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Original Research Article

Acute Scrotal pain in adults - A clinical study in a rural Medical College Hospital in South India

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ABSTRACT

Background: Scrotal pain is a common problem which requires timely diagnosis and treatment. Pain and swelling may prevent clinician a complete examination by the clinician. Conditions like testicular torsion needs timely management to prevent testicular loss.

Methods: This is a prospective study done in medical college hospital. All patients aged above 18 years and with complaint of acute scrotal pain of less than a week duration was included in this study.

Results: The results were analyzed to know the age distribution, causes of testicular pain and diagnostic methods

Conclusion: Acute scrotal pain and swellings are common in younger and middle age (in this study 55% are in 18-40 years age group) individuals with variable symptomatology. The commonest cause for acute scrotum in our study is epididymo-orchitis (53.6%) followed by Fournier's gangrene (17.2%). Ultrasound scan of the scrotum is very much helpful and supportive in the diagnosis of testicular torsion, varicocele, pyocele and testicular abscess.

Keywords: Acute scrotum, torsion testes, Epididymo orchitis, abscess of testis

INTRODUCTION

Scrotal pain is a diagnostic challenge in both its acute and chronic forms. The evaluation of scrotal pain should include careful history and clinical examination. Pain and swelling may prevent clinician a complete examination. Acute scrotal pain is a medical emergency which requires timely diagnosis and management particularly in case of testicular torsion.

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While taking the history one should enquire about sexual exposure, recent hospitalization with urinary catheterization. The physical examination must include a careful evaluation of the abdomen and inguinal region and a genital exam to assess possible herniation.

This study will focus mainly on acute scrotal pain which is considered as a medical emergency. Acute scrotum is a clinical syndrome that is defined as an acute, painful swelling of the scrotum or its contents accompanied by local signs and general symptoms. The differential diagnosis includes testicular torsion, torsion of testicular appendage, epididymitis, hernia, idiopathic scrotal edema, and occasionally tumor. Of these conditions, the main aim is to diagnose testicular torsion rapidly, as any delay can lead to testicular loss. Clinical presentation, laboratory studies, and radiological imaging are the tools available to help make the diagnosis.

OBJECTIVES OF THIS STUDY

To study the epidemiology, clinical presentation, diagnostic investigations, and treatment decisions in the management of acute scrotal pain in adults.

MATERIAL AND METHODS

This is a prospective study done in SVS Medical college hospital, Mahbubnagar, India. The study period was December 2021 to January 2023.

Inclusion Criteria: All patients coming to the hospital with complaint of scrotal pain less than 1 week duration and above 18 years of age are included.

Exclusion criteria: Patients aged less than 18 years are excluded from this study. Patients with scrotal pain with more than 1 week are excluded. Scrotal pain associated with trauma and with injuries to scrotum are excluded.

With the above said criteria we studied 110 patients who attended surgery outpatient department and casualty after closure of outpatient department.

RESULTS

Age distribution and sexual relationships: 55% of the patients (61 out of 110) belong to 18-40 years age group. Out of 110 patients 92 were married. 76 admitted having sexual intercourse less than 7 days prior to development of pain in the scrotum. Out of the 76 only 9 patients admitted sexual intercourse with multiple partners. None of the patients in this study are homosexuals.

