



STUDY OF ACUTE SCROTUM An Evaluation, Diagnosis, Intervention and management

General Surgery

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ABSTRACT

INTRODUCTION : 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 a similar way, torsion of testes being the most significant. It is a true surgical emergency because the likelihood of testicular salvage decreases as the duration of torsion increases. The other conditions that present as an acute condition include torsion of appendix of testis, epididymo-orchitis, testicular trauma, hematocele, strangulated inguinal hernia and Fournier's gangrene. A combined background information and physical findings frequently suggest correct diagnosis along with appropriate use of imaging studies. Despite of all the investigations, early scrotal exploration remains to be the main stay of diagnosis, as well as therapeutic modality.

OBJECTIVES: This study was conducted to ascertain various types of acute scrotal conditions, study the pathology, presentation, management of different conditions and to evaluate the efficacy of investigations in the management.

RESULTS: Among the 50 patients included in the study, epididymo-orchitis was found to be the commonest condition followed by Fournier's gangrene and then testicular torsion among acute scrotal conditions. Maximum incidence occurred during the third decade. Acute scrotum was found to be more common in populations involved in strenuous work and factors like trauma and urinary symptoms had a definite effect in acute scrotum. Scrotal swelling associated with pain was the commonest symptom followed by fever and burning micturition. Unilateral involvement on the right side was more common. Ultrasound of scrotum was found to be the most sensitive investigation with other investigations being supportive. None of the patients developed complications and all of them responded to treatment specific to the condition, either conservative, medical or surgical and follow up for six months was uneventful.

CONCLUSION: Acute scrotum is common in younger individuals with variable symptomatology. They need careful examination, proper evaluation and prompt treatment for testicular salvage. Conservative treatment is more effective in cases of epididymo-orchitis and idiopathic scrotal edema. Emergency surgical exploration proved to be the best in cases of torsion testis and Fournier's gangrene. Ultrasound scrotum proved to be the best investigative modality, as definite diagnosis can be reached in almost every case of acute scrotum. As acute scrotum may affect the entire life of patients in form of sterility, appropriate investigations, diagnosis and timely, if need be, aggressive treatment is needed.

KEYWORDS:

Acute scrotum, testicular pain, torsion testis, orchitis, ultrasound, epididymo orchitis

INTRODUCTION:

Acute scrotum is a true surgical emergency as the chances of testicular salvage decreases as the duration of symptoms increases. Many acute scrotal conditions present in a similar way and hence, history and physical examination significantly narrows the differential diagnosis of an acute scrotum, if not establish the exact cause.

None of the conditions responsible for acute scrotal conditions has a single pathognomic finding but the combined history, physical findings and relevant investigations suggest the correct diagnosis.

A variety of investigations have been described in the management of acute scrotum that includes simple urine examination to more sophisticated forms like ultrasound, doppler studies and radio nuclide scanning.

Scrotal ultrasound is the first and only imaging modality necessary to evaluate the scrotal elements. Doppler studies help to assess both intra testicular flow and extra testicular flow and helps to assess ischemia. Nuclear scintigraphy helps to assess the perfusion of scrotum and its contents.

Despite all the investigations, many of which are available only in a few centers in India, early scrotal exploration remains to be the main stay for diagnosis as well as a therapeutic modality.

METHODS

This is a prospective study among 50 male patients between the age group of 14 to 70 years who visited the surgical outpatient department at Rajarajeswari medical college hospital, Bangalore

either elective or as an emergency from January 2016 to December 2016 with a history of acute scrotal pain and/or swelling.

RESULTS

The study consists of analysis of 50 patients admitted with various acute scrotal conditions studied over a period of 12 months in a single center.

TABLE 1: INCIDENCE OF CASES

CONDITIONS	NUMBER OF CASES	PERCENTAGE
Epididymo orchitis	26	52%
Fournier's Gangrene	12	24%
Torsion testis	08	16%
Pyocele	02	04%
Hematocele	02	04%

In our study, acute epididymo orchitis was the commonest cause for acute scrotum followed by Fournier's gangrene and torsion testis. Out of 50 cases, 52% of cases had epididymo orchitis followed by 24% cases with Fournier's gangrene and 16% cases with torsion testis. In a large series reported by Cass et al1, 72.57% had epididymo orchitis compared to 20.67% of cases with testicular torsion. In another study conducted by N.H.Moharib et al2, torsion testis was the commonest cause for acute scrotum followed by epididymo orchitis.

TABLE 2: AGE INCIDENCE

AGE IN YEARS	NUMBER OF CASES	PERCENTAGE
11-20	04	08%
21-30	11	22%
31-40	22	44%
41-50	06	12%

51-60	05	10%
61-70	02	04%

In our study, acute scrotal conditions were the maximum in the age group of 31-40. In our study, the youngest patient was 14 years old.

TABLE 3: AGE DISTRIBUTION FOR DIFFERENT CONDITIONS

CONDITIONS	AGE GROUP IN YEARS	MEAN AGE
Epididymo orchitis	21-40	31.9
Torsion testis	11-30	17.6
Fournier's gangrene	30-60	48.28
Pyocele	40-70	63.4

In our study, maximum incidence for acute epididymo orchitis was found to be in the age group of 21-40 years with a mean age of 31.9 years.

In a study conducted by AS Cass and BP Cass¹, mean age of occurrence of Epididymo orchitis was 33.36 years.

