Original Research Article

A study on causes and management of acute scrotal conditions

A. Usha Murugan*

Professor and Head, Department of General Surgery, Kanyakumari Government Medical College Hospital, Tamil Nadu, India
*Corresponding author email: **ushamuruganmdm@gmail.com**

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Abstract

Acute scrotal conditions form a significant proportion of cases in surgical ward. They contribute to significant morbidity in younger age group and mortality in older age group. In this study we have attempted to study the causes, aetiology, prevalence and management of acute scrotal conditions. The prevalence in descending order was Acute epididymo orchitis, Pyocele, Hematocele, Fournier's gangrene, Acute filarial scrotum, Testicular torsion, Scrotal abscess, Mumps orchitis, scrotal trauma. Of these Epididymo orchitis, mumps orchitis and Filarial scrotum were treated conservatively with antibiotics, rest and scrotal support. Fournier's gangrene, Scrotal abscess and scrotal trauma with wound debridement and reconstruction. Pyocele and hematocele by incision and evacuation of pus and blood respectively. Testicular torsion is treated by surgical de rotation and B/L orchidopexy. Orchidectomy was done if warranted in hematocele, pyocele, and testicular torsion.

Key words

Acute scrotal conditions, Acute Epididymo orchitis, Hematocele, Pyocoele, Testicular torsion, Acute filarial orchitis, Mumps orchitis, Fournier's gangrene, Scrotal abscess, Orchidectomy.

Introduction

Acute scrotal conditions form a significant proportion of cases in the surgical ward. They contribute much towards morbidity in all age groups. We have tried our best for a detailed study of the rather neglected subject and present it.

Aim and objectives

- To study varied aetiology, various modalities of presentation, age predilection, diagnostic tools and management of acute scrotal conditions.

Materials and methods

Place of study: Government Kanyakumari Medical College and Hospital
Period of study: Two years (January 2016 to January 2018)
Type of study: Observational Study
Number of cases: 150
Method: The cases were subjected to thorough clinical examination. They were investigated in the following way: Blood - Urea, sugar, TC, DC, ESR, Smear for Microfilariae, Mantaux, Urine - Albumin, Sugar, Deposits, Culture and sensitivity, Urethral smear for Gram Stain, Ultrasound Scrotum with colour Doppler.

The conditions which presented as acute scrotum were Acute Epididymo orchitis, Pyocoele, Hematocoele, Fourniers gangrene, Testicular torsion, Acute Filarial scrotum, Scrotal abscess, Mumps orchitis, Avulsion injury of scrotal skin.

Results

Acute epididymo orchitis
Patients presented with C/O dysuria, frequency, urgency, urethral discharge. Scrotum was red, swollen, warm and tender. Cord was tender and thickened. Investigations done were Urine C/S, urethral discharge gram stain, USG and colour doppler scrotum [1]. Treatment given was conservative with bed rest, analgesics and antipyretics, scrotal support, broad spectrum antibiotics [4].

Pyocoele
It means Pus in the tunica vaginalis. Usually follows infection of scrotal skin [2]. Patient presented with signs and symptoms of local inflammation. Investigations done were Clinical, USG and doppler scrotum, pus C/S, Blood sugar, Urine routine and C/S. Treatment given was under cover of antibiotics patient was taken up for surgery scrotum opened up in layers. Pus let out excision of sac done [3]. Orchidectomy was necessary in seventeen cases only.

Hematocoele
All cases followed trauma one presented as obstructed hernia. Scrotum was found tense. Its able to get above the swelling. Transillumination was negative. Investigations done were USG and doppler scrotum [7]. Treatment given was Surgery - scrotum opened in layers. Blood evacuated. Sac was excised. Wound closed with drain [3].

Fourniers gangrene
Usually older age group was involved (40 to 55 years). Acute onset, Patients were toxic and icteric. Pain and sloughing of scrotal skin in some cases thigh and perineum. Investigations done were USG and doppler scrotum, wound C/S, blood sugar, RFT, LFT, Electrolytes [7]. Treatment given was under broad spectrum antibiotic cover patients were taken up for immediate wound debridement. After two weeks scrotal skin sutured if possible after improving general condition of patient. Two cases died of toxaemia and septicaemia. Three cases under went unilateral orchidectomy. For patients whom scrotal cover was not possible split skin grafting was done. Two cases were given SSG of thigh and lower abdomen respectively.

