

Methodology and Management of Cystic Swellings of Scrotum

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Abstract

Background and Objectives: The cystic swellings of scrotum are one among the common surgical problem in all age group. Objective of this study is to identify the cause, mode of presentation, various modalities of treatment and outcome of these with least complications. **Methods:** A total of 50 cases of cystic swellings of scrotum fulfilling the methodology criteria's were subjected to preformatted study. Final diagnosis was made with Clinical examination and Ultrasound. All 50 cases were treated surgically. **Results:** Most of the patients were in age group of 31-40 years (32%), presenting feature being scrotal swelling as a main complaint in 56% of cases, majority of them were right sided (60%), majority of them presented with in a year, 48% presented with in first 6 months and 26% in next 6 months. Primary vaginal hydrocele was the commonest cystic swelling (56%), followed by Epididymal cyst, Sebaceous cyst, Haematocoele, Pyocoele. Lord's plication was the procedure, which was associated with early discharge of the patient and least post-operative complications. Most of the patients were discharged around 8th Post-operative day. **Conclusion:** Primary vaginal hydrocele was the commonest cystic swellings of scrotum. Most of the cystic swellings were treated surgically with good results. Lord's procedure was the least to have post-operative complication.

Keywords: Hydrocoele; Epididymal cyst; Spermatocele; Pyocoele; Haematocoele; Lord's plication.

Introduction

Cystic swellings of scrotum is one of the most common surgical problem with which the patient comes to the hospital. It is generally a benign condition affecting both adult and paediatric age group and has varied etiology. Cystic swellings of scrotum not only affects the physical but also the mental well being of the patients. Most of the patients realize about these scrotal swellings by self examination.

Cystic swellings of scrotum may present as painless, large swelling without causing any discomfort to the patient but his main complaints, being embarrassment caused by the cosmetic appearance, and the concerns about his sexual viability. Thus arises, the need for proper evaluation for various causes, predisposing factors, early diagnostic techniques and different modalities of treatment for the same.

The wide spectrum of cystic swellings of the scrotum include hydrocele, spermatocele, sebaceous cysts, epididymal cysts, chylocele, haematocoele, pyocoele, and epidermal cysts.

Primary hydrocele is an abnormal collection of serous fluid in some part of the processus vaginalis usually the tunica [1]. It is divided into simple (scrotal) and communicating [2]. Commonly known as cheer in northern parts of Karnataka. Epididymal cysts represent cystic degeneration of the epididymis and are filled with crystal clear fluid [2].

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

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[3]. The scrotum has abundant quantity of sebaceous glands, which may become infected and obstructed forming sebaceous cysts.

Secondary hydrocele occurs secondary to disease of the testis and epididymis and its management includes treatment of the underlying cause.

Filarial hydrocoele and chylocoele is very common in some tropical countries where the parasite (*Wuchereria Bancrofti*) is endemic accounting for almost 80% of hydrocoele cases. Cystic swellings of scrotum are generally painless and can reach upto very large size. However mortality from this condition is almost negligible.

Indications for treatment include pain (most common), discomfort and the cosmetic appearance of the scrotum or the patients wish [4]. Due to the different etiology, the management also differs according to the condition.

Conventional treatments for primary hydrocele, spermatocele and epididymal cysts includes 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 [5]. The gold standard continues to be surgical extirpation of the cystic lesion [6].

For secondary hydrocele there is no regime of treatment.

Management of this includes treating the underlying cause.

There are basically four surgical techniques for idiopathic hydrocoele-

1. Lord's plication [8],
2. Jaboulay eversion of sac [9],
3. Winkelmann's partial excision and eversion of the sac and
4. Radical excision of the sac [7].

Newer faster operation in adults comprises of the window operations or vaginal fenestrations [10,11]. Congenital hydrocele, surgically treated by herniotomy. Treatment of epididymal cysts and spermatocele done with excision of the cysts [2,3].

The complications of operative procedures being bleeding, spermatic cord injury, torsion of testes (due to faulty reposition). The common post operative complications include haematoma and odema [12]. This can be avoided by achieving haemostasis and post operative scrotal support.

In view of the above mentioned factors a meticulous, systematic study of classifications, etiological factors, clinical presentations and management of cystic swellings of scrotum will be undertaken.

A case study of 50 cases with cystic swellings of scrotum is undertaken here.

