

# Analysis of Cystic Swellings of the Scrotum: A Prospective Observational Study

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## Abstract

**Introduction:** Cystic swellings of the scrotum are widely considered one of the most common clinical entities that a surgeon comes across in daily practice. Defined as abnormal collections of fluid within the scrotal cavity, they affect males of all age groups and account for the majority of all scrotal swellings.

**Aim:** The aim of the study was to study the different clinical pattern of presentation of patients with cystic swellings of scrotum and their incidence.

**Methods:** Patients with cystic swelling of scrotum were taken up for the study, and various surgical techniques such as eversion, plication, subtotal/partial excision, and eversion of sac were adopted.

**Results:** Primary vaginal hydrocele is the most common cause of cystic swelling of the scrotum with 70%. The most common presenting feature is asymptomatic swelling of the scrotum. Lord's plication for hydrocele is simple, effective, safe, and economical for small hydrocele. Cystic swelling scrotum was most common on the right side of scrotum.

**Conclusion:** Lord's plication for hydrocele is simple, effective, safe, and economical; eversion of sac and partial/subtotal excision and eversion of sac hematoma formation and infection are common, but still it is the choice of operation for large hydrocele and in thickened sac.

**Key words:** Epididymal cyst, Hydrocele, Jaboulay's procedure, Lord's plication

## INTRODUCTION

Cystic swellings of scrotum are usually painless and can attain a very big size without causing much discomfort to patient. The mortality from this condition is negligible. The scrotum is liable to traumatic injury due to their hanging down position and mobility leading on to hematocele.<sup>1</sup> Primary hydrocele is an abnormal collection of serous fluids 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. The conventional methods for treatment for primary hydroceles epididymal cyst and spermatoceles include repeated aspiration, aspiration and injection of sclerosant, or surgery. Sclerosant may cause pain, repeated aspiration carries the risk of infection and hematoma formation.<sup>2</sup> The gold standard continues to be surgical extirpation of the cystic lesion. In cystic swelling of scrotum, surgical treatment of idiopathic hydrocele includes four basic techniques – Lord's plication, Jaboulay's eversion of the sac, Winkelmann's partial excision, and eversion of the sac and radical excision of the sac.<sup>3,4</sup> Cystic swellings of scrotum are a common entity in day-to-day clinics. Due to varied etiology, their mode of presentation and management is unique for each. There is a necessity to study the ideal treatment modality for a given type of cystic swelling.

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## Aim

The aim of the study was to study the different clinical patterns of presentation of patients with cystic swellings of scrotum and their incidence.

## MATERIALS AND METHODS

This prospective observational study was conducted in Department of General Surgery at Tirunelveli Medical College Hospital. Inclusion criteria - cystic swelling arising from the testis and its coverings, epididymis, and spermatic cord are included in this study. Exclusion criteria - Patients with scrotal swelling of the age less than 12 years and patients with a history of trauma were excluded from the study. Patients admitted with symptoms pertaining to the scrotal swelling were studied making use of the available facilities in the hospital. Data collected with history taking, clinical examination, and investigations.

## RESULTS

The youngest is 21 years of age and the oldest being 82 years. The maximum number of cases was seen in the age group of 21-30 years, whereas the minimum number of cases was seen after 70 years and above (Table 1). In this study, cystic swellings of the scrotum were more common in coolies, followed by agriculturists and students. Most of them were from poor socioeconomic class. In this study, in 50% of cases, the duration of the swellings was 6-12 months, followed by 0-6 months in 30% of cases, 13% of cases presented between 1 and 2 years, and majority of the patients presented within 2 years of onset of symptoms.

Sidewise distribution of the swelling showed a higher incidence on the right side of the scrotum 53% when compared with the left side of the scrotum 38%; bilateral swelling was present in 8% of the cases (Table 2).

In our study of cystic swelling of scrotum, the most common presentation was primary vaginal hydrocele (70%), followed by secondary hydrocele (10%) and congenital hydrocele 6% and least was epididymal cyst - 3.3% (Table 3). 100% of patients were given spinal anesthesia.

Jaboulay's eversion of sac was done for primary vaginal hydrocele which accounts for 47%. Lords plication operation was done for 3% of the cases; partial/subtotal excision and eversion of sac were done for bigger hydroceles which account for 15% of the cases; excision of epididymal cyst and encysted hydrocele of the cord accounts for 6.6% of the cases; herniotomy was done in 6% of the cases; and evacuation of clot and eversion of sac in 3% of the cases (Table 4).

