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Spectrum of scrotal diseases & its management in rural medical college

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Abstract---Scrotal complaints are common surgical problems encountered in men for whom patients report in the surgical outpatient department as well as in the emergency department. Due to the long-time gap, they are diagnosed at an advanced stage with high morbidity and mortality. So a present study was conducted to know the correct incidence of pathologies affecting the scrotum in this western part of India; their mode of presentation; diagnosis; management done for these conditions.All patients aged 18 years or older, who were diagnosed with acute scrotum in Dhiraj Hospital, from March 2021 to September 2022, were assessed.50 patients were assessed. Out of total, 30% patients were diagnosed with Testicular torsion followed by 24% who had Acute Epididymo- orchitis. Only 4% were affected by acute scrotum due to trauma.Conservative management with antibiotics, analgesics, scrotal support and rest is most effective in case of epididymo-orchitis. Emergency exploration of the scrotum proved to be the best care in case of pyocele, Haematocele, torsion testis, testicular abscess and Fournier's gangrene. It doesn't involve major expenses with negligible surgical mortality, also shown to be the best as confirmed diagnosis can be reached with almost all cases with exploration.

Keywords---Hydrocele,Epididymo Orchitis,Torsion Of Testis,Scrotal Disease

Introduction

Scrotal complaints are common surgical problems encountered in men. Scrotum is present at a place which is easily accessible for self - examination and assessment, yet due to several factors patients suffer for a long time before presenting to a surgeon. These factors are- poverty, lack of awareness, hesitation and taboo. Due to the long-time gap, they are diagnosed at an advanced stage with high morbidity and mortality.

Acute scrotum (AS) is a medical and surgical emergency that demonstrates itself in an assembly of clinical symptoms, together with new-onset acute pain, swelling, and tenderness of the scrotum . While the contributing etiologies of AS are comprehensive and assorted, possible causes include testicular torsion (TT), epididymo-orchitis (EO), torsion of the appendix testis (TAT), infected hydroceles, and strangulated inguinal hernias . The incidence and frequency of the aforementioned etiologies diverge depending on the age group.

The spectrum of cystic scrotal swellings involves of hydrocele (most common), epididymal cysts, spermatocele, haematocele, pyocele, chylocele, parasitic cyst and sebaceous cysts. Chronic testicular pain has plentiful etiologies, including infection, tumour, hernia, torsion, hydrocele, spermatocele, varicocele, referred pain, trauma and a prior operation.

TT comprises a surgical emergency, accounting for nearly 10% to 15% of all the acute scrotal disease cases. Due to critical and bargained tissue perfusion observed in TT, there is a gap of four to eight hours before significant ischemic damage ensues, hence a prompt management of TT obtained within the first six hours of the onset of symptoms, testicular salvage rates over around 90% to 100%. It is, therefore, critical to promptly diagnose and differentiate TT from other causes of acute scrotal pain. Negligent management of acute scrotal pain can terminate in adverse disease outcomes, even demanding an orchiectomy.

A broad approach, with an inclusive history, physical examination, and meticulous radiological workup, is vital in aiding the diagnosis of TT.

The classic presentation of TT is a sudden onset of unilateral testicular pain associated with a history of symptoms such as fever, urinary symptoms, and abdominal pain,trauma and a prior history of cryptorchidism,ipsilateral scrotal skin induration, erythema, or warmth in addition to a high- riding testicle.

The definite treatment for TT draws upon surgical exploration and is often followed by orchiopexy to avoid recurrent torsion.

Methodology

Study Design: Cross sectional study. Study Duration: Two year (MARCH 2021-NOVEMBER 2022)

Study Place: Department of General Surgery of Dhiraj General Hospital, Vadodara.

Study Population: All Patients of Acute Scrotal diseases admitted in ward of General Surgery of Dhiraj General Hospital, Vadodara.

