A CLINICAL STUDY ON SCROTAL SWELLINGS
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ABSTRACT: INTRODUCTION: The scrotum is a cutaneous bag containing the right and left testis, the epididymis and the lower parts of the spermatic cords.¹ Scrotal swellings are the commonest swellings affecting both children and adults. Though these swellings are frequently encountered, many times correct diagnosis is not made and testis has been sacrificed. It also affects the physical wellbeing of the patient, is rather a mental agony for him. Most of the times, patients hesitate to come early and may come with late complications. AIMS AND OBJECTIVES OF THE STUDY: 1. To determine and confirm various etiological aspects of different swellings of scrotum. 2. To study various modes of presentations, relative incidence and diagnostic procedures for swellings of scrotum. 3. To study the various techniques and procedures done. MATERIALS AND METHODS: STUDY DESIGN: Prospective Clinical Study. STUDY AREA: Sri Venkateswara Medical College, Tirupathi. SOURCE OF DATA: The material for the present study is collected from the patients who present to the Out Patient Department of Surgery, Sri Venkateswara Medical College with swelling in the scrotal region fulfilling the inclusion criteria. SAMPLE SIZE: 100 patients fulfilling the inclusion criteria. METHOD OF COLLECTION OF DATA: Detailed history taking, Complete clinical examination, Appropriate Investigations Blood & Urine Examination, USG, Performing surgery for the indicated cases & Operative findings were recorded. INCLUSION CRITERIA: Patients aged between 13 to 60yrs. Cystic swellings from the testes & its coverings, epididymis, spermatic cord & from scrotal skin. EXCLUSION CRITERIA: Cystic inguino-scrotal swellings. Patients aged above 60. RESULTS & CONCLUSIONS: Majority of the patients with swelling of the scrotum belonged to the 31-40 years of age group (50%) followed by 41-50 years (18%) and 21-30 years (12%). Scrotal swelling was the common mode of presentation (60%). Right side was dominant side of presentation than the left with a difference of 40%. Most of the patients were suffering with symptoms of duration 7-12 months (44%). Primary vaginal hydrocele was the commonest cause of cystic swelling of scrotum (52%). Primary Vaginal hydrocele of long duration can produce pressure effects on the testis. Postoperative stay duration, average was 4 days. KEYWORDS: Hydrocele, Pyocele, Chylocele, Testicular torsion, Inguinal hernia Epididymo orchitis, Hematocele, Varicocele, tumor of testis, Epidydimal cyst, Spermoatocele, Sebaceous cysts, scrotal filariasis.

INTRODUCTION: NEED FOR THE STUDY: The scrotum is a cutaneous bag containing the right and left testis, the epididymis and the lower parts of the spermatic cords.¹

Scrotal swellings are the commonest swellings affecting both children and adults. Though these swellings are frequently encountered, many times correct diagnosis is not made and testis has been sacrificed. It also affects the physical wellbeing of the patient, is rather a mental agony for him. Most of the times patients hesitate to come early and may come with late complications.
Accurate diagnosis of scrotal swellings is of paramount importance, since they may range from the common ones, hydrocele (Commonest), Epididymal cyst, Spermatocele to the rare ones like malignancy causing secondary hydrocele, hematocoele, pyocele, chylocele, parasitic cyst like schistosomiasis, cystic lymphangioma etc., and sebaceous cysts.

The diagnosis of intrascrotal lesions can be made by thorough history, physical examination and understanding the pathophysiological process of the structures contained within the scrotum. Lesions that are suspicious of malignancy should prompt urological consultation and radiological imaging. USG aids in the diagnosis in instances of uncertainty.

There are various complications developing secondary to the scrotal swellings. It has been suggested that a large and long standing hydrocele causes certain anatomical changes such as atrophy and hampers spermatogenesis. Prompt early and appropriate treatment is necessary to avoid various complications of the scrotal swellings.

This study intends to determine the various etiological aspects, modes of presentation, diagnostic procedures and management of the swellings of scrotum.

Common causes of scrotal swelling are:

- Hydrocele
- Pyocele
- Chylocele
- Testicular & Appendage torsion
- Complete inguinal hernia
- Epididymo orchitis
- Idiopathic scrotal swelling
- Trauma (Hematocoele/scrotal contusion/testicular rupture)
- Varicocele
- Intrascrotal mass (Cystic dysplasia or tumor of testis, Epididymal cyst/Spermatocele)
- Scrotal edema, erythema, abscess
- Sebaceous cysts, scrotal filariasisis

Primary hydrocele is an abnormal collection of serous fluid in some part of the processus vaginalis usually the tunica.

Epididymal cysts represent cystic degeneration of the epididymis and are filled with crystal clear fluid.

