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Clinico - Sonological and pathological evaluation of extratesticular scrotal lesion

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Abstract

The study of 155 patients with extra testicular scrotal lesions presented to SSG Hospital Baroda from December 2015 to November 2016 the following points can be emphasized.

The commonest age group presenting with scrotal lesions was in the range of 31-40 years. Unilateral presentation was more common than bilateral presentation. The commonest presentation was scrotal swelling followed by pain and other associated complains of fever and urinary complaints.

The commonest finding was cystic followed by inflammatory, and neoplasm being rare. Among cystic hydrocele was the main pathology followed by epididymal cystic lesions. Epididymitis was more common than epididymorchitis followed by Fournier's gangrene in inflammatory lesions. The commonest site of involvement was tunica vaginalis followed by epididymis and scrotal wall lesions. Ultrasonography helped to differentiate extra testicular lesions from intratesticular lesions in nearly all the cases, as well as the site of involvement but was not useful in confirming the etiology. FNAC was found useful in not only coming onto a final diagnosis but also had role in finding the etiology.

Keywords: Clinicosonological, extra testicular, scrotal swelling

Introduction

Scrotum was earlier considered as an area of unaided clinical expertise. There are large number of patients with scrotal pathology which remain undiagnosed and treated without diagnosis [1, 2]. Scrotal lesions can occur from infancy to old age with wide spectrum of causes. Causes range from incidental findings of little significance to conditions that can cause permanent disability or death [3, 6]. Therefore, it is important to have a thorough knowledge of scrotal lesions before treating it. Scrotal masses can represent as benign congenital condition, life threatening malignancies, acute surgical emergencies. Scrotal lesions can be Intratesticular or Extra testicular [Solid or Cystic] [4, 5]. Here we are going to study extra testicular scrotal lesions, clinical presentation of patients, clinical findings and to correlate the findings with use of sonography and FNAC/histopathological finding.

1.1 Aims and objectives of study

- To associate clinical diagnosis of extra testicular scrotal lesions with sonography and FNAC/histopathological findings.
- To describe clinical features of extratesticular scrotal lesions.
- To describe prevalence of extratesticular scrotal lesions.
- To describe etiology of extratesticular scrotal lesions

2. Patients and methods

This is a cross-sectional study carried out in SSG hospital, baroda from December 2015 to November 2016.

2.1 Inclusion Criteria

All the patients presenting to SSG hospital with complain of scrotal pain and/or scrotal swelling, who found clinically or radiologically as extra testicular lesions are taken into study.

2.2 Exclusion Criteria

Pure Testicular lesions on clinical/sonological evaluation.
Inguino-scrotal swelling clinically or on sonographic evaluation.

Detailed history was taken regarding the scrotal swelling and pain, associated complains of fever, discharge, history of trauma was taken. All the patients presenting with scrotal swelling and/or pain with duration of complaint less than 7 days (<7 days) were grouped in Acute presentation and those with duration of complaint >3 weeks were grouped in chronic presentation. History of similar complains and treatment taken was noted. Past history of urethral catheterization and operations (hernia repair, vasectomy, hydrocele operations) was taken.

In general examination, vital data in form of temperature, pulse, respiratory rate, and blood pressure were recorded. In local examination, bilateral scrotal examination was done for swelling noting down its size, shape, surface, consistency, fluctuation, transillumination, compressibility, cough impulse, local temperature and tenderness. Condition of skin over the swelling and surrounding area was noted. Epididymis was also examined for any swelling, consistency, thickening, fluctuation and tenderness. Testis, spermatic cord was palpated and their parameters noted. Cough impulse test was done in absence of any swelling to check for varicocele. Scrotal skin was examined for any black patch, thickening/induration, ulcer to check for Fournier's gangrene. The provisional diagnosis was made based on clinical findings as Epididymitis/epididymo-orchitis, hydrocele, varicocele, epididymal cyst, Fournier's gangrene, mass lesion. Then all patients were subjected to ultrasonography. Color Doppler was done in cases in which clinical examination suspecting of varicocele. FNAC was done in all patients except in cases of varicocele. All the patients who were subjected to FNAC were given atropine before the procedure. Histopathological examination was done in cases of Fournier's gangrene, ulcerative lesion, mass lesion, and in cases where FNAC was inconclusive.