Aim of the Study

1. To study relative incidence in age and predisposing factors of cystic swellings of scrotum.
2. To study the various etiology of cystic swellings of scrotum.
3. To study about the various patterns of clinical presentation of swellings of scrotum and diagnostic tools helping in its management.
4. To study about the different modalities of treatment including the surgical procedures and evaluating the success rates for the same.
5. To evaluate the post operative complications and measures to prevent the same.

Methodology

This is a descriptive study on Methodology and Management of Cystic Swellings of Scrotum. The material for the present study will be collected from the patients who are admitted in various surgical units, Department of Surgery, Adichunchanagiri Institute of Medical Sciences, B.G. Nagara, with swelling in the scrotal region from November 2015 to August 2017.

Minimum of 50 patients will make the sample size (randomly chosen), fulfilling the inclusion criteria for this study.

Inclusion Criteria

- Age group 2yrs-60 yrs.
- Cystic swellings from the testes and its coverings, epididymis, spermatic cord and from scrotal skin.

Exclusion Criteria

- Cystic inguino-scrotal swellings- congenital and funicular hydrocoele, encysted hydrocoele of the cord, varicocele, torsion of testes, filarial hydrocele, malignancy to be excluded from this study.
- Patients above 60 years of age.
- Secondary hydroceles.

Method of Collection of Data

1. Complete history of the patients.
2. Thorough clinical examination.
3. Routine Investigations.
4. Specific investigation if any considering the condition.

5. Ultra-sound scanning to be done in all cases.
6. Complete pre-operative evaluation along with preparation for surgery and informed consent from patient and attendants.
7. Intra operative findings to be documented.
8. Post-operative finding documentation and its respective management.
9. Follow up to be done.

Surgical procedure appropriate for the patient's state was undertaken. Corrugated drain was used for some patients. Scrotal support was given in almost all the post-operative cases. All the patients were told for follow up on outpatient basis.

Results and Observations

Observations and Discussion of Cases

Present study has undertaken 50 cases, admitted under various surgical units in Department of Surgery, Adichunchanagiri Institute of Medical Sciences, B.G. Nagara, Nagamangala Taluk, Mandya District, from November 2017 to May 2018.

Analysis of Data

The youngest patient was 13 year old and the oldest was 58 years. Maximum number of cases was seen in the age group between 31-40, 16 in number mounting



Image 5: Right Sided Epididymal Cyst



Image 6: Encysted Hydrocele Of Cord



Image 7: Parietal layer of Tunica vaginalis

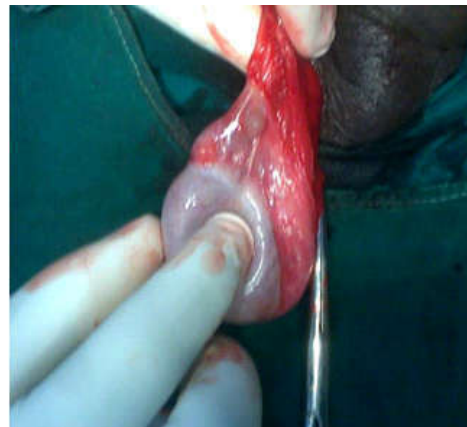


Image 8: Testis epididymis with



Image 1: Left Sided Hydrocoele



Image 2: Bilateral Hydrocoele



Image 3: Left Sided Haematocoele



Image 4: Multiple Sebaceous Cyst



Image 9: Excision of skin and primary epididymal cyst suturing in a case of multiple sebaceous cyst