Sample Size: 50 cases

Sampling Method: Purposive Sampling Inclusion Criteria:

1. All the patients coming to the outpatient department or in the emergency department of S.B.K.S.M.I.R.&C. Dhiraj General Hospital; Piparia Vadodara.

2. Patients willing to give informed consent for study.

3. Patients of all age groups were included.

4. Swellings arising from skin were also included.

Exclusion Criteria:

1. Patient not willing to give informed consent for study.

2. Patients having inguinal scrotal swellings.

3. Systemic diseases involving scrotum.

All OPD/IPD patients according to inclusion criteria underwent Scrotal Examination at OPD/ward/OT of Dhiraj Hospital after taking informed and written consent. A detailed history and thorough clinical examination was done with investigations like CBC, RFT, CRP, HIV, HCV, HbsAg, LFT, PT/INR and USG Inguinoscrotal. Operations were performed by experienced surgeons. All surgeons performed the same surgical protocol.If Biopsy was done, then it was collected and noted.

Outcome was analysed on the basis of how well the patient has recovered from scrotal diseases by conservative or operative management.

Statistical Method

Sample of patients will include those with Upper GI symptoms and those who attend the General Surgery OPD/IPD at Dhiraj General Hospital. The study will be prospective and observational with analysis being used extensively to formulate a conclusion. The data will be primarily gathered in the form of the Proforma for patients. It will then be sorted out into charts and tables and then extrapolated to arrive at a conclusion. The conclusion will then be compared with other studies based on UGI scopy with UGI symptoms. Sample size of this study has been decided on the basis of the Purposive Sampling method in which 100 cases can be taken for study.

Results

In the present study 50 patients who presented at the general surgery department and emergency department were enrolled.

1. **Age Distribution** : In the study, the majority 19(38%) participants belonged to the 21-30 years age group followed by 31-40 years of age group. Least number of participants were less than 20 years of age. Mean age of study participants was 34.24 +/- 11.8 years.

AGE GROUP	FREQUENCY(%)
<20 YEARS	. 4(8)
21-30 YEARS	. 19(38)
31-40 YEARS	. 13(26)
41-50 YEARS	. 8(16)
>50 YEARS	. 6(12)

2. **Residential Distribution**: Among the total, 60% patients were from Rural area and 40% were from Urban area of residence in the study

3. **Duration Gap Between Admission and Discharge of Patients:**

   Most of the study participants 38% had less than 5 days of duration between admission and discharge, while only 10% of patients had long stay more than 10 days in hospitals due to complications. Mean duration gap between admission and discharge of study participants was 5.9 +/- 3.3 days.

DURATION GAP (DAYS)	FREQUENCY
<5 DAYS	19(38%)
5-7 DAYS	14(28%)
8-10 DAYS	12(24%)
>10 DAYS	5 (10%)

4. **Complaints of Patients:**In the study, out of total, in 5 cases had complained of Heaviness, 18 patients had fever and 8 patients had felt scrotal discharge. In 13 study participants had complained of scrotal swelling and only 20 patients had complained of Testicular pain.

SYMPTOMS	YES	NO
TESTICULAR PAIN	20	30
SCROTAL SWELLING	13	37
SCROTAL DISCHARGE	8	42
HEAVINESS	5	45
FEVER	18	32

5. **Micturition Difficulty**:In the study of total, 34% patients had felt difficulty in micturition, while 66% patients had no any complaint about micturition.

6. **Absence Of Testis On Examination**: Out of total, in 8 study participants on local scrotal examination, there was absence of Testis found.

7. **Co-Morbidities Among Participants**: Out of total, 15 (30%), 13(26%) and 6(12%) patients had a history of Hypertension, Diabetes Mellitus and Tuberculosis respectively, in the study.

8. **Personal History Of Participants**: Of total, in 20% patients had complained of constipation. Among the study participants, 14% and 12% had complained of Burning sensation and redness in urine, respectively. All patients had a normal diet and regular sleep.