Spermatocele is a retention cyst arising from either the vasa efferentia of the testis or from the epididymis.

Filarial hydrocele and chylocele account for upto 80% of hydrocele in endemic areas. Cystic swellings of the scrotum are invariably painless and can attain very large size without causing much discomfort to the patient. Indications for treatment include pain, discomfort and the cosmetic appearance of the scrotum or the patient’s wish.

Conventional treatments for primary hydrocele, Epididymal cysts and Spermatocele include repeated aspiration, aspiration and injection of sclerosant or surgery. Aspiration and injection of sclerosant can cause severe pain and simple aspiration has to be repeated and
carries risk of infection and hematoma formation. The gold standard treatment continues to be surgical extirpation of the cystic lesion.

Surgical treatment of idiopathic hydrocele includes four basic techniques – Lord’s plication, Jaboulay’s eversion of sac, Winkelmann’s partial excision and eversion of the sac and radical excision of the sac. Recent quicker operation in adults consists of the window operations or vaginal fenestrations. Congenital hydrocele is treated by herniotomy. Treatment of Epididymal cysts and Spermatocele consist of excision of the cysts.

Acute epididymitis is an inflammation of the epididymis, when infection is severe and extends to the adjacent testicle; it is referred as acute Epididymo orchitis. Chronic epididymitis refers to Epididymal pain and inflammation that last for more than 6 months. Much less common, orchitis is an acute inflammation of only the testes exclusive of epididymitis.

Primary abscesses of the scrotal wall are not uncommon. These occur from infections of the hair follicles or sweat glands or through abrasions of the skin. They behave as localized abscesses and are treated similarly, that is with warm wet compression, incision and drainage. Definitive antibiotics are used. Even though such localized abscesses are painful and disabling, they usually are not as serious as abscesses of scrotal wall secondary to extension of periurethral abscess, anorectal abscesses, or suppurative lesions of the epididymis or testis.

Occasionally a child with Henoch-Schonlein purpura (In 35% cases) will develop an acute painful swelling of the scrotum associated with a petechial rash. Both the scrotal wall and the testis are involved. The condition usually subsides over several days.

Torsion of the testis or torsion of the spermatic cord is a true surgical emergency as it causes strangulation of gonadal blood supply with subsequent testicular necrosis and atrophy. It is common in prepubertal males between 12 to 18 years. Acute scrotal swelling in children indicates torsion of the testis until proven otherwise. In approximately two third of the patients, history and physical examination are sufficient to make an accurate diagnosis. Early elective exploration and contralateral orchidopexy is advised, as bilateral (synchronous or asynchronous) testicular torsion can exists.

Torsion of testicular appendages accounts for roughly 5% of acute scrotal pathology. The appendix testis is a Mullerian duct remnant located at the superior pole of the testicle. The Epididymal appendix, located at the head of the epididymis, is a Wolffian duct remnant. The appendix testis is involved 10 times more frequently than the appendix epididymis. Torsion of testicular appendage can occur at any age, but is common in boys aged 7 to 14 yrs. Unilateral exploration and simple excision of torsed appendage if conservative treatment fails is the line of management.

With this background a clinical study of swelling of the scrotum is undertaken to study its classification, etiology, clinical presentation and management.

AIMS & OBJECTIVES OF THE STUDY:

1. To determine and confirm various etiological aspects of different swellings of scrotum.
2. To study various modes of presentations, relative incidence and diagnostic procedures for swellings of scrotum.
3. To study the various techniques and procedures done.
MATERIALS AND METHODS:

STUDY DESIGN: Prospective Clinical Study.

STUDY AREA: Sri Venkateswara Medical College, Tirupathi.

SOURCE OF DATA: The material for the present study is collected from the patients who present to the Out Patient Department of Surgery, Sri Venkateswara Medical College with swelling in the scrotal region fulfilling the inclusion criteria.

SAMPLE SIZE: 100 patients fulfilling the inclusion criteria

STUDY DURATION: 8 Months.

METHOD OF COLLECTION OF DATA:
- Detailed history taking.
- Complete clinical examination.
- Appropriate Investigations Blood & Urine Examination, USG.
- Performing surgery for the indicated cases & Operative findings were recorded.

INCLUSION CRITERIA:
- Patients aged between 13 to 60yrs.
- Cystic swellings from the testes & its coverings, epididymis, spermatic cord & from scrotal skin.

EXCLUSION CRITERIA:
- Cystic inguino-scrotal swellings.
- Patients aged above 60.

SOFTWARE: Statistical software mainly SPSS 11.0 and Systat 8.00 was used for the analysis of the data and Microsoft word and excel have been used to generate graphs tables etc.