Image 10: Scrotum opening in layers

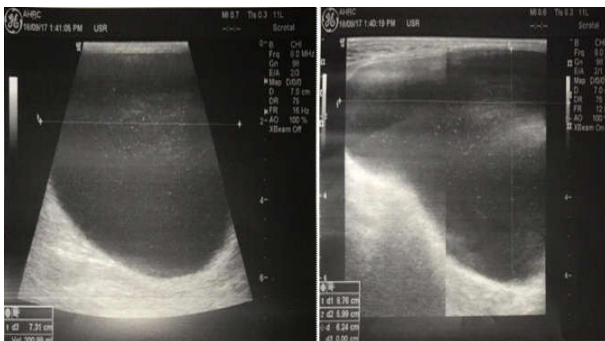


Image 11: Ultra Sound Images Showing Hydro Coele



Image 12: Ultra Sound Images Showing Haematocoele

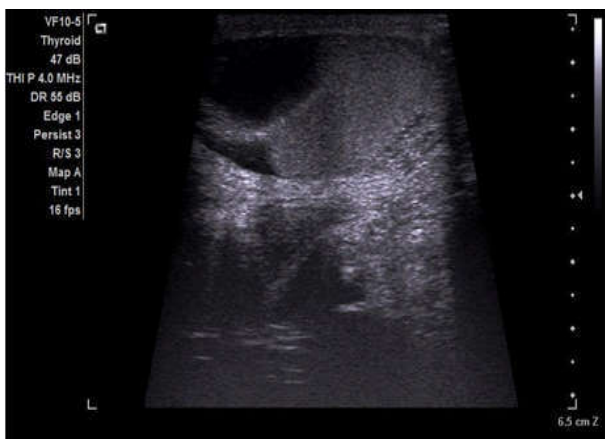


Image 13: Ultra Sound Images Showing Epididymal Cyst

to 32% of cases; followed by 41-50 age group and 21-30 age group, 11 cases (22%) and 10 (20%) cases respectively. Minimum number of cases are seen in the age group of 51-60, that is 5 cases accounting 10% of total (Table 1 and Graph 1).

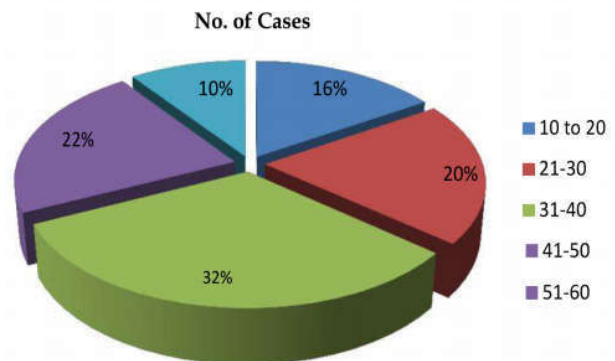
Twenty eight (28) patients complained of only scrotal swellings, which accounted 56%. Pain was the chief complaint in rest 22 cases which were about 44% of total cases. 3 cases had fever as additional complaint along with scrotal swellings, accounting 6% of total (Table 2 and Graph 2).

Right side scrotal swellings was predominant having 30 cases, making 60% of total cases. of the cystic swellings of scrotum. In contrast left side swellings were 11 in number accounting for 22%. 18% cases that is 9 cases had shown up with bilateral swellings (Table 3 and Graph 3).

The majority of the patients presented to hospital within 0-6 months of symptoms which were 24 cases mounting to 48% of total. 13 cases that is about 26% of cases presented in 7-12 months of symptoms. Next, 9

Table 1: Age Incidence of the Cystic Swellings of the Scrotum

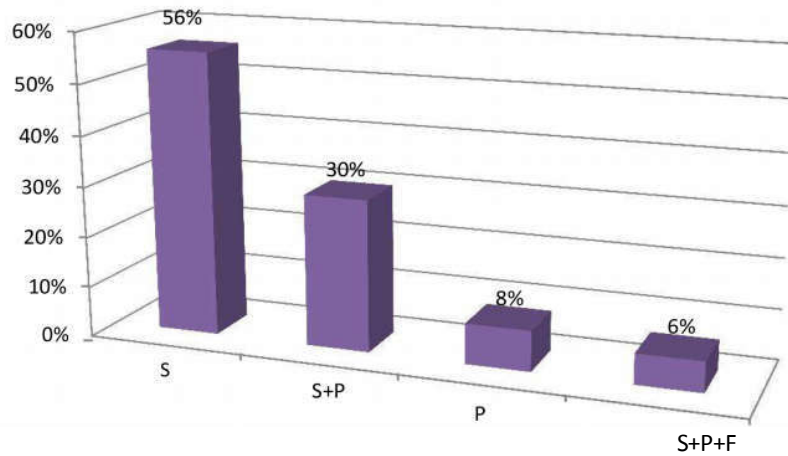
Age (years)	No. of Cases	Percentage
10-20	8	16%
21-30	10	20%
31-40	16	32%
41-50	11	22%
51-60	5	10%
Total	50	100%