Mean age of occurrence of Fournier's gangrene in our study was 48.28 years which correlates with the study conducted by RB Jones et al³ which was 51.3 years.

In our study, 32 patients were manual laborers by occupation while the rest 18 of them were of sedentary occupation. Acute scrotum was found to be more common in populations subjected to strenuous work and involving manual labor.

27 out of 50 cases had symptoms only on the right side of the scrotum, 13 cases on the left side and 10 of them had bilateral symptoms.

Duration of symptoms varied from few hours to 10 days. Shortest duration was 4 hours in case of torsion testis and the longest was in a case of epididymo orchitis with a duration of ten days. 13 patients presented as an emergency within 24 hours of onset of symptoms.

In a study conducted by Thorsteinn⁴, shortest duration was 3 hours and the longest was 21 days. Average duration of pain in a case of epididymo orchitis was 3.54 days, whereas it was 4 days in a study conducted by Ricardo et al⁵. In this study, average duration for torsion testis was 6.8 days and was 6.57 days in a case of Fournier's gangrene.

Average duration of symptoms from onset to presentation in our study was 2.57 days in case of torsion testis, 3.54 days in case of epididymo orchitis and 6.46 days in case of Fournier's gangrene.

In our study, there was a history of trauma in 6 cases, two of torsion testis, two of hematocele and two cases of Epididymo orchitis. However, 46% of cases were of an idiopathic cause.

In a study conducted by Ricardo et al⁵, history of similar complaints in the past was found in 6 cases of torsion testis and 2 cases of epididymo orchitis. His study showed a history of trauma in 7 cases of epididymo orchitis and 3 cases of torsion testis. Pyuria was present in 7 cases of epididymo orchitis and one case of torsion testis.

TABLE 4: DISTRIBUTION OF SYMPTOMS

SYMPTOMS	NUMBER OF CASES	PERCENTAGE
Swelling	50	100%
Pain	50	100%
Fever	24	48%
Burning micturition	15	30%
Trauma	06	12%
Pain abdomen	08	16%
Pus discharge from scrotum	05	10%

All cases had scrotal swelling associated with pain at the time of presentation. Fever was present in 50% of cases of epididymo orchitis and 71% of cases of Fournier's gangrene. Urinary symptoms like

dysuria, burning and increased frequency were found in 62.8% cases of epididymo orchitis.

All the 50 cases underwent routine blood investigations and urine analysis. There was leukocytosis in 26 cases (52%) showing an acute infection, whereas a study conducted by Gislason⁶ had leukocytosis in 44% of cases. Ultrasound scrotum was done in 42 cases. Accuracy of ultrasound was 92.58%.

TABLE 5: TREATMENT

TREATMENT GIVEN	NUMBER OF CASES
Conservative	26
Incision and drainage	02
Scrotal exploration and drainage	06
Debridement	06
Orchidopexy	05
Orchidectomy	03
Evacuation of hematocele	02

All the patients treated conservatively responded well with complete recovery. In surgically treated patients, post-operative recovery was uneventful in 18 cases with 6 cases developing wound infection as a complication. Average stay in the hospital was 8.27 days in patients with conservative management, 6.39 days in cases of torsion testis and 23.19 days in cases of Fournier's gangrene.

Average stay in the hospital was 12.42 days in patients who underwent surgical treatment.

All the patients were followed up for a period of one month to six months and none of them had any complications after discharge.

DISCUSSION

Acute scrotal conditions are a relatively common condition among males with epididymo orchitis being the commonest followed by Fournier's gangrene and torsion testis. Acute scrotum is common among younger individuals with a maximum incidence during the third decade. It is common in populations involved in strenuous work. Factors like trauma and urinary symptoms have a definite effect on the disease. Scrotal swelling associated with pain is the commonest presenting feature which may or may not be associated with fever and burning micturition.

The ability to establish a surgical versus non-surgical diagnosis for acute scrotal conditions is important. The benefits of an early surgery for testicular salvage must be balanced against the costs of operating on many patients with non-surgical conditions. Color doppler ultrasound is valuable tool for evaluating testicular perfusion. Gray scale ultrasound helps to evaluate the cystic or solid nature of scrotal mass and often the signs of an inflamed epididymis and a necrotic testicle. In the settings of torsion, a normal homogenous echo pattern indicates viable testis and a hypo echoic or non-homogenous testis is likely to be non-viable.

Ultrasound of the scrotum is highly sensitive in the diagnosis of acute scrotum with blood investigations and urine analysis being supportive.

As acute scrotal conditions present with variable symptomatology, they need careful examination, proper evaluation, relevant investigations and prompt treatment.

CONCLUSION

As acute scrotum may affect the life of patients in form of sterility, appropriate and timely intervention, at times aggressive treatment is needed. In doubtful cases or idiopathic cases, surgical exploration of the testis proves to be effective to confirm the diagnosis and to salvage the testis. Conservative treatment in the form of rest, scrotal support, antibiotics and analgesics is effective in cases of epididymo orchitis and idiopathic scrotal edema. Emergency surgical

exploration is beneficial in cases of torsion testis and Fournier's gangrene. Follow up of the patients is essential to find out the complications in form of sterility, development of fistulae and involvement of contralateral side at a later period.

Finally, patients with acute scrotal conditions who come to the emergency department need careful examination, proper evaluation and prompt treatment.

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