Graph 1: Age distribution

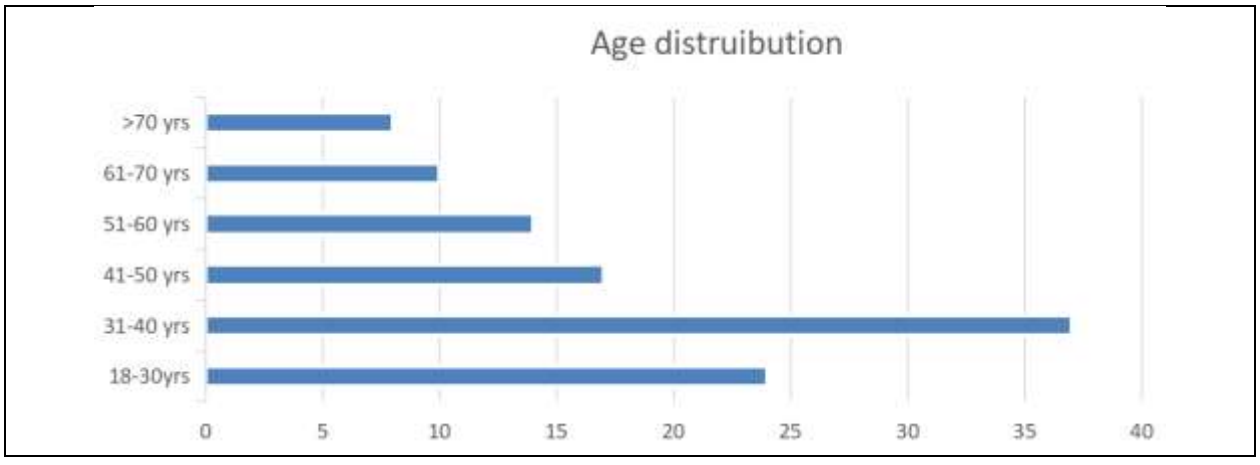

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Table 1: Clinical presentation

		Fever with chills	Vomiting's
Scrotal pain on right side	66	51	6
Scrotal pain on left side	32	22	2
Both sides	12	8	2
Total	110	81	10

In this study patients had pain more in the right side than left. 12 patients had pain on both sides. 81 patients had fever and 10 patients had history of vomiting at presentation.

After clinical examination all the patients were investigated with Complete blood picture, Ultrasound scan (including doppler scan) and urinalysis to confirm the diagnosis.

Table 2: Laboratory and Ultrasound scan details

Investigation	Number of cases
1. Leukocytosis in Blood picture	100
2. Hematuria in urinalysis	71
3. Epididymo orchitis on ultrasound	54
4. Torsion of testis on ultrasound	04
5. Testicular abscess on ultrasound	06
6. Pyoceles on ultrasound	06
7. Varicocele on ultrasound	03
8. Incarcerated/Strangulated hernia on ultrasound	05

Most of the patients with clinical diagnosis of epididymo-orchitis showed leukocytosis and hematuria. Leukocytosis is seen in other conditions also like testicular abscess, pyoceles and incarcerated/strangulated hernia. Ultrasound scan with doppler helped to diagnose and differentiate between epididymo-orchitis and torsion of testis.

Though inguinoscrotal hernia is a clinical diagnosis ultrasound scan with doppler helps in confirming the contents of hernial sac and its blood supply.

Causes of testicular pain

In this study commonest cause of acute scrotum is epididymo orchitis (53.6%).

Testicular torsion was seen in 4 cases (3.6%). 3 patients had torsion of right testicle and one had torsion of left testicle. All the patients were in 18-30 years age group.

Although Fournier's gangrene is a relatively rare disease, it is still prevalent in Indian population[1]. In this study the incidence of Fournier's gangrene is high in 30-60 yrs. age group (14 out of 19). 13 patients of Fournier's gangrene are diabetic. 1 patient is positive for HIV.

Testicular pain associated with varicocele is typically described as a dull, aching, or throbbing pain in the testicle, scrotum, or groin; rarely, it can be acute, sharp, or stabbing[2]. In this study we found varicocele in 3 patients who presented with severe pain in scrotum on the side of varicocele.

Scrotal pyoceles are purulent collections within the potential space between the visceral and parietal tunica vaginalis surrounding the testicle. The presentation of scrotal pyoceles is subacute onset of pain and swelling, which may mimic other pathology. The imaging modality of choice to diagnose a scrotal pyoceles is ultrasound. In this study 6 cases were found to be pyoceles, all were treated with orchidectomy.

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An incarcerated inguinal hernia is a hernia that becomes stuck in the groin or scrotum and cannot be massaged back into the abdomen. An incarcerated hernia can lead to a strangulated hernia, in which the blood supply to the incarcerated small intestine is compromised. Such hernias are treated as medical emergency. In this study we had 5 incarcerated inguinoscrotal hernias. All were treated surgically.

