

Acute Scrotal Swelling: A Clinical Study

Manas Ranjan Behera

Assistant Professor, Department of General Surgery, Maharaja Krishna Chandra Gajapati Medical College & Hospital, Brahmapur, Odisha, India

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Corresponding author: Dr Manas Ranjan Behera

Conflict of interest: Nil

Abstract

Objective: Acute scrotal swelling is a group of heterogeneous disease of the scrotal organs, that have a similar clinical picture and which may require surgical treatment. The aim was to study the clinical presentation, differential diagnosis, and management of different acute scrotal conditions.

Method: Prospective study was at Maharaja Krishna Chandra Gajapati Medical College & Hospital, Brahmapur within a year, conducted 100 patients among aged between 13-70 years, presenting with acute scrotal swelling. After obtaining ethical committee approval, the study was conducted among the patients who were presented with acute scrotal swelling with informed written consent from the patient.

Results: Epididymo-orchitis was found in 48 out of 100 patients and torsion of testis (17), Epididymo-orchitis was found to be common clinical condition followed by torsion of testis which occurs in younger individual. Scrotal swelling associated with pain was the most common presenting feature, where fever and urinary symptoms being most common feature in epididymo-orchitis. Haemogram, urine analysis were not conclusive but supportive to clinical diagnosis. Ultrasound of scrotum was 92.58% sensitive and 100% specific. The period of hospitalisation was found to be more in Fournier's gangrene (mean 25 days.) rather than epididymo-orchitis.

Conclusion: In our study shows acute epididymo-orchitis found to be commonest condition followed by torsion of testis. Testicular torsion is a true surgical emergency which required careful examination, proper evaluation and prompt treatment with early surgical management.

Keywords: Acute Scrotum, Torsion of Testis, Epididymo-Orchitis, Fournier's Gangrene.

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Introduction

Acute scrotal swelling is an acute painful swelling of the scrotum, which is the most common cause of admission to the emergency department. Testicular torsion and infection are most common cause of acute scrotal swelling. Infection is more common in adults while testicular torsion is more common in younger individual. The syndrome of edematous scrotum means acute diseases accompanied by edema, hyperemia and pain in the area. The non-infectious disease of acute scrotal condition

like testicular torsion and traumatic injuries and infectious lesion includes epididymitis, orchitis, epididymo-orchitis, scrotal wall abscess and Fournier's gangrene. Differential diagnosis is necessary for choosing the right treatment tactics and maintaining the patients fertility in future.

Testicular torsion occur when a testicle rotates, twisting the spermatic cord that brings blood to the scrotum. Sudden onset of pain and swelling occurs after decrease

in the blood flow of scrotal organ. Testicular torsion usually requires surgical exploration. Testicular torsion is divided into two types, intravaginal and extravaginal torsion. When the testis twists within the tunica vagina is called intravaginal testicular torsion whereas extravaginal testicular torsion occurs in the perinatal period before fixation of the tunica vaginalis with in the scrotum. In our study the most common presentation of testicular torsion occurs between 13 and 25 years of age

The complete viability of testis can be achieved if we release the torsion within the occurrence of 4 hrs. Up to 16 hours, 89% of testes can be salvaged but this decreases to 25% after 16 hours, however that surgery should always be an emergency procedure to confirm viability of testes. Acute epididymo-orchitis is an inflammation of the epididymis and testis. Its usually due to infection, most commonly from the urinary tract and sexually transmitted infection. Fourniers gangrene; fourniers gangrene is a necrotizing infection of soft tissue which involve in deep and superficial fascia of the male genitalia.

The aim was to study the clinical presentation, differential diagnosis, and management of different acute scrotal conditions.

Methods

Study Design: A prospective study was conducted at Maharaja Krishna Chandra Gajapati Medical College & Hospital, Brahmapur within a year.

Methodology: Clinical features, symptomatology, investigations, operative findings, post-operative complications, were entered in the proforma and analysed. Histopathological examination was

performed in two cases, one for torsion of testis and other for haematocele. A total of 100 patients were studied.

Sample Size: 100 patients aged between 13-70 years. Presenting with acute scrotal swelling.

Inclusion criteria: Age >13 years <70 years patient who gave consent, patients with comorbid condition like diabetes mellitus. All patients visiting in general surgery OPD with acute scrotal swelling.