Consent from the patient and approval from ethical and scientific committee obtained

ANALYSIS: Patients admitted with symptoms of scrotal swelling, pain and discomfort in the scrotal region were considered in the present study. Surgical procedure was tailored to the patient’s needs. General or spinal anesthesia or sedation was administered.

Intra venous Ceftriaxone was given per operatively. Pain was managed with IM/oral Diclofenac sodium and IV Tramadol. Post-operative scrotal support was given in most of the case.

| Age (years) | No. of Cases | Percentage |
|-------------|--------------|------------|
| 14-20       | 10           | 10         |
| 21-30       | 12           | 12         |
| 31-40       | 50           | 50         |
| 41-50       | 18           | 18         |
| 51-60       | 10           | 10         |
| Total       | 100          | 100        |

Table 1: Age Incidence of Swellings of the Scrotum
Graph 1: Age Incidence of Swellings of the Scrotum.

The youngest patient was 14 year old and the oldest was 60 years. Maximum number of cases were seen in the age group between 31-40, 50 cases accounting for 50% of cases. Minimum numbers of cases are seen in the age group of 51-60 & 14-20, 10 cases accounting 10%.

| Presenting Feature         | No. of Cases | Percentage |
|----------------------------|--------------|------------|
| Scrotal Swelling           | 60           | 60         |
| Scrotal Swelling + Pain    | 34           | 34         |
| Pain alone                 | 4            | 4          |
| Scrotal Swelling+ Pain+ Fever | 2         | 2          |
| **Total**                  | **100**      | **100**    |

Table 2: Presenting Features

Graph 2: Presenting Features.
60 patients complained of only scrotal swellings, which accounted 60%. 40 patients complained of pain, which accounted for 40% of cases. Fever was noted in 2 cases accounting to 2%.

### Table 3: Duration of symptoms

| Duration                | No. of Cases | Percentage |
|-------------------------|--------------|------------|
| 0 to 6 months           | 18           | 18         |
| 7 to 12 months          | 44           | 44         |
| 13 to 24 months         | 26           | 26         |
| 25 months and above     | 12           | 12         |
| Total                   | 100          | 100        |

Most of the patients presented with symptoms within 7-12 months were 44 cases accounting for 44% of presentations, followed by 1 to 2 years groups, 26 cases accounting for 26% of cases. 18 cases presented with symptoms for 0 to 6 months accounting for 18% . Only 12 patients presented with more than 2 years of symptoms.

### Table 4: Etiology of Swelling

| Etiology                  | No. of Cases | Percentage |
|----------------------------|--------------|------------|
| Primary Vaginal Hydrocele  | 52           | 52         |
| Epididymo orchitis         | 7            | 7          |
| Varicocele                 | 2            | 2          |
| Chylorhoele                | 3            | 3          |
| Epididymal Cyst            | 20           | 20         |
| Sebaceous Cyst             | 4            | 4          |
| Scrotal abscess            | 2            | 2          |
| Pyocoele                   | 6            | 6          |
| Spermatocoele              | 2            | 2          |
| malignancy                 | 2            | 2          |
| Total                      | 100          | 100        |
Graph 4: Etiology of swelling.

Primary vaginal hydrocoele was the commonest cause of cystic swellings, 52 of 100 cases accounting for 52% of the study, followed by epididymal cyst, 20 cases accounting for 20%. 2 cases of scrotal wall abscess were noted and 4 cases of sebaceous cyst of which 2 was multiple sebaceous cyst. 2 cases of spermatocoele and pyocele each and 6 cases of pyocele, 3 cases were of Chylocele, 2 cases of varicocele, 7 cases of Epididymo orchitis.

| Etiology                  | Age 14-20 | Age 21-30 | Age 31-40 | Age 41-50 | Age 51-60 | Total |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-------|
| Primary Vaginal Hydrocoele| 5         | 3         | 33        | 6         | 5         | 52    |
| Epididymo orchitis        | 2         | 3         | 2         | 0         | 0         | 7     |
| Varicocele                | 0         | 1         | 1         | 0         | 0         | 2     |
| Chylocele                 | 0         | 0         | 1         | 2         | 0         | 3     |
| Epididymal Cyst           | 3         | 3         | 9         | 5         | 0         | 20    |
| Spermatocoele             | 0         | 0         | 0         | 2         | 2         | 2     |
| Sebaceous Cyst            | 0         | 0         | 0         | 2         | 2         | 4     |
| Scrotal wall abscess      | 0         | 2         | 0         | 0         | 0         | 2     |
| Pyocele                   | 0         | 0         | 4         | 2         | 0         | 6     |
| Malignancy                | 0         | 0         | 0         | 1         | 1         | 2     |
| **Total**                 | **10**    | **12**    | **50**    | **18**    | **10**    | **100** |

Table 5: Age incidence of specific lesions
**Graph 5:** Age incidence of specific lesions.