Table 3: Cause of scrotal pain

Cause	No of patients	percentage
1. Epididymo orchitis	59	53.6
2. Fournier's gangrene	19	17.2
3. Testicular torsion	4	3.6
4. Pyoceles	6	5.4
5. Incarcerated Inguinoscrotal hernia	5	4.5
6. Testicular abscess	6	5.4
7. Varicocele	3	2.7
8. No identifiable cause	8	7.3

In 8 patients out of 110, we could not find out the cause for the pain even after thorough clinical examination and investigations. The pain subsided in 24-48 hours with analgesics. 4 out of 8 were having past history of similar pain subsided with analgesics.

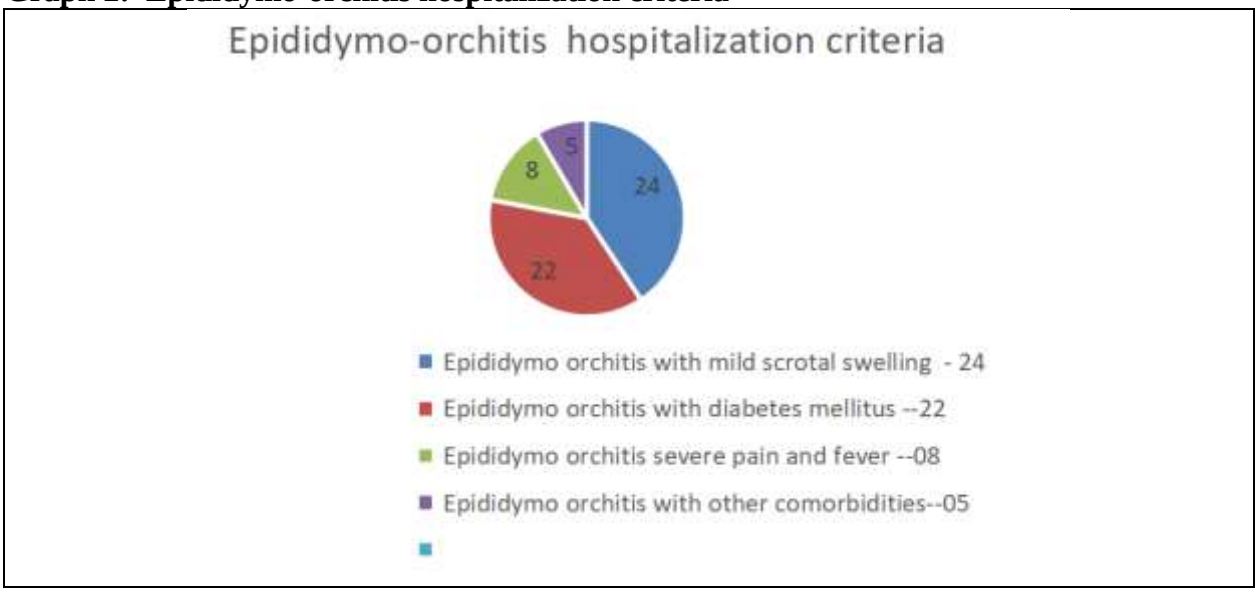
After confirming the diagnosis patients with diagnosis of Fournier's gangrene, torsion of the testis, testicular abscess, Incarcerated hernia and pyoceles were admitted in the hospital and treated surgically.

Patients with epididymo-orchitis were categorized based on severity and associated comorbid conditions.

24 out of 59 were having pain and mild scrotal swelling. These patients were treated with broad spectrum antibiotics and analgesics as outpatients.

35 patients needed hospitalization due to severe pain and swelling of scrotum and some with associated comorbid conditions like diabetes mellitus and other diseases.

Graph 2: Epididymo-orchitis hospitalization criteria



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In this study out of 110 patients 75 patients were treated as in patients and 35 were treated as outpatients. Some form of surgical intervention was done in 40 patients.

DISCUSSION

Acute scrotum pain is defined as "the constellation of new-onset pain, swelling, and/or tenderness of the intrascrotal contents."[3] A wide variety of unique disease processes may result in acute pain in the scrotum. Patients may describe the rapid onset of symptoms within minutes or may describe the development of symptoms over one or two days, depending on the etiology. Rapid evaluation and treatment are necessary due to the time dependency of certain morbid but reversible conditions, such as acute testicular torsion.

