

Clinical Study on Acute Inflammatory Inguinoscrotal Lesions

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Abstract

Introduction: Acute inguinoscrotal swellings are the most common swellings affecting both children and adults. Although these swellings are frequently encountered, many times correct diagnosis is not made and testes have been sacrificed. A wide variety of acute inflammatory conditions affects inguinoscrotal region and testes such as inguinal abscess, funiculitis, inguinal lymphadenitis, primary infections of scrotum, and/or secondary infection of testes such as epididymo-orchitis and scrotal abscess, pyocele, and Fournier's gangrene. Knowledge of the risk factors, prevention, and early detection with prompt treatment of inguinoscrotal lesions, which leads to reduction in morbidity and mortality associated with these lesions.

Materials and Methods: In this prospective study carried out in 195 patients in the Department of Surgery, Shyam Shah Medical College and associated Gandhi Memorial and Sanjay Gandhi Memorial Hospitals, Rewa, Madhya Pradesh, during the period of 1 June 2017 to 31 May 2018. All male patients with complaints of acute painful inguinoscrotal swelling and ulcer with a history of <2 weeks were included in the study. Presenting complaints and detailed history were recorded in a predesigned pro forma. Thorough general examination and local examination were done. Patients were investigated and final diagnosis was established. Then, treatment was initiated according to diagnosis.

Results: Acute epididymo-orchitis (42.6%) was the most common cause for acute inguinoscrotal pathology followed by Fournier's gangrene (19.5%) and scrotal abscess (17.9%). Majority patients belong to the age group of 31–40 years, 22.6% and in the age group of 41–50 years, 20.5%. The most common predisposing factor was lower urinary tract syndrome present in 47.1% followed by poor personal hygiene (43.07%). Conservative treatment was given in 80 patients. All, except eight cases of epididymo-orchitis (83), two cases of scrotal cellulitis and four cases of inguinal lymphadenitis were treated conservatively. All 38 cases of Fournier's gangrene and one case of scrotal cellulitis were treated by debridement and daily dressings. Incision and drainage of pyocele was carried out in five patients. Scrotal exploration with drainage of testicular abscess was done in three cases. Orchidectomy was required in two cases of testicular abscess.

Conclusion: Acute inguinoscrotal lesions are common in younger and middle age individuals with variable symptomatology. Such conditions presenting to emergency department need careful examination, proper evaluation, and prompt treatment. Conservative treatment with rest, scrotal support, antibiotics, and analgesics is effective in case of epididymo-orchitis. Emergency surgical exploration proved to be the best in case of scrotal abscess, Fournier's gangrene, pyocele, and hematocele. Various predisposing factors can be minimized by proper health education and developing good primary health-care system.

Key words: Acute inguinoscrotal lesions, Epididymo-orchitis, Fournier's gangrene

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INTRODUCTION

The inguinoscrotal region is an important anatomical region of body as it contains inguinal canal which poses spermatic cord and nerve and vessels. Scrotum along with the indwelling testes is not only male reproductive organs but also has been considered as "Tool of Manhood" since man

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learned the very differentiation between male and female.^[1] Rightly the precise diagnosis and treatment of various scrotal and testicular pathologies with available recent technological means is very important for both physical and psychological health of the men. A wide variety of acute inflammatory conditions affects inguinoscrotal region such as inguinal abscess, funiculitis, inguinal lymphadenitis, primary infections of scrotum, and secondary infection of testes such as epididymo-orchitis and scrotal abscess, pyocele, and Fournier's gangrene. Filariasis scrotum and epididymo-orchitis are highly prevalent in this region. Fournier's gangrene is an aggressive necrotizing cellulitis of scrotal region often presented with shock. Early diagnosis and resuscitation with extensive debridement and antibiotic coverage reduces mortality significantly. Due to poverty, illiteracy, and social stigma patient and their relatives are relying on treated by indigenous methods without examination of patient, which prevent the patient from reporting early in the course of their disease which further worsen the situation because patient presents with advanced disease and complications. Thorough clinical examination and early intervention plays important role in the management of inguinoscrotal lesion. Proper education, hygiene, early diagnosis, and management will help in reducing complication and psychosocial burden of the disease. The benefit of the study will be that it will help in knowing the risk, prevention, and early detection with prompt treatment of inguinoscrotal lesions, which leads to reduction in morbidity and mortality associated with these lesions.