For the purpose of the study all the findings from the presentation of patient till final confirmation were recorded in detail using the proforma mentioned at the end.

2.3 Ultrasonographic findings and diagnosis

- Ultrasonography showing bulky heterogenous enlarged epididymis/testis with increased blood flow, then diagnosis of Epididymitis/Epididymo-Orchitis was made.
- Ultrasonography showing anechoic cystic lesion in the head region of epididymis, then diagnosis of CYST of Epididymis was made.
- Ultrasonography showing anechoic cystic lesion in relation to head of epididymis, then diagnosis of SPERMATOCELE was made.
- Ultrasonography showing mild, moderate, severe free fluid with internal echoes within TV sac, then diagnosis of HYDROCELE was made.
- Ultrasonography showing multiple dilated vascular anechoic channels adjacent to testis in pampiniform plexus, then diagnosis of VARICOCELE was made.
- Ultrasonography showing scrotal wall oedema, hypoechoic collection with internal echoes within the scrotal wall then diagnosis of FOURNIERS GANGRENE was made.

2.4 FNAC findings and diagnosis

- FNAC showing Mixed inflammatory cell infiltrate then diagnosis of infective/inflammatory lesions was made.
- FNAC showing clear, straw-coloured fluid which comprised histiocytes, lymphocytes, neutrophils, at times histiocytic giant cells and squamous in absence of malignant cells then diagnosis of benign CYST OF

Epididymis was made.

- FNAC showing milky or turbid fluid with numerous sperms, other spermatogenic cells, Sertoli cells and histiocytes then diagnosis of Spermatocele was made.
- FNAC showing amber-coloured, occasionally containing cholesterol and tyrosine crystals then diagnosis of Hydrocele was made.
- In milky fluid, with intact microfilariae along with histiocytes, other inflammatory cells and cellular debris seen then diagnosis of filarial hydrocele was made.

3. Observation and analysis

Total number of 215 patients were examined clinically and sonographically for scrotal lesions out of which 155 patients were found to be of extratesticular pathology, thus were taken into study. It was observed that majority of the patients (32.25%) with extratesticular lesions were 31-40 years of age, followed by 41-50 years (22.58%) and 21-30 years (21.94%). Distribution of patient according to the age is as shown in [Table 1].

Table 1: Age wise distribution of patients

Age (Years)	No. of Cases	Percentage
1-10 y	-	-
11-20 y	6	3.87%
21-30 y	34	21.94%
31-40 y	50	32.26%
41-50 y	35	22.58%
41-60 y	27	17.42%
61-70 y	3	1.94%

Out of 155 patients, 30 (19.35%) patients presented with bilateral scrotal complaint and 125 (80.65%) patients with unilateral scrotal complaint as shown in [Table 2].

Table 2: Distribution of patients according to presentation

Cl.Presentation	No. of Cases	Percentage
Unilateral	125	80.65%
Bilateral	30	19.35%

Scrotal swelling was the commonest symptom seen in 135 patients (87.1%), followed by Scrotal pain in 33 patients (21.3%). Fever and urinary complaints were seen in 22 patients each (14.2%). Distribution of cases according to symptoms is shown in [Table 3]

Table 3: Distribution of cases according to symptoms

Symptom	No. of Cases	Percentage
Swelling	135	87.10%
Pain	33	21.30%
Fever	22	14.20%
Uri. Complains	22	14.20%

Thirty-three (21.3%) patients presented with acute scrotum, characterized by acute pain and swelling of scrotum with the duration of symptoms varying from 1 day to 1 week. They included 25 cases clinically diagnosed as acute epididymitis with or without orchitis and eight cases of Fournier's gangrene. The remaining 122 (78.7%) patients presented with long-standing symptoms, varying from weeks to months, even years. The clinical diagnoses were made based on the above symptoms, the commonest being Hydrocele.

