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## Sociodemographic characteristics and etiology different scrotal swellings

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### Abstract

Scrotal swelling has got wide spectrum of conditions, varying from hydrocele to testicular tumours. Therefore there is a need to study the common conditions, so many benign scrotal swellings and early testicular tumours can be cured by using different modalities scrotal swellings are presented with great anxiety and embarrassment. The cases admitted to the surgical wards in Medical College Hospital and Research Center, formed the material for this study. During this period 100 cases with h/o scrotal swelling admitted in various surgical units, selected at random were studied in detail as per proforma. Scrotal swelling was the commonest presenting symptom (100%). Pain or heaviness of scrotum was seen in 30 patients (30%) and fever was seen in 12 patients (12%). One case of testicular tumor presented with weight loss.

**Keywords:** scrotal swelling, hydrocele, testicular tumours

### Introduction

Scrotal swellings are one of the commonest clinical entities in surgical practice. Though the scrotum lies hanging down from the lower abdomen and is easily accessible for self-examination. It is pitiable to note that even today we come across some late case of testicular tumor, which is a curable disease if come across early.

Scrotal swelling has got wide spectrum of conditions, varying from hydrocele to testicular tumours. Therefore there is a need to study the common conditions, so many benign scrotal swellings and early testicular tumours can be cured by using different modalities scrotal swellings are presented with great anxiety and embarrassment [1].

Patient's expectation is very high. There is need to study the different modalities of treatment. Definitely it is rewarding. Different types of scrotal swelling in different age groups. Therefore there is a need to study the age wise distribution.

Scrotal swellings are managed according to type of scrotal swelling. There is a need to study correct treatment for different scrotal swellings. Sexually transmitted disease are the commonest cause of urethritis with associated epididymitis in heterosexual man under 35 years of age, who are sexually active. The common organisms encountered are *N. gonorrhoea* and *C. trachomatis*. Symptoms of urethritis or urethral discharge may be absent and there are no underlying urinary tract abnormalities [2].

The probable pathogenesis due to reflux of sterile urine down the vas deferens during straining producing sterile inflammation. The degree of infection depends on the presence of infection in the prostate or seminal vesicle. Epididymitis associated with systemic infections can occur in tuberculosis, cryptococcosis, brucellosis, etc. These affect the head of epididymis first [3].

Amiodarone is an antiarrhythmic agent. The treatment with this agent causes epididymitis involving only the head of the epididymis. Reduction of the dosage drug results in resolution. Epididymitis following non-gonococcal urethritis is more common. Failure of treatment results in suppuration.

Acute post-operative epididymitis is a complication of prostatectomy, which can be prevented by prophylactic vasectomy. The initial symptoms are due to associated prostatitis, i.e. pain in perineum, fever, etc. the inflammation may extend to involve the body of the testis. Scrotal wall becomes red, oedematous and shiny. The epididymis becomes attached to the scrotal skin, if suppuration and rupture occurs, a discharging sinus may be formed. Complete resolution of the

swelling in the epididymis may take 6 to 8 weeks and is associated with scaling of scrotal skin [23]. Spermatic cord may also be tender and swollen [4].

Testicular torsion limited to tail of epididymis and presence of urethritis with bacteriuria indicates epididymitis-Radionuclide scanning and Doppler ultrasound helps in differentiation.

Tuberculosis of testis is nearly always secondary to infection of epididymis. Usually globus minor is attacked first (because of rich vascularity) indicating that infection occurs retrogradely from an infected seminal vesicle via vas. Blood borne infection first attack the globus major (head). There may be associated renal tuberculosis.

The patient presents with insidious onset of a discrete indurated, slightly (non) tender swelling (nodule) in the globus minor or rarely globus major. With progression entire epididymis is involved. Symptoms include increased frequency of micturition, fever, anorexia, weight loss, malaise, etc.

O/E. The affected epididymis is enlarged, firm in consistency, non-tender and craggy. The groove between testis and epididymis may be obliterated. Testis is often normal and in 30% cases secondary hydrocele may be present. The vas on the affected side becomes "beaded" due to submucous tubercles [5].

20% of cases may present with a cold abscess in the posterior aspect of scrotum, which may burst open forming a discharging sinus with recurrent infection.

A thickened, irregular, indurated seminal vesicle may be palpable on the same side or on either side. In advanced cases prostate may contain few discrete nodules. If left untreated, contralateral epididymis may be involved after a year or so.

