchitis more frequently.

7. Nutrition

Necrotizing perianal infections more likely occur in those who are malnourished. Malnourished and diabetic patients more susceptible to infection, impaired immune function also increases morbidity by extending the time it takes for patients to recover.

8. Antibiotics

Adjuvant antibiotic medication is administered, but early surgical debridement saves lives. Injectable antibiotics are the treatment of choice.

CONCLUSION

Our research reveals that acute epididymo-orchitis is the most common cause of acute scrotal swelling followed by scrotal abscess. Middle aged labourers with Diabetes are more prone for scrotal abscess and Fournier's gangrene. Most common cause of acute scrotal swelling in children and young adolescents is torsion of the testis.

Scrotal abscesses and Fournier's gangrene cannot be cured with antibiotics alone; surgical debridement is also required.

An individual's age, delay in seeking treatment, the existence of various co-morbid illnesses, the occurrence of recurrent UTIs, the use of urethral instruments, and the severity of the disease all play a role in prognosis.

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