Graph 1: Age Incidence of The Cystic Swellings of the Scrotum

Table 2: Presenting Features

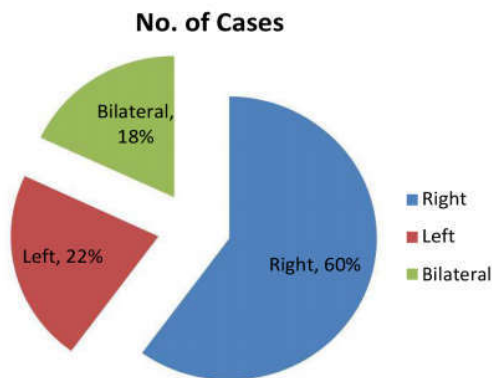
Presenting Feature	No. of Cases	Percentage
Scrotal Swelling	28	56%
Scrotal Swelling + Pain	15	30%
Pain alone	4	8%
Scrotal Swelling+ Pain+ Fever	3	6%
Total	50	100%



Graph 2: Presenting Features

Table 3: Side of the Swelling

Side	No. of cases	Percentage
Right	30	60%
Left	11	22%
Bilateral	9	18%
Total	50	100%



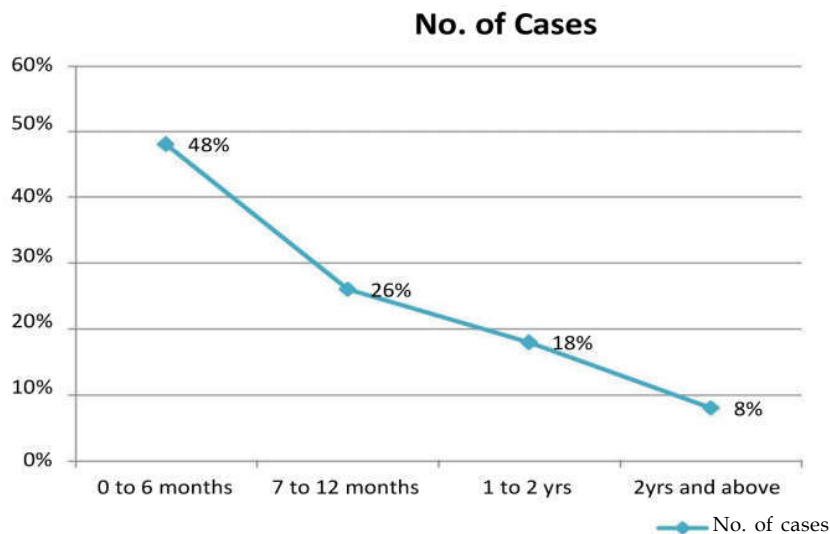
Graph 3: Side of the Swelling

cases presenting with symptoms for 1-2years accounting for 18%. Rest 4 cases that is 8% came with symptoms of more than 2 years (Table 4 and Graph 4).

The most common etiology of cystic swellings was primary vaginal hydrocoele which was around 28 cases mounting to 56% of total cases. Epididymal cyst, was the second most common cause included 14 cases

Table 4: Showing duration of symptoms

Duration	No. of Cases	Percentage
0 to 6 months	24	48%
7 to 12 months	13	26%
1 to 2 yrs	9	18%
2 yrs and above	4	8%
Total	50	100%



Graph 4: Showing duration of symptoms

being 28%. 4 cases that is 8% were Sebaceous cyst, out of which 1 were multiple sebaceous cyst. 2 (4%) cases of Haematocoele and pyocoele each, were noted. 1 (2%) case of spermatocoele was also included in the study (Table 5 and Graph 5).

The age distribution of primary vaginal hydrocoele varies from 10- 60 yrs, Most number of cases were seen in 31-40 age group -11 cases; 8 cases in 21-30 age group, followed by 5 cases in 10-20 age group. Epididymal cyst, 5 cases in 41-50 age group, 4 cases in 31-40 age group , 2 each in 10-20 and 21-30 age groups. 4 cases of Sebaceous cyst seen in 41-50 (1 case)

and 51-60 (3cases) age group. 2 cases of Haematocoele one each in 10-20 age group and 31-40 age group. 2 cases of Pyocoele was seen in 41-50 age group. One case of Spermatocoele seen in 51-60 age group was seen in this study.