**Table 1: Age incidence of cystic swellings of the scrotum**

Age group	Number of cases (%)
1-10	0 (0)
11-20	0 (0)
21-30	19 (31.6)
31-40	17 (28.3)
41-50	8 (13.3)
51-60	10 (16.6)
61-70	6 (16.6)
71-above	0 (10.0)

**Table 2: Distribution of cystic swellings in the present study**

Side	Number of cases (%)
Right (R)	32 (53.3)
Left (L)	23 (38.3)
Bilateral (B/I)	5 (8.33)

**Table 3: Type of lesions in the present study**

Lesion	Number of cases (%)
Primary vaginal hydrocele	42 (70)
Congenital hydrocele	4 (6.66)
Epididymal cyst	2 (3.33)
Encysted hydrocele of cord	2 (3.33)
Secondary hydrocele	6 (10)
Hematocele	2 (3.33)
Pyocele	2 (3.33)
Spermatocele	0 (0)

Postoperatively, pain was noticed in almost all cases, In Lords plication, it was comparatively less. Scrotal edema was observed in 10% of the cases. Occurrence of scrotal edema was least following Lord's plication when compared to other conventional techniques for treatment. Hematoma was observed in 10% of the cases. It was seen following partial/subtotal excision and eversion of sac. No hematoma was observed in Lord's plication and herniotomies. All the hematomas were managed conservatively with antibiotics, analgesics, and scrotal support (Table 5).

Perioperatively, normal testis was observed in 90% cases; of five cases showed flattening of testis in primary vaginal hydrocele and inflamed testis was seen in 1% (Table 6).

## DISCUSSION

Clinical examination was found to be very important for diagnosis. Most of the swellings were oval in shape or globular. In most cases, scrotal rugosity was lost in hydroceles. Majority of the swellings were cystic inconsistency, fluctuant, and translucent, and transillumination was negative in cases of secondary

**Table 4: Type of operations performed on the studied cases**

Type of operations performed	Number of cases (%)
Jaboulay's eversion of sac	26 (43.3)
Subtotal excision and eversion of sac	9 (1.5)
Partial excision and eversion of sac	9 (1.5)
Lord's plication	2 (3.33)
Excision for epididymal cyst and encysted hydrocele of cord+spermatocele	4 (6.66)
Herniotomy	4 (6.66)
Evacuation of clot and eversion of sac	4 (3.33)
Subtotal excision in secondary hydrocele	4 (6.66)

**Table 5: Surgical procedure employed for primary vaginal hydrocele**

Procedure	Number of cases (%)
Lords plication	59 (11.9)
Jaboulay's eversion of sac	18 (42.8)
Partial excision and eversion of sac	13 (30.9)
Subtotal excision and eversion of sac	6 (14.2)

**Table 6: Perioperative findings of testis**

Findings	Number of cases (%)
Normal testis	54 (90)
Flattening of testis	5 (8.33)
Inflamed testis	1 (1.66)

hydrocele, spermatocele, hematocele, and pyocele and because of the opaque nature of their contents. After scrotal examination, the diagnosis was confirmed by scrotal ultrasonography. The most common cause for cystic swelling for the scrotum was primary vaginal hydrocele which accounts for 70%, the other causes were congenital hydrocele 6%, encysted hydrocele of cord 3%, secondary hydrocele 10%, hematocele 3%, and pyocele 3%. A maximum number of cystic swellings of scrotum were seen in the age group of 21-30. The incidence of hydrocele was more common on the right side of the scrotum when compared to the left side. A similar incidence was observed in a study done by Mahalingam.<sup>5</sup> While no cause could be detected for primary vaginal hydrocele and epididymal cyst secondary hydrocele was due to disease of the testis and epididymis. The cause for hematocele was recent trauma and for pyocele was infection of hydrocele. Surgery was gold standard and was employed in all the cases. Spinal anesthesia was used in all of the cases, i.e., No general anesthesia/local anesthesia used in our surgery. In primary vaginal hydrocele, Lords plication was found to be simple, effective, and associated with least post-operative complications and it can be done as a daycare surgery, the other conventional techniques such as partial/subtotal excision and eversion of sac and in eversion of sac were

associated with increased incidence of complications such as haematoma, scrotal edema, and infection.