MATERIALS AND METHODS

A prospective study carried out in 195 patients in the Department of Surgery, Shyam Shah Medical College and associated Gandhi Memorial and Sanjay Gandhi Memorial Hospitals, Rewa, Madhya Pradesh, during the period of June 1, 2017–May 2018. All male patients with complaints of acute painful inguinoscrotal swelling and ulcer with a history of <2 weeks were included in the study.

Patients with painless inguinoscrotal swelling due to inguinal hernia, hydrocele, testicular tumors, torsion testis, and history of >2 weeks and female patients were excluded from the study. Presenting complaints and detailed history were recorded in a predesigned pro forma. Thorough general examination and local examination were done. Patients were investigated and final diagnosis was established. Then, treatment was initiated according to diagnosis.

Conservative treatment includes rest, scrotal support, appropriate antibiotic, analgesic, and antifilarial treatment for 7–21 days. Patient with septicemic shock treated

with intravenous (IV) fluid resuscitation, IV antibiotics, symptomatic, and supportive treatment. Patient with uncontrolled diabetes treated with insulin/hypoglycemic drugs. Patients requiring surgical intervention were operated under anesthesia. Surgical intervention includes incision and drainage of abscess with antibiotic coverage and incision drainage with aggressive debridement with antibiotic coverage.

Pus culture of aspirated contents was sent, antibiotic sensitivity will be advised and treatment reviewed accordingly. Post-operative treatment was continued.

Patients were examined daily for clinical improvement. Recovery was defined as clinical improvement in signs and symptoms, decrease in WBC count and follow-up ultrasonography if required.

Patients were discharged and mean hospital stay was recorded. All information was recorded in predesigned pro forma as per plan. Patients were followed up in surgical outpatient department.

RESULTS

In our study of 195 cases, the following results were obtained.

Type of Lesions

Acute epididymo-orchitis (42.6%) was the most common cause for acute inguinoscrotal pathology followed by

Table 1: Distribution of cases according to the type of lesions

| Diagnosis | Number of cases (%) |
|-------------------------|---------------------|
| Epididymo-orchitis | 83 (42.6) |
| Fournier's gangrene | 38 (19.5) |
| Scrotal abscess | 35 (17.9) |
| Inguinal abscess | 24 (12.3) |
| Pyocele | 5 (2.6) |
| Inguinal lymphadenitis | 4 (2.1) |
| Testicular abscess | 3 (1.5) |
| Scrotal wall cellulitis | 3 (1.5) |
| Total | 195 (100) |

Table 2: Distribution of cases according to age

| Age (in years) | Number of cases (%) |
|----------------|---------------------|
| 0–10 | 8 (4.1) |
| 11–20 | 21 (10.8) |
| 21–30 | 2 (14.9) |
| 31–40 | 44 (22.6) |
| 41–50 | 40 (20.5) |
| 51–60 | 26 (13.3) |
| 61–70 | 18 (9.2) |
| >70 | 9 (4.6) |
| Total | 195 (100.0) |

Fournier’s gangrene (19.5%) and scrotal abscess (17.9%) [Table 1].

Distribution of Cases According to Age

Majority of the patients were in the age group of 31–40 years, 44 cases (22.6%). The youngest patient was of 9 months old with the right inguinal abscess and oldest patient was of 83 years old with Fournier’s gangrene [Table 2].

Distribution of Cases According to Occupation

Majority of patients were laborer accounting for 35.8% (70 cases) of the total cases and next common group was of farmer 28.8% (56 cases).

Distribution of Cases According to Residence

Majority of the patients belongs to rural area comprising 66.2% of total case and 33.8% of patients belongs to urban area.

Distribution of Cases According to Presenting Symptoms

All patients presented with symptom of scrotal swelling and pain. Burning micturition and difficulty in passing urine accounted for 25.1% and 11.7%, respectively [Table 3].

Distribution According to Various Predisposing Factors (n = 195)

Majority of patients have lower urinary tract syndrome in 92 cases (47.1%) and the second common predisposing factor was poor personal hygiene in 84 cases (43.07%). 54 cases had a history of comorbidities, of which 41 cases had diabetes mellitus and four had AIDS and three patients had pulmonary tuberculosis [Table 4].