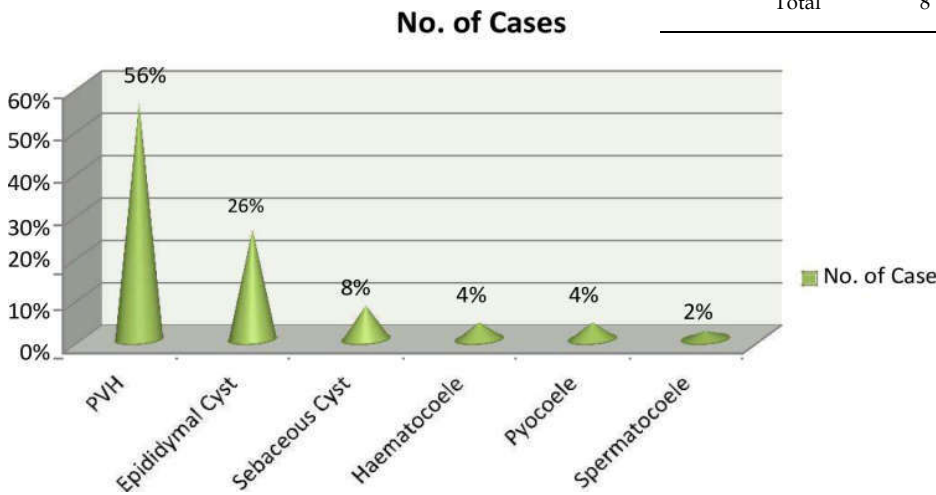
Spinal anaesthesia was the choice of anesthesia in most number of the cases-38 cases that is 76% of total cases. In young age group general anaesthesia was preferred and also in cases of failed spinal anaesthesia. Local anaesthesia was used for 3 cases (6%) for excision sebaceous cysts (Table 7 and Graph 7).

Table 5: Aetiology of cystic swellings of scrotum

Aetiology	No of Cases	Percentage
Primary vaginal hydrocoele	28	56%
Epididymal Cyst	13	26%
Sebaceous Cyst	4	8%
Haematocoele	2	4%
Pyocoele	2	4%
Spermatocoele	1	2%
Total	50	100%

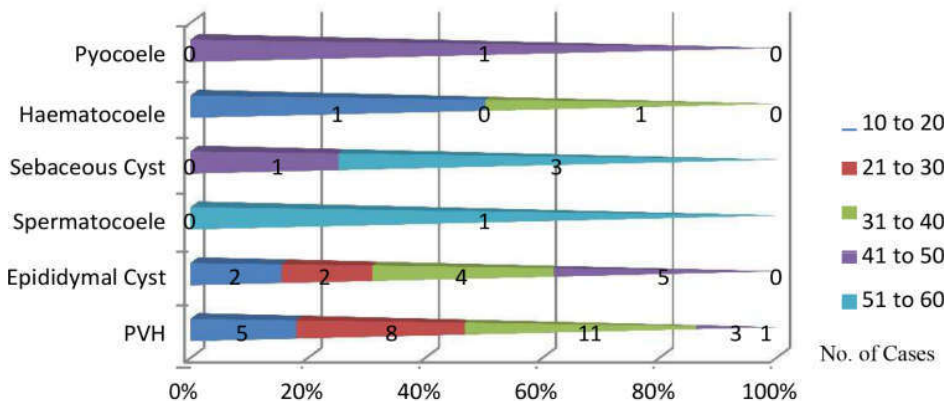
Table 6: Age incidence of aetiological lesions

Aetiology	Age Groups (years)					Total
	10-20	21-30	31-40	41-50	51-60	
Primary Vaginal Hydrocoele	5	8	11	3	1	28
Epididymal Cyst	2	2	4	5	0	13
Sebaceous Cyst	0	0	0	1	3	4
Haematocoele	1	0	1	0	0	2
Pyocoele	0	0	0	2	0	2
Spermatocoele	0	0	0	0	1	1
Total	8	10	16	11	5	50