The results of this study are comparable to that of previous series. Of the two cases of hydrocele treated by Lords plication, none developed hematoma. Hematoma was observed in three cases out of 18 cases treated by partial/subtotal excision and eversion/eversion of sac. This is high compared to Campbell series, low compared to Rai *et al.* series<sup>10</sup> but comparable to Effron and Sharkey<sup>7</sup> and Dahl *et al.* series.<sup>7</sup> Lords plication gave rise to fewer complications and post-operative morbidity. May be because Lords plication procedure avoids the opening of the cleavage between the sac and surrounding tissue, thus reducing the oozing and subsequent hematoma formation, Agarwal<sup>6</sup> in 1983 did a comparative study on radical cure of hydrocele. In this study, he showed that among 50 cases who were operated by Lords plication, none of them developed hematoma or infection, whereas in 50 cases who underwent eversion of sac, 14 (28%) cases developed haematoma, and 8 (16%) cases developed infection. In our study, among 48 cases underwent eversion of sac, only 15 (31.6%) developed hematoma and 9 (18.7%) cases developed infection. This study shows that Lords plication for hydrocele is simple, effective, safe, and economical. It is the procedure of choice for the management of small- to moderate-sized primary hydrocele. The only factor against to this procedure is a large hydrocele or a thick-walled hydrocele, where eversion, subtotal excision of sac is the operation of choice. Perioperatively, flattening of testes was noticed in five cases of unilateral primary vaginal hydrocele out of 42 cases. The results of this study were compared with the study done by Dandapat *et al.* (Tables 7 and 8).<sup>11</sup>

In the study done by Dandapat *et al.*, on 120 cases of big unilateral hydrocele, there was no pressure effect from the hydrocele on the structure of the testis in 70%, flattening of testis in 22%, and atrophy of testis in 8% of cases. In the present study of 60 cases, there was no pressure effect in 88%. Flattening of testis in 11.9% of cases and no atrophy of testis in any of the cases. Epididymal cysts and encysted hydrocele of the cord were treated with excision of cyst. Hematocele was treated by evacuation of clot and eversion of sac. All the patients were given tight scrotal support and appropriate analgesics. Corrugated drain was removed after 72 h. For scrotal wall and scrotal skin, chromic catgut 2-0 and ethilon 2-0 was used in all cases. The common post-operative complications observed were pain, scrotal edema, and hematoma, managed conservatively by analgesics scrotal support and antibiotics (Table 9).

Minimal tissue dissection and with maintaining hemostasis during surgery are important for prevention of post-operative complications. Post-operative scrotal support

**Table 7: Comparative studies (Agarwal series)**

Series	Lords plication procedure			Excision/eversion of sac		
	Number of cases	Hematoma	Infection	Number of cases	Hematoma (%)	Infection (%)
Agarwal series <sup>6</sup>	50	-	-	50	14 (28)	8 (16)
Present study	2	-	-	18	3 (16.6)	4 (22.2)

**Table 8: Comparative studies 2**

Series	Lords plication procedure			Excision/eversion of sac		
	Number of cases	Hematoma	Infection	Number of cases	Hematoma	Infection (%)
Effron and Sharkey <sup>7</sup>	1967	1	29	1	30	9 (30)
Dahl et al. <sup>8</sup>	1972	1	25	1	23	6 (26)
Reddy <sup>9</sup>	1972	Negligible	50	-	20	15 (75)
Rai <sup>10</sup>	1978	-	22	-	-	-
Lord <sup>3</sup>	1964	-	22	-	-	-
Present series	2014-15	-	2	-	18	3 (10)

**Table 9: Comparison with Dandapat study**

Series	No. of cases	Effect of pressure on the testis		
		No effect	Flattening of test	Atrophy of testis
Dandapat et al. <sup>11</sup>	120	70%	22%	8%
Present study	42	37 (88.09%)	5 (11.90%)	Nil

helps to relieve pain, minimize scrotal edema, and prevent hematoma.

## CONCLUSION

Cystic swellings of the scrotum are common conditions that a surgeon comes across in daily practice. They are often associated with considerable morbidity in terms of physical, psychological, social, and economic outcomes. Males of all age groups may be affected, the most common mode of presentation being a painless, gradually progressive swelling in the scrotum. Hydrocele was the most common swelling encountered in all age groups. The other swellings encountered were epididymal cysts and pyoceles.

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