Torsion of the testis is a misnomer because the pathology is in the spermatic cord, which rotates axially.

Normally the posterior fixation of the epididymis, is in close opposition to the testis and incomplete investment of tunica vaginalis allows mobility as well as stability of the testis.

When torsion occurs there is venous engorgement with secondary oedema and haemorrhage leading onto arterial obstruction and necrosis/gangrene of testis [6].

Testicular neoplasm is one of the most common solid tumor in young males between 15 to 40 years. They accounts for only 1-2% of the malignant tumor in male, 99% of testicular tumor are malignant.

### Methodology

The cases admitted to the surgical wards in Medical College Hospital and Research Center, formed the material for this study. During this period 100 cases with h/o scrotal swelling admitted in various surgical units, selected at random were studied in detail as per proforma.

The method of study followed consists of:

- Detailed history taking and physical examination.
- Local examination of scrotum and its contents with relevant lymphatic and systemic examination.
- Routine laboratory investigations including examination of hydrocele fluid in some cases.
- Relevant special investigations.
- Surgical treatment according to the merits of the case as decided by the attending surgeon, under suitable anesthesia.
- Operative findings, post-operative course and treatment.
- Post-operative complications, histopathological correlation (if any), duration of hospital stay and follow up.

The follow up in these cases was generally poor. The relevant data from the 100 cases was tabulated in a master chart, under different headings.

### Results

**Table 1:** Age incidence of scrotal swellings

Age in years	Number of cases	Percentage
12-20Y	15	15%
21-30Y	27	27%
31-40Y	25	25%
41-50Y	17	17%
51-60Y	08	08%
>60Y	08	08%

The youngest patient was 12 years old (Case No.81), which was the minimum age for inclusion in the study who was diagnosed as a case of torsion testis and the oldest patient was 76 years old (Case No.74), which was a case of epididymo-orchitis. The highest incidence was in the third decade, i.e. 21-30 years (27%) followed by fourth decade, respectively.

**Table 2:** Occupational distribution

Name of occupation	Number of cases	Percentage
Agriculture	38	38%
Students	19	19%
Private workers	05	05%
Coolie	30	30%
Govt. service	05	05%
Businessmen	03	03%

Most of the patients in this study belonged to agricultural class (38%) followed by coolie (30%), students (19%), and private workers (5%).

**Table 3:** Mode of presentation

Symptom	Number of cases	Percentage
Scrotal swelling	100	100%
Pain/heaviness of scrotum	30	30%
Fever	12	12%
Weight loss	03	03%
Burning micturition	06	06%

Scrotal swelling was the commonest presenting symptom (100%). Pain or heaviness of scrotum was seen in 30 patients (30%) and fever was seen in 12 patients (12%). One case of testicular tumor presented with weight loss.

**Table 4:** Predisposing factors (etiology)

Factors	Number of cases	Percentage
Idiopathic	84	84%
Trauma	06	06%
Exposure to STD	02	02%
Tuberculosis	02	02%
UTI(culture positive)	06	06%

In a majority of patients in the study, in about 84% of the cases the cause could not be ascertained, i.e. idiopathic. There was an overlap of more than one cause in three cases.

Trauma was the predisposing factor in three patients. In two patients it was the immediate cause for presenting symptom. Exposure to STD was the cause in two cases. Tuberculosis was present in two cases. Culture positive UTI was found in six patients and E. Coli was the commonest organism. Klebsiella was isolated 1 one case.

## Discussion

The testes develop in relation to the lumbar region of the posterior abdominal wall at level of T10-T12<sup>[1]</sup>. At first the testes lie parallel to the long axis of the body, but by 8<sup>th</sup> week it becomes transverse.

During fetal life, the testicles gradually descend into the scrotum. By third month they reach the iliac fossa and the deep inguinal ring by the 7<sup>th</sup> month. They pass through the inguinal canal during the 7<sup>th</sup> month and into the bottom of scrotum by the end of 8<sup>th</sup> month<sup>[2]</sup>.

The testes are the male reproductive organs. They are bilateral, ovoid structures measuring 4 to 5 cm in length and 2-3 cm in thickness. Testes has two surfaces lateral and medial surfaces, 2 borders-anterior and posterior and 2 ends-upper and lower. Each testes weighs 10-15 gms. The normal testis is smooth, firm and elastic, squeezing it gently causes a peculiar sickening pain in lower abdomen.

They lie within the scrotal sac, suspended by the spermatic cords. They are attached to the base to the scrotum by scrotal ligaments.