Exclusion criteria: Children <13 years, >70 years patient with chronic scrotal disease

Results & Discussion

Incidence of various types of lesions: The incidence of various conditions which led to acute scrotum were found as follows:

In our study acute epididymal-orchitis (48%, n=48) was the commonest cause of acute scrotal pathology followed by torsion of testis (17%, n=17). Incidence of orchitis 10% (n=10), epididymitis 6%(n=6), pyocele were 7% (n=7), 4% (n=4), 2% (n=2), 1% (n=1) respectively. 3 cases of fourniers gangrene (3%) were also found. Abul F, Al-Sayer H, Arun N in a review of 40 acute patients hospitalized for acute scrotum showed that the most common etiology of acute scrotal edema was epididymitis (60%). This was followed by testicular torsion, torsion of the appendages and acute idiopathic scrotal edema in 27.5%, 10%, and 2.5%, respectively. In comparison with the above study where the most common cause of acute scrotal swelling was epididymitis; in our study it was found to be acute epididymo-orchitis (48%) followed by torsion of testis (17%), orchitis (10%), epididymitis (6%), pyocele (7%), fourniers gangrene (3%), haematocele (2%) and scrotal wall abscess (4%) [Table 1].

Table 1: Incidence of lesions

S. No.	Lesion	No. of patients	Percentage
1.	Epididymo-orchitis	48	48%
2.	Torsion of testis	17	17%
3.	Orchitis	10	10%
4.	Epididymitis	6	6%
5.	Pyocele	7	7%
6.	Scrotal wall abscess	4	4%
7.	Fourniers gangrene	3	3%
8.	Idiopathic scrotal edema	2	2%
9.	Haematocele	2	2%
10.	Testicular abscess	1	1%
	Total	100	100%

2. Incidence of Age:

The overall age incidence is shown in table. The maximum incidence occurred between the age group of 51-60 years. Teoman Eskitaşcioğlu et al [2014] stated that the age of the patients ranged from 19 to 82 years, and the mean age of 53.5 ± 13.6 years in their study with the highest incidence of FG observed in the age group of 50-60 years ($n=25$, 31.25). Ruiz-Tovar J et al [2013] reported a mean age of 57.9 ± 13.5 years in the study of seventy patients. In our study the age incidence for acute epididymo-orchitis was highest in between 51 to 60 year of age where torsion of testis was 13-20, mean being 58.07 yrs for acute epididymo-orchitis and 16.125 yrs for torsion of testis. In comparison with other studies, our study showed early age of presentation for torsion of testis & advanced age for acute epididymo-orchitis.

Acute scrotal swellings were found to be more common in people who were subjected to strenuous work, involving manual labourers like farmers & labourers. In a series of 68 cases, 68% of cases were manual labourers. Only 32% cases were sedentary workers such as students, clerks etc.

Duration of Symptoms:

Duration of symptoms varied from few hours to as long as 15 days. The shortest duration of symptoms in this study was 12 hours & longest duration was two weeks. The average duration of pain from onset till presentation in case of epididymo-orchitis was 5 days, whereas it was 4 days in a study conducted by Ricardo et al. The average duration of symptoms from onset till presentation in case of torsion of testis was 24 hrs in our study [Table 2].

Table 2: Duration of symptoms

Duration	No. of patients	Percentage
0-24 hr.	28	28%
1-7 days	54	54%
8-15 days	18	18%
16-30 days	-	-
30 days	-	-
Total	100	100%

5. Predisposing factors

In a study conducted by Ricardo C. Del Villar of 45 cases, history of similar complaints in the past was found in 2 cases

of epididymitis & in 6 cases of torsion testis. Also there was history of trauma in 7 cases of epididymitis & in 3 cases of torsion testis. In this study, apart from the idiopathic cause which compromised

37.5% of the cases, the next most common cause was trauma in 7 cases (21.8%). Dysuria was present in 7 cases of epididymitis and in 1 case of torsion. Studies conducted by Arshad Mehmood Malik et al [2010] and B. Fall et al [2009] stated idiopathic cause in 32.8% and 25.5% cases respectively. In our study, there was history of trauma in 10 cases of torsion of testis and in two case of haematocele. There was history of urinary symptoms in 32 cases of epididymo-orchitis & in 3 case of epididymitis. Like other studies, majority of cases were idiopathic in origin (42%, n=21). In our study the most important predisposing factors is UTI (32%, n=32) and trauma (12%, n=12).

6. Presentation of cases

All cases had swelling of scrotum, associated with pain at the time of presentation. 46% patients had history of fever while 35% patients had history of burning micturation. four patient had difficulty in passing urine, 12 patients had history of scrotal pain associated with pain in the abdomen.

7. Distribution of symptoms

In this study of 100 cases, it was observed that acute scrotal swelling was common on right side occurring for 58% case as compared to left side (30%) Bilateral swelling were found in 12% of cases [Table 3].