Graph 5: Aetiology of cystic swellings of scrotum

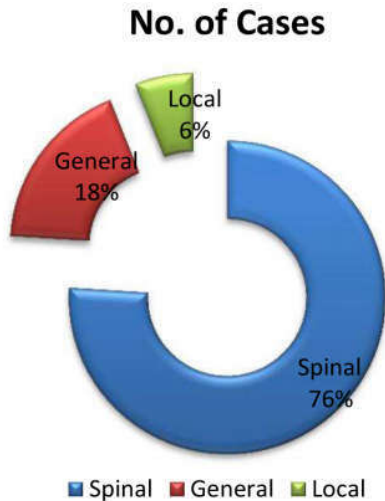
Age incidence of etiological lesions



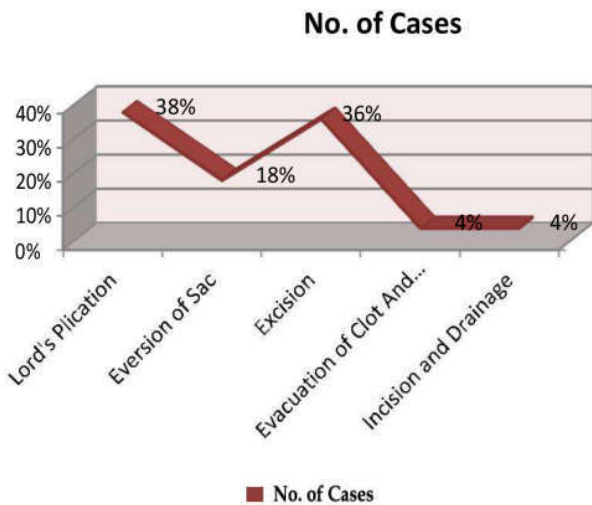
Graph 6: Age incidence of etiological lesions

Table 7: Types of Anaesthesia employed

Anaesthesia	No. of Cases	Percentage
Spinal	38	76
General	9	18
Local	3	6
Total	50	100



Graph 7: Types of Anaesthesia employed



Graph 8: Different surgical procedures employed for treatment of swellings

Table 8: Different surgical procedures employed for treatment of swellings

Procedure	No. of Cases	Percentage
Lord's Plication	19	38%
Eversion of sac	9	18%
Excision	18	36%
Evacuation of clot and eversion	2	4%
Incision and Drainage	2	4%
Total	50	100%

Primary vaginal hydrocoele was treated by Lord s plication in 19 cases (38% cases), Eversion of sac in 9 cases (18%). 18 cases (36%) underwent excision biopsy for epididymal cyst, spermatoceole, and sebaceous cyst. One case of multiple sebaceous cyst was treated by excision of skin and primary suturing. 2 cases (4%) of haematocoele were treated by Evacuation of clot and eversion. Incision and drainage was done for 2 cases(4%) of pyocoele (Table 8 and Graph 8).

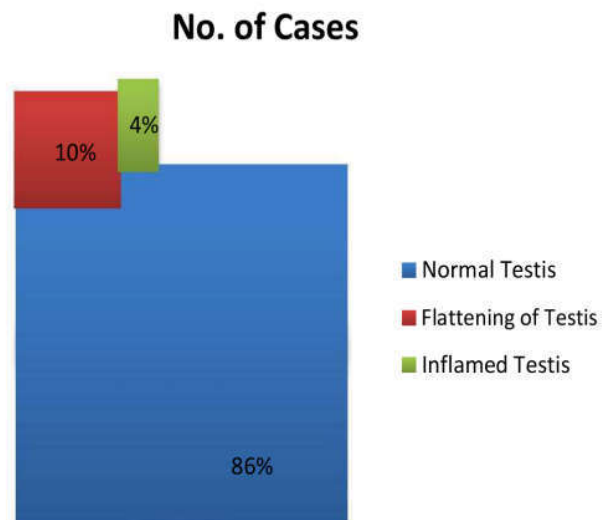
Per-operatively, 43 cases (86%) were found to have normal testis. 5 cases (10%) flattening of testis in Primary vaginal hydrocoele was observed. In 2 case (8%) of pyocoele, inflamed testis was seen, in this study (Table 9 and Graph 9).

Postoperatively, Pain was the chief complaints of all the cases. 13 cases (26%) had scrotal edema. Scrotal edema was least in Lord s Plication, in comparison to all other procedures for vaginal hydrocoele. 5 cases (10%) had post operative haematoma was seen. Wound infection was seen in 3 cases (6%) in this present study of cystic swellings of scrotum (Table 10 and Graph 10).