Most common cause of acute scrotal pain in adults is epididymo-orchitis. Men between 14 and 35 years of age are most often affected, and Chlamydia trachomatis and Neisseria gonorrhoeae are the most common pathogens in this age group. In other age groups, coliform bacteria are the primary pathogens. Men with epididymitis and orchitis typically present with a gradual onset of scrotal pain and symptoms of lower urinary tract infection, including fever. This presentation helps differentiate epididymitis and orchitis from testicular torsion, which is a surgical emergency[4]. A positive urinalysis and urine cultures, along with elevated white blood cell count, favor a diagnosis of epididymitis but do not exclude torsion. Color Doppler ultrasound or nuclear scintigraphy to assess blood flow to the scrotum and its contents will help to differentiate between the two entities. Doppler ultrasound would show increased blood flow because this is an inflammatory condition[5].

To treat acute epididymo-orchitis empiric antibiotic treatment should be started if the clinical suspicion is high. Once cultures and sensitivities are back from the lab, antibiotics should be adjusted accordingly[6].

Once the diagnosis of testicular torsion is confirmed, immediate surgical exploration is indicated. For reliable salvage of the testicle, surgical repair must occur within 6 hours of symptom onset. Larry Bruce Mellick et al reported survival of testis in 6-hour intervals (1,283 patients), survival at 0 to 6 hours was 97.2%; 7 to 12 hours, 79.3%; 13 to 18 hours, 61.3%; 19 to 24 hours, 42.5%; 25 to 48 hours, 24.4%; and greater than 48 hours, 7.4%[7]. If treatment is delayed, the patient may experience decreased fertility or may require orchiectomy. In this study out of 4 patients who presented with testicular torsion only one testis could be salvaged. In 3 patients testis was gangrenous by the time we explore the scrotum because of delayed presentation and diagnosis.

Pyocele of the scrotum is a purulent collection in the space between the visceral and parietal layers of tunica vaginalis surrounding the testicle. The diagnosis of a scrotal pyocele is done by ultrasound. Internal echoes within the pyocele fluid collection typically represent cellular debris. Treatment of pyocele requires broad spectrum antibiotics and surgical drainage. Many patients, however, ultimately require orchiectomy[8,9]. In this study out of 6 pyoceles, incision and drainage were done under broad spectrum antibiotic cover. Later antibiotics changed as per culture and sensitivity report.

Fournier's gangrene is a rare but life threatening disease. Although originally thought to be an idiopathic process, Fournier's gangrene has been shown to have a predilection for patients with diabetes as well as long term alcohol misuse; however, it can also affect patients with non-obvious immune compromise. Antibiotics and aggressive debridement have been broadly accepted as the standard treatment for Fournier's gangrene. In this study we treated all the

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patients with Fourniers ganngrene with aggressive debridement and antibiotics. Four out of 19 Fourniers gangrene patients died while getting the treatment because of disease severity and other comorbid conditions. Incarcerated Inguinoscrotal hernias were surgically managed after complete workup.

Testicular abscess cases were treated by appropriate antibiotics and with surgical drainage. Serial ultrasound examinations performed to ensure that the abscess does not progress. In our study 3 out of 6 doesn't show satisfactory improvement with antibiotics and surgical drainage. They were managed with orchiectomy.

Patients with no identifiable cause were treated symptomatically with analgesics.

CONCLUSION

Acute scrotal pain is one of the common presenting complaint. The aim of management of acute scrotal pain is to avoid orchiectomy. Immediate diagnosis and surgical exploration without delay maximizes chances of testicular salvage. Acute scrotal swellings are common in younger and middle age (in this study 55% are in 18-40 years age group) individuals with variable symptomatology. The commonest cause for acute scrotum in our study is epididymo-orchitis (53.6%) followed by Fournier's gangrene (17.2%). Presence of scrotal swelling with pain and fever is the most common feature (73.6%). Involvement of right side is more common than left side. Investigations like haemogram, urine analysis, blood sugar, culture and sensitivity of urine and wound swab are not conclusive. But Ultrasound scan of the scrotum is very much helpful and supportive in the diagnosis of testicular torsion, varicocele, pyocele and testicular abscess. Epididymo-orchitis is treated with proper antibiotics, analgesics, scrotal support and rest. Surgical treatment was offered to patients with testicular torsion, fourniers gangrene, pyocele and testicular abscess.

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