Testicular torsion
H/O sudden pain in the lower abdomen. Scrotum was warm and tender. Affected testis lies higher than normal. Cord was twisted. Investigations done were clinical, USG and doppler scrotum. Treatment was surgery - untwisting the testis and B/L orchidopexy after checking the viability of testis. One case Orchidectomy done.

Acute filarial scrotum
Recurrent episodes of epididymo-orchitis were present. Previous history of hydrocele was present. Scrotum was found red, warm and tender. Cord was found tender. Hydrocoele was present. Investigations were USG scrotum. Peripheral smear for microfilariae was done [5]. Treatment was conservatively with systemic penicillin, Diethyl carbamazine, Analgesics and Antipyretics, Scrotal support, Bed rest.

Scrotal abscess
It usually follows inadequately treated Acute epididymo orchitis [2]. Investigations were USG

doppler of scrotum, Pus C/S. Treatment were under antibiotic control, incision and drainage and wound debridement done under Regional anaesthesia. Orchidectomy was done if necessary.

Mumps orchitis

Two cases were admitted. They were presented with painful and tender scrotum. Treatment done was conservative [1] with bed rest, Analgesics and Antipyretics, Scrotal Support.

Avulsion injury of scrotal skin

Two cases were due to industrial injury and one case was due to RTA associated with penile injury.

Treatment given was under antibiotic care, Wound debridement was done and testis covered with scrotal skin (**Table – 1**).

Discussion

Scrotum: It is a cutaneous bag containing testis, epididymis and lower part of spermatic cord. It is divided into right and left by a median raphe. It is short corrugated and closely applied to testis. Left portion is lower than right due to greater length of spermatic cord [11].

Layers: Skin (lax, has abundant hair and sebaceous glands), Dartos muscle (involuntary), External spermatic fascia, Cremasteric fascia, internal spermatic fascia [11].

Blood supply: Deep and Superficial External Pudental, Scrotal branches of Internal Pudental, Cremasteric branches of Inferior epigastric [11].

Testis: It is suspended in the scrotum by the spermatic cord. It has a superior and inferior pole, Anterior and Posterior border, Medial and Lateral surface, Appendix. It has three coverings; Tunica vaginalis, Tunica albuginea, Tunica vascularis [11].

Table – 1: Management of various cases.

Diagnosis	No of cases	Management
Acute Epididymo orchitis	53	Broad spectrum, Antibiotics after C/S
Pyocoele	30	Orchidectomy - 20 cases Evacuation and sac Excision - 10 cases
Hematocoele	20	Evacuation and closure with a drain
Fourniers gangrene	16	I.V fluids, broad Spectrum antibiotics, Wound debridement, Skin cover and Re –Implantation of testis.
Acute Filarial scrotum	10	Systemic Penicillin and Hetrazan
Testicular torsion	8	Surgical de rotation and B/L orchidopexy - 5 Orchidectomy - 3
Scrotal abscess	7	Orchidectomy – 2 I and D - 5
Mumps Orchitis	3	Analgesics and Scrotal support
Avulsion injury of scrotal skin	3	Surgical repair under RA

Blood supply: Testicular artery and Pampiniform venous plexus.

Spermatic cord contents: Vas deferens, Arteries- Testicular, Cremasteric and of Vas, Veins-Pampiniform plexus, Testicular lymphatics, Nerves-Genital branch of Genito femoral, Areolar tissue, Remains of proccessus vaginalis [11].

Acute epididymo orchitis: Inflammation of the testis and epididymis [2]. Precipitated by sexual promiscuity, BPH, Iaotrogenic. Infection usually spreads from urethra or bladder. Causative

organism are Coliforms, N. gonorrhoea, C. trachomatis. It usually starts from the tail spreads to the body, head and then the testis. Testis and epididymis swell rapidly and become painful. Scrotal wall becomes adherent to testis. Resolution takes about 6 – 8 weeks [4].