![Graph 5]

| Procedure              | No. of Cases | Percentage |
|------------------------|--------------|------------|
| Eversion of sac        | 55           | 55         |
| Conservative           | 7            | 7          |
| Varicocelectomy        | 2            | 2          |
| Excision               | 26           | 26         |
| Incision and Drainage  | 8            | 8          |
| Orchidectomy           | 2            | 2          |
| **Total**              | **100**      | **100**    |

*Table 6: Different surgical procedures employed for treatment of swellings*

**Graph 6:** Different surgical procedures employed for treatment of swellings.

![Graph 6]
Primary vaginal hydrocele & Chylocele were treated by Eversion of sac in 55 cases. Epididymal cyst, spermatocoele and sebaceous cyst were excised accounting for 26 cases, of which 2 cases of multiple sebaceous cysts were treated by excision of skin and primary suturing. Incision and drainage was done in 2 cases of scrotal wall abscess and for 6 pyocele cases. Orchidectomy was done in two cases of testicular malignancy. Varicocelectomy was done in 2 cases, conservative management with antibiotics in 7 cases.

| Procedure           | No. of Cases | Pain | Scrotal Oedema | Haematoma | Wound Infection |
|---------------------|--------------|------|----------------|-----------|-----------------|
| Eversion of sac     | 55           | 55   | 28             | 2         | 8               |
| Varicocelectomy     | 2            | 2    | 2              | 0         | 0               |
| Excision            | 26           | 26   | 7              | 2         | 2               |
| Incision and Drainage| 8           | 8    | 5              | 0         | 3               |
| Orchidectomy        | 2            | 2    | 0              | 0         | 0               |
| **Total**           | **93**       | **93**| **42**        | **4**     | **13**          |

Table 7: Post-operative complications during hospital stay

Graph 7: Post-operative complications during hospital stay.

Pain was present in 93 post-operative cases. Scrotal edema was seen in 42 cases (42%). Hematoma was seen in 4 cases (4%), 2 cases post eversion of sac, 2 in post epididymal cyst excision.

**DISCUSSION:** Patients with swellings of the scrotum rather present late even though they are noticed sooner mainly due to embarrassment and social stigma and most of them (adults) seek medical advice only after persistence by their spouses or partners. Present study conducted in our hospital included cases, selected from surgical wards, presenting with swelling of the scrotum.

Most of the patients were in age group of 31-40 years (50%), presenting feature being scrotal swelling as a main complaint in 60% of cases, majority of them presented with right sided swelling accounting 64%, majority of the swelling showed duration of symptoms within 7-12 months, accounting for 44% of the cases. However many other had scrotal swelling with pain or
pain alone as a complaint, few presented with fever. After scrotal examination, the diagnosis was confirmed by scrotal ultrasonography in relevant cases. Primary vaginal hydrocele was the commonest cystic swelling (52%), followed by epididymal cyst. Eversion of sac with excision of excess sac is the procedure for hydrocele. Most of the patients were admitted in the hospital for average 4 days. Advice of timely medication, scrotal support or wound hygiene of the surgical site and follow up was given.

The post-operative complication apart from pain, which was common in all patients, was sequelae, scrotal edema was found in 43 patients and hematoma post operatively in 4 cases. Epididymal cyst was the second most common cystic swelling treated by excision few were done under local and were discharged within 4 days. Similarly spermatocoele was seen in 2 patients and were treated by excision. Hematoma was treated by evacuation and eversion of the sac. Pyocele was treated by Incision and Drainage under suitable antibiotics coverage.

Drain (corrugated) was kept as per the decision by the surgeon in few cases and was removed within 24-48 hrs. All the cases were given tight scrotal support and appropriate antibiotics, analgesics and anti-inflammatory, to relieve pain, reduce edema and hematoma. Post-operative complications were managed conservatively. Hematoma was seen in 4 cases managed conservatively.

Most of the patients were discharged between 4-5 days, but some patients who developed scrotal edema, hematoma and infection were kept till 7 days.

CONCLUSIONS:

- Majority of the patients with swelling of the scrotum belonged to the 31-40 years of age group (50%) followed by 41-50 years (18%) and 21-30 years (12%).
- Scrotal swelling was the common mode of presentation (60%).
- Right side was dominant side of presentation than the left with a difference of 40%.
- Most of the patients were suffering with symptoms of duration 7-12 months (44%).
- Primary vaginal hydrocele was the commonest cause of cystic swelling of scrotum (52%).
- Primary Vaginal hydrocele of long duration can produce pressure effects on the testis.
- Postoperative stay duration, average was 4 days.
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