Investigations

Eighty-two cases (46.07%) were found anemic, majority of patients had their leukocyte count lying in the range of >11,500 (48.87%). The most common organism cultured was *Escherichia coli* (27.61%) followed by *Staphylococcus aureus* (20.95%). Polymicrobial was caused by *Proteus*, *Pseudomonas*, *Klebsiella*, *E. coli*, *S. aureus*, and *Streptococcus* found in 12.39% cultures.

Distribution According to Treatment

Eighty cases were managed conservatively. All, except eight cases of epididymo-orchitis (83), two cases of scrotal cellulitis and four cases of inguinal lymphadenitis were treated conservatively with rest, scrotal support, antibiotics, and analgesics. Conservative treatment was given for 7–21 days.

All 38 cases of Fournier’s gangrene were treated by extensive debridement and daily dressings. Similarly, one patient of scrotal cellulitis was treated by debridement and dressing. Incision and drainage of pyocele was carried

Table 3: Distribution of cases according to presenting symptoms

| Presenting complaints | Number of cases (%) |
|-----------------------------|---------------------|
| Inguinoscrotal swelling | 195 (100) |
| Pain | 195 (100) |
| Burning micturition | 49 (25.1) |
| Fever | 48 (24.6) |
| Ulcer | 23 (11.8) |
| Difficulty in passing urine | 23 (11.7) |
| Discharge | 19 (9.75) |

Table 4: Distribution of predisposing Factors (n=195)

| Predisposing factors | Number of cases (%) |
|---|---------------------|
| LUTS | 92 (47.1) |
| Poor personal hygiene | 84 (43.07) |
| Comorbidities (DM, immunosuppression, and TB) | 54 (27.6) |
| Skin lesions | 46 (23.5) |
| Similar complaints in the past | 28 (14.3) |
| Perianal/perirectal infections | 20 (10.25) |
| Exposure to STD | 18 (9.2) |
| Trauma | 15 (7.6) |
| Instrumentations | 13 (6.6) |
| H/O recent catheterization | 4 (2.05) |
| Congenital abnormality | 1 (0.5) |

LUTS: Lower urinary tract syndrome, DM: Diabetes mellitus, TB: Tuberculosis, STD: Sexually transmitted diseases

Table 5: Distribution according to treatment

| Treatment | Number (%) |
|---|------------|
| Conservative | 80 (44.1) |
| Incision and drainage | 68 (32.8) |
| Debridement | 40 (20.5) |
| Scrotal exploration with drainage of testicular abscess | 3 (1.6) |
| Orchidectomy | 4 (1) |

out in all cases (5). Scrotal exploration with drainage of testicular abscess was done in three cases. Orchidectomy was required in two cases of testicular abscess [Table 5].

DISCUSSION

Evaluation of patients of inguinoscrotal lesions is not only important but also difficult task due to being male genital organs and often associated with feeling of shame and secrecy. Patients not only require proper diagnostic and therapeutic facilities but also proper psychological support. Making the people aware of the predisposing factors and problems of their reproductive organs is an important part in prevention and management of these lesions.

Ingale et al.^[2] stated that incidence for acute epididymo-orchitis and Fournier’s gangrene was maximum in 30–50 years. In our study, majority of the patients were in the adult age group of 31–40 years (22.6%) and in the age

group of 41–50 years (20.5%), respectively, followed by younger age group of 21–30 years which was accounted for 29 cases (14.9%). Mean age for acute epididymorchitis was 35.8 years and for Fournier's gangrene and scrotal abscess were 49.7 years and 41.6 years, respectively.

Paul *et al.*^[3] stated that the most common cause of acute scrotal swelling was acute epididymo-orchitis (30%) followed by Fournier's gangrene (24%). In a case study by Abul *et al.*^[4] of 40 patients, the most common lesion was epididymitis (60%). In our study, acute epididymo-orchitis (42.6%) was the most common cause for acute inguinoscrotal pathology followed by Fournier's gangrene (19.5%) and scrotal abscess (17.9%).

In Sharma^[5] [2003] study, majority of patients were of farmers (32.9%) and next common group were of laborers (30.9%). Malakarjun^[6] (2005) series of 30 cases stated that 63.33% of cases were manual laborers and only 37.67% were sedentary workers. In our study, majority of patients were laborers accounting for 35.8% (70 cases) of the total cases and next common group was of farmer 28.8% (56 cases).