The tunica albuginea is a pearly white fibrous layer (capsule) surrounding the testes and epididymis. From the deeper aspect of this layer numerous fibrous septa pass radially backwards dividing the testes into various compartments. These compartments converge towards the upper pole at the mediastinum region, which contains the rete testes.

The septae divide the testes into 400 or more lobules each of which contains 2 or more highly convoluted seminiferous tubules, which may be upto 2 ft. when stretched. From the epithelial lining of these tubules spermatozoa are produced. Spermatogenesis is temperature dependent occurring at lower temperatures, whereas hormone secretion is not. Hence, in cases of cryptorchism / undescended testes, the hormonal production is unimpaired where as spermatogenesis is decreased resulting in oligospermia and Azoospermia<sup>[7]</sup>.

Scrotal erysipelas is a acute diffuse streptococcus heamoliticus group A infection of the scrotal skin and subcutaneous tissues, seen in debilitated and immunocompromised individuals. This may result from surgical incisions, wounds, scrotal abscesses or fistula or retrograde lymphatic infection of scrotum.

Commences as "rose pink rash" which extend to involve adjacent skin. The vesicles appear over the rash which ruptures, markedly tense, smooth scrotal swelling with few blebs on the surface.

Scrotal elevation to enhance circulation and reduce oedema and appropriate antibiotics. (Penicillin is the drug of choice).

It is an acute staphylococcal infection of a hair follicle with perifolliculitis. Because of the presence of hair follicles, boil is a fairly common condition affecting scrotum.

Painful and indurated swelling with tremendous tenderness and edema. It ruptures spontaneously to discharge pus and the cavity develops lined by granulation tissue, which heals by itself<sup>[8]</sup>.

Though less common than the genital warts, they are highly infectious and transmitted sexually. Caused by Human papilloma virus (type 16 and 18).

It is a sexually transmitted disease, mainly involving genital and inguinal regions but can spread to involve the scrotal skin causing elephantiasis, abscess or fistula. Caused by Chlamydia trachomatis with 5-21 days of incubation period.

Fournier's Gangrene is a vascular disease of infective origin (obliterative endarteritis) producing ischemic necrosis of the skin and subcutaneous tissues of the scrotum<sup>[4]</sup>.

Extravasation of urine underlying urinary tract infection, scrotal trauma, in association with rocky mountain spotted fever or

spontaneously.

Other causes include, instrumentation of urethra, incision-drainage of peri-urethral abscess or injection of an anal fissure.

Streptococcus heamoliticus with other organisms like staphylococci, E. coli, clostridium Welchii, etc. sets up a fulminating inflammation within scrotal subcutaneous tissues. This results in obliterative arteritis of the arterioles supplying the overlying skin leading to necrosis and gangrene.

Sudden onset of scrotal inflammation amidst good health with pain in scrotum, prostration, pyrexia and pallor<sup>[3]</sup>.

Rapid onset of gangrene-initially only scrotum is involved but later extension occurs along the plane of superficial extravasation of urine. Scrotal coverings may slough off, exposing the healthy hanging down testis.

- Primary abscesses of scrotal wall may result from folliculitis or through skin abrasions and respond to antibiotic or incision & drainage.
- Secondary abscesses of scrotal wall occur due to extension of peri-urethral phlegmon, suppurative epididymo-orchitis, anorectal abscess, following instrumentation of urethra in the presence of infection or due to tuberculosis and may lead to formation of sinuses or fistulae.<sup>9</sup>

Sebaceous Cysts of Scrotum occurs as a result of inflammation around pilosebaceous follicle or deep implantation of a fragment of epidermis by blunt trauma. Situated in the dermis, it produces a firm, elastic (mouldable) mobile swelling with a central keratin filled punctum. It may be solitary or multiple. It may become inflamed and painful with suppuration from time to time.

An uncomplicated cyst contains yellow-white cheesy material (putty like consistency and hence indentable) composed of fat and epithelial cells or rarely a minute worm Demodex folliculorum

## Conclusion

- Scrotal swellings were common between the second and third decade, i.e. younger patients were affected more often.
- Agriculture related workers formed the majority occupation in this study. This is probably due to the fact that this hospital situated at Raichur caters to mainly rural population.
- Scrotal swelling was commonest symptom with which the patient presented. The other symptoms included pain/heaviness of scrotum, fever, etc. All the patients had scrotal swelling on examination

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