9. **Addictive Habits Of Participants**: Out of total, 64% patients had no any addiction, while 20% and 16% patients had respectively addiction history of Alcohol consumption and tobacco chewing.

10. **Vitals Of Participants**: In the study, mean Blood pressure, Pulse and respiratory rate was 126 +/- 14, 79.08 +/- 10.06 as well as 18.04 +/- 2.03 per minute respectively.

11. **Scrotal Examination Findings Among Participants**: Among the study participants, 40% patients had positive transillumination and in 14% patients' fluctuation was found.

SCROTAL EXAMINATION	FREQUENCY(%)
TRANSILLUMINATION. (YES)	20 (40%)
TRANSILLUMINATION. (NO)	30 (60%)
FLUCTUATION. (YES)	14 (28%)
FLUCTUATION. (N0)	36 (72%)

12. **Blood Investigation Findings Among Participants**:In the study, mostly all participants had normal range of haemoglobin, CRP and LFT findings. While in some patients there was an increase in Total leucocyte count as well as Serum creatinine level found.

13. **Various Investigation Findings Among Patients**:Among the study participants, 4% and 2% cases had HbsAg and HIV positive findings respectively. On urine examination in 30% cases had presence of pus cells. 16% participants had a high level of B-HCG. Out of the total,only 6 participants had done the HPE report.

14. **Complication Among Participants**: Out of total, 30% patients were diagnosed as Testicular torsion followed by 24% had Acute Epididymo-orchitis. Only 4% were affected by acute scrotum due to trauma.

15. **Treatment**: Out of total, 7(14%) patients had given only conservative treatment, while in 43(86%) cases had surgery done.

16. **Mortality**: Of total, 1(2%) mortality was found due to acute scrotum and its complications. While 98% patients were discharged after receiving proper treatment for acute scrotum.

Discussion

Acute Scrotum is an emergency wherein there is an acute painful swelling of the scrotum or its contents, accompanied by local signs and general symptoms. It includes vast number of differential diagnosis, torsion of the testis, appendiceal torsion, testicular infarction due to other vascular insult, testicular rupture, intratesticular hematoma, testicular contusion, haematocele, infectious conditions like acute epididymitis, acute epididymo orchitis, acute orchitis, insect bites, abscess, gangrenous infections (Fournier's gangrene), inflammatory conditions: Henoch-Schonlein Purpura (HSP) vasculitis of scrotal wall, incarcerated, strangulated inguinal hernia, with or without associated testicular, ischemia, acute on chronic events like spermatocele, haemorrhage or infection, testicular tumour with rupture, haemorrhage, varicocele.Among these, testicular torsion and epididymo-orchitis are most common. Patients with acute scrotal pain seen in the emergency department often present a diagnostic dilemma. Physical examination alone is not enough to differentiate between several of these etiologies. Due to critical and compromised tissue perfusion observed in TT, there is a window of four to eight hours before significant ischemic damage ensues.

Therefore, in instances where the prompt management of TT is obtained within the first six hours of the onset of symptoms, testicular salvage rates hover around 90% to 100%. It is, therefore, crucial to promptly diagnose and differentiate TT from other causes of acute scrotal pain. Thus, delayed management of acute scrotal pain can culminate in adverse disease outcomes, including decreased testicular fertility and testicular non-viability, thereby necessitating an orchiectomy.

Differentiation between testicular torsion and other causes of pain is of critical importance because timely surgical exploration is indicated in cases of testicular torsion to preserve the affected testicle. Low salvage rates are often secondary to misdiagnosis and delayed presentation. Late presentation remains the greatest cause of orchiectomy. Unfortunately, the clinical signs of acute epididymitis, torsion of appendix testis, and testicular torsion overlap and clinical differentiation are extremely difficult in many cases. High Resolution Ultrasonography (HRUS) and Color Doppler Ultra- Sonography (CDUS) are excellent tools to differentiate surgical and non-surgical emergencies of scrotum.