Out of 155 patients, the tunica vaginalis was found to be involved in the maximum number of cases [94 cases (60.7%)],

followed by the epididymis [47 cases (30.2%)], the scrotal wall [9 cases (5.85%)] and the spermatic cord [5 cases (3.25%)] [Table 4].

Table 4: Distribution of cases according to site of origin

Site of Origin	No. of Cases	Percentage
Tunica Vaginalis	94	60.70%
Epididymis	47	30.20%
Spermatic Cord	5	3.25%
Scrotal Wall	9	5.85%

The chief pathologies encountered were: Cystic lesions [121 cases (78.0%)], inflammatory lesions [33 cases (21.35%)] and tumor and tumor-like lesions [1 case (0.65%)] as summarized in [Table 5].

Table 5: Distribution of cases according to pathology.

Pathology	No. of Cases	Percentage
Cystic	121	78%
Inflammatory	33	21.35%
Neoplastic	1	0.65%

The extra testicular swellings were predominantly unilateral, while bilaterality was present in 30 patients (19.35%). Swellings showed no predilection for any hemiscrotum, except for varicocele, where left-sided lesions predominated. All the 155 patients were scanned by USG and color doppler wherever possible.

Among the lesions of tunica vaginalis, pathology encountered was 92 cases of hydrocoele, one case each of pyocele and filarial swelling as shown in [Table 6].

Table 6: Distribution of cases of tunica vaginalis lesion

Pathology	No. of Cases	Percentage
Hydrocele	92	97.8%
Pyocele	1	1.06%
Filariasis	1	1.06%

Epididymal lesions included cystic lesions (23 cases) and inflammatory lesions (24 cases). Among cystic, epididymal cyst was found in 21 cases and spermatocele in 2 cases. In inflammatory causes, 17 cases were of epididymitis and 7 cases of epididymo-orchitis as shown in [Table 7].

Table 7: Distribution of cases of epididymal lesions

Pathology	No. of Cases	Percentage
Epididymal Cyst	21	44.7%
Spermatocele	2	4.3%
Epididymitis	17	36.2%
Epididymo-Orchitis	7	14.8%

Spermatic cord involvement was seen in 5 cases, in which 4 cases were of varicocele and one of funiculitis as shown in [Table 8].

Table 8: Distribution of cases of spermatic cord.

Pathology	No. of Cases	Percentage
Varicocele	4	80%
Funiculitis	1	20%

Scrotal wall was involved in 9 cases, in which Fournier gangrene cases were 8 and one case was of scrotal mass as shown in [Table 9].

Table 9: Distribution of cases of scrotal wall

Pathology	No. of Cases	Percentage
Fournier Gangrene	8	88.9%
Keratinous Cyst	1	11.1%

Cytological evaluation was attempted in all the patients with extratesticular scrotal swelling. FNAC was not done in four patients diagnosed to be varicocele, as clinical diagnosis and sonography findings in varicocele are essentially diagnostic and in eight cases of Fournier gangrene and one case of scrotal neoplasm where histopathological examination was done.

Epididymitis was diagnosed in 18 patients clinically, these patients were then subjected to sonography which showed epididymitis in 17 patients and 1 patient with funiculitis, and FNAC findings in all the cases showed inflammatory cells indicative of epididymitis. 7 patients in which clinical diagnosis of epididymo-orchitis was made with the help of sonography, FNAC findings in these cases was suggestive of inflammatory lesions. 94 patients with scrotal swelling diagnosed as hydrocele clinically and by sonography, when subjected to FNAC showed 92 cases of pure hydrocele, 1 case of pyocele and 1 case of filariasis.

23 Patients with cystic swelling in relation to epididymis were diagnosed as epididymal cyst clinically and sonographically. On doing FNAC of the cystic swelling, it was found that out of 23 cases of epididymal cyst 2 cases were of spermatocele.

There were 4 cases of left sided scrotal swelling in which clinical suspicion of varicocele was made. These patients when subjected to sonography/doppler, confirmed the clinical diagnosis of varicocele.