In a study was conducted by Ghanghoria,^[1] the incidence of scrotal lesion was more in rural population (68.4%) as compared to urban (31.6%). Another study was conducted by Sharma^[5], incidence was found to be in rural population (64.5%) and urban population (35.4%). In our study, the majority of the patients belong to rural area comprising 66.2% of total case and 33.8% of patients belongs to urban area.

In a study conducted by DelVillar *et al.*^[7] of 45 cases, a history of similar complaints in the past was found in two cases of epididymitis. Furthermore, there was a history of trauma in seven cases of epididymitis. Dysuria was present in seven cases of epididymitis. In Hazarika *et al.*^[8] study of 90 cases, there was a history of urinary symptoms in 22 cases of epididymo-orchitis, two cases epididymitis, and one case of pyocele. There was a history of similar complaints in the past in six cases with epididymo-orchitis. In our study, the most common predisposing factor was a history of urinary symptoms present in 92 cases, followed by poor personal hygiene present in 84 cases. There was a history of similar complaints in the past in 28 cases. 40 cases had a history of comorbidities. There was a history of trauma in 15 cases.

Paul *et al.*^[3] study found that all cases had swelling of scrotum, associated with pain, 60% fever, 18% burning micturation, 14% of patients had a history of trauma, and 2% had difficulty in micturation. Malakarjun^[6] stated that all cases had swelling of scrotum, associated with pain at the time of presentation, 73.33% had a history of fever

while 16.67% had a history of burning micturation. In our study, all the cases present with swelling and pain at inguinoscrotal region. Burning micturation and difficulty in passing urine accounted for 25.1% and 11.7%, respectively. Fever, discharge, and ulcer were accounted for 24.6%, 9.75%, and 11.8%, respectively, as presenting symptoms.

Gislason *et al.*^[9] showed that leukocytosis was present in 44% of cases. Hazarika *et al.*^[8] study, increase in total leukocyte count in 54 (60%) cases was found, out of 90 cases. Khandelwal *et al.*^[10] reported polymicrobial infection experienced in 44.4% of patients, 20.4% had *Pseudomonas aeruginosa*, 12.9% suffered *Klebsiella* species, 9.3% had *Proteus mirabilis*, and 12.9% of cases had contaminants in the cultures. Ingale *et al.*^[2] study, wound swab culture was reported monomicrobial in 68% and polymicrobial growth in 28%. In our study, the most common organism cultured was *E. coli* (27.61%), followed by *Staphylococcus aureus* (20.95%), *Klebsiella aeruginosa*, *P. aeruginosa*, and *Streptococcus* were found in 13.33%, 10.48%, and 3.80% culture, respectively. The least common organism was *Proteus* (1.91%) cultures.

Eskitaşcioğlu *et al.*^[11] reported the average debridement in their study to be 1.55 ± 1.15 with a range of 1–8 debridements. Serial debridement was done in 30% patients. In our study, all, except eight cases of epididymo-orchitis (83), two cases of scrotal cellulitis and four cases of inguinal lymphadenitis were treated conservatively with rest, scrotal support, antibiotics, and analgesics. Conservative treatment was given for 7–21 days. All cases of Fournier's gangrene and one patient of scrotal cellulitis were treated by debridement and dressing. Incision and drainage was done in all cases of pyocele and three cases of testicular abscess. Orchidectomy was done in two cases of testicular abscess.

CONCLUSION

The primary objective of the management of acute scrotal pathologies is to avoid testicular loss. Acute inguinoscrotal lesions are common in younger and middle age individuals with variable symptomatology. Such conditions presenting to the emergency department need careful examination, proper evaluation, and prompt treatment. Since the scrotal disease may represent inherent disease of testis, epididymis, and other intrascrotal structure which may affect the entire life of the patient in the form of sterility, so they need aggressive treatment. The most common cause for acute inguinoscrotal lesion is epididymo-orchitis followed by Fournier's gangrene. Routine investigation such as urine analysis, hemogram, blood sugar, urine culture/sensitivity (C/S), and wound swab C/S and

special investigations like USG 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 is effective in case of epididymo-orchitis. Emergency surgical exploration proved to be the best in case of scrotal abscess, Fournier's gangrene, pyocele, and hematocele. Various predisposing factors can be minimized by proper health education and developing good primary health-care system.

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