Table 3: Distribution of symptoms

Side	No of cases	Percentage
Right	58	58%
Left	30	30%
Bilateral	12	12%
Total	100	100%

8. Investigations

For all 100 cases, routine investigations like haemogram and urine analysis were done. Blood urea & Blood sugar levels were done in 58 cases. Special investigations like USG of scrotum was done in 100 cases. The urine examination showed traces of albumin in 22 cases and sugar in 18 cases. Microscopic examination showed significant pus cells in 30 cases. There was increase in total leucocyte count in 38 cases, showing acute infection. Thorsteinn Gislason showed that leucocytosis was present in 44% cases where as in our study it was 54.55%. There was increase in blood urea level in 2 cases of founiers gangrene and 20 cases of epididymoorchitis was increased blood sugar level. Investigations For all 100 cases, routine investigations like haemogram and urine analysis were done. Blood urea & Blood sugar levels were done in 58 cases. Special investigations like USG of scrotum was done in 100 cases. The urine examination showed traces of albumin in

22 cases and sugar in 18 cases. Microscopic examination showed significant pus cells in 30 cases. There was increase in total leucocyte count in 38 cases, showing acute infection. Thorsteinn Gislason showed that leucocytosis was present in 44% cases where as in our study it was 54.55%. There was increase in blood urea level in 2 cases of founiers gangrene and 20 cases of epididymoorchitis was increased blood sugar level.

The primary objective of management of acute scrotum is to avoid testicular loss. Acute scrotal swellings are common in younger & middle age individuals with variable symptomatology. These cases need careful examination, proper evaluation and prompt treatment. The likelihood of testicular salvage in torsion depends on the interval between onset of pain and surgical intervention. The commonest cause for acute scrotum is epididymoorchitis followed by torsion of testis. Routine investigation like urine analysis, haemogram, blood sugar, urine C/S,

Wound swab C/S and special investigations like USG scrotum are not always very much conclusive to the final diagnosis but are supportive to clinical diagnosis. Conservative treatment with rest, scrotal support, antibiotics and analgesics are effective in case of epididymo-orchitis. Emergency surgical exploration proved to be the best in case of Torsion testis, Fournier's gangrene, pyocele & haematocele.

On ultrasonography, in case of acute epididymo-orchitis, testis was diffusely hypoechoic and swollen. The epididymis was hyperechoic and swollen. In case of torsion of testis Testicular blood flow is visualized on the normal side but is absent on the affected side and the spermatic cord. In case of testicular abscess, there was hypoechoic shadow in the testis showing collection of fluid. In case of pyocele, the echogenicity around the testis was not uniform showing purulent collection with thickened scrotal sac. A similar picture was found in haematocele. Hence it is difficult to differentiate haematocele from pyocele, ultrasonologically. In case of scrotal wall edema USG revealed a thickened scrotal wall.

9. Treatment

Conservative Treatment

In this series of 100 cases, 64 cases (64%) were managed conservatively. 48 cases of epididymo-orchitis, ten cases of orchitis, six cases of epididymitis and two cases of scrotal edema were treated conservatively with rest, scrotal support, antibiotics and analgesics. Conservative treatment was given for 7 days to 21 days.

Surgical Treatment

Scrotal exploration with drainage of testicular abscess was done in 1 case. Incision and drainage of scrotal abscess was carried out in all cases. Out of 3 cases of Fournier's gangrene, only debridement was carried out in 2 patients. Multiple debridement followed by secondary suturing in 8 cases and skin grafting in 4

cases was carried out. Scrotal exploration with evacuation of haematoma and repair of ruptured testis was carried out in 2 patients. Out of 17 cases of torsion testis, affected side orchidectomy and opposite side orchidopexy was carried out in 14 patients, remaining 3 cases were treated with detorsion of testis.

Results of Treatment

Patients treated conservatively responded well with complete recovery. In surgically treated patients, post-operative recovery was uneventful in 41 cases with 5 cases developing wound infection as a complication. 2 patients of Fournier's gangrene expired on the same day of operation due to increased renal parameters and septicaemia. The average hospital stay in patients with conservative treatment was 7.24 days. Patients with Fournier's gangrene, the average hospital stay was 25.29 days. In other cases treated surgically, the average hospital stay was 10.42 days. Follow up : All patients were followed up for period of one month to three months.

Conclusion

The primary objective of management of acute scrotum is to avoid testicular loss. Acute scrotal swellings are common in younger & middle age individuals with variable symptomatology. These cases need careful examination, proper evaluation and prompt treatment. The likelihood of testicular salvage in torsion depends on the interval between onset of pain and surgical intervention. The commonest cause for acute scrotum is epididymo-orchitis followed by torsion of testis. Routine investigation like urine analysis, haemogram, blood sugar, urine C/S, Wound swab C/S and special investigations like USG scrotum are not always very much conclusive to the final diagnosis but are supportive to clinical diagnosis. Conservative treatment with rest, scrotal support, antibiotics and analgesics are effective in case of epididymo-orchitis. Emergency surgical exploration proved to

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