Among the scrotal wall lesions, clinical diagnosis of Fournier gangrene was made in 8 cases. Sonography of these cases showed features of infective pathology. The tissue when sent for histopathological examination showed inflammatory cells with necrosis.

There was a single case of swelling over scrotal wall which on sonographic investigation suggested of solid neoplasm with cystic component, on histopathological examination proved to be a scrotal wall keratinous cyst. Hydrocele was more common in age group more than 40 years, Epididymitis being more common in 31-40 years of age whereas Epididymal lesions other than epididymitis were more common in 21-30 years of age. Similarly varicocele was seen commonly in 21-30 years of age and Fournier gangrene in more than 40 years of age group.

Distribution of lesions according to the age group is shown in [Table 10]

Table 10: Distribution of lesions according to age group

Age Group	Hydrocele	Epididymitis	Other Epididymal Lesions	Varicocele	Fourniers Gangrene
11-20 Y	-	2	3	1	-
21-30 Y	6	4	21	3	-
31-40 Y	32	10	8	-	-
>40 Y	56	-	-	-	8

4. Discussion

Studies dealing with intrascrotal pathology, especially those attempting to find a correlation between clinical, radiological and pathological data are very few. Most of the studies have evaluated the role of cytology in male sterility or testicular lesions. There are only few studies based on the role of cytology in epididymal nodule and non testicular scrotal lesions [8, 9].

In the present study, extra testicular pathology was found in 155 cases (72.1%), out of the total 215 scrotal lesions. The study done by Rholl *et al.* [10] in 20 patients showed extra testicular pathology in 16 cases (80%), which is comparable to my study. The study by Madhavi *et al.* [11] in 71 patients also showed similar results with 52 cases (73.24%) of the scrotal lesions to be extratesticular. The study by Rizvi *et al.* [3] in 90 patients showed extratesticular pathology in 65 cases (72.2%), which is comparable to my study.

It was seen that majority of the patients (32.25%) with extratesticular swelling were in range of 31-40 years. The study by haider *et al.* [12] showed 22% of patients in 31-40 years age range which is comparable to my study. Whereas the study done by madhavi *et al.* [11] showed 40.38% of patients in 21-30 years of range.

In the present study unilateral involvement was seen in 80.65% of patient and bilateral involvement in 19.35% of patients. The study by Haider *et al.* [12] also showed preponderance for unilateral involvement in (85% case) as compared to bilateral involvement (15% of cases) which is comparable to my study. The study by Rizvi *et al.* [3] also showed similar results with unilateral involvement (91.8%) more common than bilateral (9.2%).

The most common presenting complaint was scrotal swelling seen in 87.10% of cases in this study, followed by scrotal pain in 21.3% of cases. The study by madhavi *et al.* [11] also showed scrotal swelling to be the major complaint in 61.5% of cases. Major complaint is similar in both the studies (i.e. scrotal swelling).

The most common category of lesions was cystic lesion [121 cases (78.0%)], with hydrocele being the most frequent. This was followed by inflammatory lesions [33 cases (21.35%)] and tumor and tumor-like lesions [1 case (0.65%)], similar to the finding by Perez-Guillero *et al.* [13] who, in their study of 89 palpable lesions of the scrotum, testicle and epididymis, found cystic lesions (48.3%) and inflammatory pathology (25.8%), malignant pathology in 11.2% to be the most frequent findings, which may be due to involvement of testicular lesion also.

However, in a study by Handa *et al.* [20] on 137 cases of non-neoplastic testicular and scrotal lesions, inflammatory lesions were found to be the commonest [52 cases (31.7%)], followed by non-inflammatory lesions [42 cases (25.6%).

Commonest site to be involved was the tunica vaginalis [94 cases (60.7%)], in comparison to the finding by Rholl *et al.* [10]

where epididymis being the commonest site. This was followed by the epididymis; [47 cases (30.2%)], scrotal wall [9 cases (5.85%)] and the spermatic cord [5 cases (3.25%)].