The present study consisted of an analysis of 50 patients who got admitted to tertiary level health centre. In our study, Torsion of testis was to be the commonest cause for acute scrotum accounting for 30% of total cases, followed by acute Epididymo-orchitis which accounted for 24 %, fournier's gangrene (6%), scrotal wall infection (6%).

Barker & Paper et al , their study noted that none of their patients were below 14yrs. But in the present study, the majority 19(38%) participants belonged to the 21- 30 years age group followed by 31-40 years of the group. Least number of participants were less than 20 years of age. In a study conducted by A S Cass & B P Cass et al , the maximum incidence of epididymo-orchitis was 62% in contrast to our study with 24 % incidence. Mean age of study participants was 34.24 +/- 11.8 years in the current study,whereas it was 21.3yrs according to the study done by N a Watkin et al.

In the present study, the duration of symptoms varied from a few hours to more than a week. The shortest duration of hospitalisation was less than 5 days. In the study conducted by Thorsteinn et al, the shortest duration of symptoms was 3 hrs and the longest was 21 days. The average duration of pain from onset till presentation in case of epididymo-orchitis was 3.54 days study conducted by Ricardo et al. In the present study, all the patients underwent ultrasonography.

In this study of 50 cases, 7 cases (14%) were managed conservatively, remaining all other cases (86%) needed surgical treatment. Patients who were treated conservatively responded well with complete recovery.

A research of Poteky et al,Out of 102 patients acute scrotum majority 74 (72.54%) had epididymitis and/or orchitis, 6 (5.88%) testicular torsion, 20(18.6%) pyocele. In the final diagnosis, we got 20 patients of pyocele but only 17 patients were diagnosed clinically, while 3 patients were earlier diagnosed as epididymo-orchitis. Out of 6 patients of testicular torsion, in 3 patients we were able to save testis and bilateral orchiopexy was done. Out of 20 patients of pyocele, 3 patients were complications of epididymo-orchitis and 2 of testicular torsion. In 8 patients with gangrenous testis orchiectomy was performed.

A study done by Syed MK et al, total of 76 scrotal exploration procedures were performed. The involvement of the left side of the scrotum was more common than the right side. Most of the patients who presented were older than five years of age. A majority of the patients presented after 24 hours of the commencement

of their symptoms. Of the included participants, 36 patients (47.47%) were found to have an underlying torsion of appendix testes that was appropriately managed.

Testicular torsion was observed in 15 patients, out of which eight viable testes were salvaged with a subsequent orchidopexy while seven torsions required orchiectomy owing to their non-viability. Other findings included epididymo-orchitis and infected hydrocele. A total of 19 testes appeared completely normal upon scrotal exploration

Conclusion

Acute scrotal swelling is common in young persons with variable symptomatology.

Such a condition presenting to the emergency room needs meticulous examination, proper evaluation and adequate treatment.The commonest cause of acute scrotum is Torsion of Testis, epididymo-orchitis followed by epididymitis and Scrotum infection. Presence of similar complaints in the past, urinary symptoms are important predisposing factors for acute scrotal swelling.Routine investigations like hemogram, urine analysis is not very much conclusive to the confirmed final diagnosis but are supportive to clinical diagnosis.Special investigations like USG and color Doppler are useful to the accurate diagnosis.Since the disease of scrotum represents the inherent disease of epididymis, testis and other intrascrotal structure which may be affecting the entire life of the person in the form of sterility, they need aggressive management.

Conservative management with antibiotics, analgesics, scrotal support and rest is most effective in case of epididymo-orchitis. Emergency exploration of the scrotum proved to be the best care in case of pyocele, Haematocele, torsion testis, testicular abscess and Fournier's gangrene. It doesn't involve major expenses with negligible surgical mortality, also shown to be the best as confirmed diagnosis can be reached with almost all cases with exploration.

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