Treatment plan: Do urethral discharge gram stain. If Gonococci present then treat gonorrhoea. If absent then treat for C. trochomatis. Always treat the sexual partners [1].

Next do gram stain of midstream urine. If bacteria is present then treat according to antibiotic sensitivity. Also evaluate for structural abnormalities or chronic bacterial prostatitis. If bacteria is absent then treat for C. trochomatis [5].

Fourniers gangrene or idiopathic gangrene: It is cellulitis and necrotising fasciitis of subcutaneous fascia up to or including muscle [2]. It is Obliterative endarteritis of infective orgin. It is a fulminant rapidly spreading infection causing synergistic gangrene [3]. Secondary to polymicrobial flora with poorly defined portal of entry. Commonly implicated organisms are Haemolytic streptococci, Staphylococci, E. coli, Clostridium welchii [5]. It is commonly seen in Diabetics, Alcoholics, Morbid Obesity, Immunosuppression. The onset is sudden and dramatic. The presence of yellow and purpuric fluid in the blister is pathognomic [7].

Treatment: Wound culture and sensitivity obtained. Broad spectrum Antibiotics like Cephalosporins and gentamicin are given. Extensive wound debridement and daily dressing is the first line of treatment [8]. Skin cover is given later [6].

Acute filarial scrotum: It usually presents as

- Funiculitis [4]: Severe acute pain. Tender, oedematous and thickened cord. D/D are Gonorrhoeal, small strangulated inguinal hernia, testicular torsion.
- Epididymo orchitis [4]: It involves the Globus major first. Testicular sensation is lost. D/D Acute pyogenic and tuberculous epididymo orchitis
- Cellulitis, Suppuration and Gangrene [8]: This is the consequence of neglected Funiculitis and Epididymo orchitis

Injuries of the scrotum [10]:

- Industrial accidents and RTA
- Sports injuries
- Falling astride a solid object
- Kicks and blows to the scrotum
- Scrotal skin avulsion

Injuries of testis [10]:

- Amputation of testis
- Hematocoele
- Testicular haematoma, rupture and dislocation

Hematocoele: Blood in tunica vaginalis [2]. It is due to trauma, injury to small vessels during tapping, testicular neoplasms. It is characterised by immediate pain and swelling. It is diagnosed by USG [7]. Treatment is immediate surgical exploration with evacuation of clots. In case of testicular injuries, linear rupture is sutured while in case of segmental damage wedge resection is done [10]. Wound is closed with a drain. Scrotal support given

Scrotal skin avulsion: Thorough wound wash is given and if there is no contamination and if primary suturing is possible then it is done. If primary suturing is not possible then local flaps from perineum is mobilised [6]. If the wound is contaminated then extensive debridement and later skin grafting is done

Testicular torsion: It is a surgical emergency [3]. Common in paediatric age group
Predisposing factors: Inversion of testis, High investment of tunica vaginalis, long mesorchium, Undescended and ectopic testis, Violent cremasteric reflex like during straining at stools ;heavy weight lifting; coitus. Pathology: Venous

outflow obstruction – Secondary oedema and haemorrhage – Arterial obstruction – necrosis of testis

Presents as severe lower abdominal and groin pain associated with nausea and vomiting [2]. Colour doppler USG shows testicular blood flow. Immediate surgical de torsion followed by B/L orchidopexy is the treatment of choice [4]. If testis is not viable then orchidectomy is done.

Miscellaneous:

- Acute presentation of testicular tumours (Acute hydrocele, Acute epididymo orchitis, Haemorrhage)
- Idiopathic Scrotal edema [9] (Allergic)
- Spontaneous testicular infarction
- Familial Mediterranean fever (recurrent episodes of testicular infarction)

Conclusion

From this study of 150 cases for a period of two years we were able to note

- Acute conditions of scrotum formed a significant proportions of admissions in surgical wards
- The incidence of Acute Epididymo orchitis leads the list and the right side is most commonly involved
- The mortality of fourniers gangrene has come down significantly

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