Acute scrotum, one of the main symptoms of the patients presenting with scrotal pathology, was found in only 33 (21.3%) of our cases, the reason being the most important cause of acute scrotum, i.e., torsion of testis [14], was excluded from our study. Earlier studies have shown that the most frequent cause of acute scrotum in adult is inflammatory disease, being responsible for 75% of the cases [15]. According to Lyronis *et al.* [16] the commonest cause of acute scrotum in children was epididymo-orchitis, followed by torsion of appendages. In contrast, the most common cause in boys of preschool age was spermatic cord torsion.

Cystic masses of epididymis constituted 14.7% (23 cases) in our study, with true epididymal cysts being more common.

Diagnostic confusion in cases of hydrocele did not arise since in all the cases a fluctuant swelling was palpable separate from the testis. The two entities – epididymal cyst and spermatoceles – were, however, clinically and sonographically indistinguishable and their cytology contributed in differentiating the two, as the aspirated fluid in these entities was different both macroscopically as well as microscopically.

According to many studies, hydrocele and more complex fluid collections are easily identified by ultrasonography. However, it is not possible to differentiate hemocele from exudative hydrocele by ultrasound alone, and therefore any fluid collection that entirely encircles the testis should be explored and drained [17]. So, in the present study, after categorization of fluid collection into simple and complex hydrocele using ultrasonography, aspiration was done. This led to further categorization of complex hydroceles into filariasis and pyocele. The only true neoplasm detected in the present study was scrotal wall keratinous cyst accounting for (0.65%) of the extratesticular lesions. A study by Upton and Das [18] on solid intrascrotal masses, both testicular and paratesticular, showed a higher incidence of benign neoplasm in the paratesticular structures, with adenomatoid tumor being the commonest and fibrous pseudotumor being the second most common benign tumor of testicular adnexa. A study of solid extratesticular masses that underwent surgical resection by Beccia *et al.* [17] showed commonest lesion as lipoma with an overall malignancy rate of 3%. Another study of 19 patients with extratesticular masses using ultrasonography by Frates *et al.* [7] gave a higher malignancy rate of 16%, the commonest lesion being adenomatoid tumor. However, the number of patients with neoplasms is too small in the present study to be compared with any of the above.

The association between clinical examination, sonography and FNAC was made from the study which is shown in the [Table 11].

Table 11

Scrotal Lesions	Clinical Examination	Usg/Doppler	Fnac/Histopathology
Hydrocele	94	94	Hydrocele-92 Pyocele-1 Filariasis-1
Epididymal Cyst	23	23	Epididymal Cyst-21 Spermatocele-2
Varicocele	4	4	-
Fournier Gangrene	8	8	8

Clinical diagnosis of hydrocele was made in 94 cases which on sonography also showed 94 cases. FNAC of the 94 cases showed 92 cases of hydrocele, 1 case of pyocele and 1 case of filariasis. This suggest clinical diagnosis has 100% sensitivity as compared to ultrasonography, whereas 98% sensitivity as

compared to FNAC in diagnosing hydrocele.

Epididymal cyst was diagnosed clinically in 23 cases which on sonography also showed 23 cases, whereas FNAC of the cystic lesion showed 21 cases of epididymal cyst and 2 cases of spermatocele. Thus clinical diagnosis has 100% sensitivity in

diagnosing epididymal cyst as compared to sonography, but 98% sensitivity as compared to FNAC.

For varicocele and Fournier gangrene clinical diagnosis has 100% sensitivity.

5. Conclusion

Though clinical diagnosis of extratesticular scrotal lesions like hydrocele, varicocele, epididymitis, epididymo-orchitis, epididymal cyst and Fournier's gangrene is accurate in majority of cases, few still requires further mode of investigation like ultrasonography or FNAC. The present study also showed that ultrasound, though reliable in distinguishing between intratesticular and extratesticular lesions and to characterize them as cystic and solid, cannot distinguish benign from malignant pathology. The advantage of FNAC is that apart from being simple, safe, and cost-effective, it also helps to classify cystic masses of tunica vaginalis and of the epididymis on the basis of the contents and defines the etiology of the chronic inflammatory lesions. In corroboration with clinico-radiological diagnosis, FNAC also helps to pinpoint a specific diagnosis, thereby influencing the clinical management.

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