19(38%) patients were discharged from hospital in post operative 0-5 days. Sebaceous cyst being the earliest to be sent home. 28 (56%) patients were discharged between 6-10 days. 3 patients (36%) were

Table 9: Per operative findings of Testis

Findings	No. of Cases	Percentage
Normal Testis	43	86%
Flattening of Testis	5	10%
Inflamed Testis	2	4%
Total	50	100%



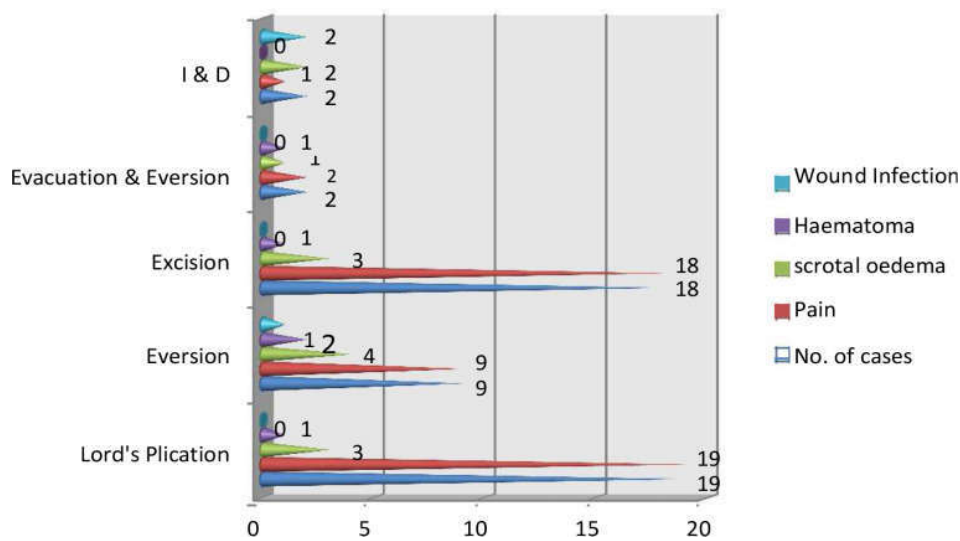
Graph 9: Per operative findings of Testis

discharged between 11-15 days, reason being wound infection of incision and drainage cases. Early discharge pattern was observed in patients who

underwent Lord's procedure in comparison to eversion of sac for primary vaginal hydrocoele (Table 11 and Graph 11).

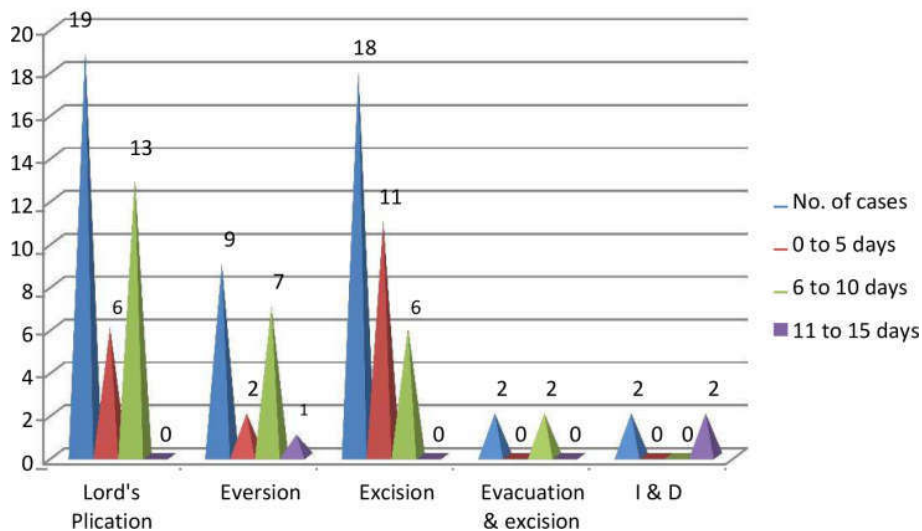
Table 10: Post operative complications in the present study with relation to the surgical procedure

Procedure	No. of Cases	Pain	Scrotal Oedema	Haematoma	Wound Infection
Lord's Plication	19	19	3	1	0
Eversion of sac	9	9	4	2	1
Excision	18	18	3	1	0
Evacuation of clot and eversion of sac	2	2	1	1	0
Incision and Drainage	2	2	2	0	2
Total	50	50	13	5	3



Graph 10: Post operative complications in the present study with relation to the surgical procedure

Post operative stay duration



Graph 11: Post operative stay duration

Table 11: Post operative stay duration

Procedure	No. of Cases	No. of days		
		0 to 5	6 to 10	11 to 15
Lord's Plication	19	6	13	0
Eversion of sac	9	2	7	0
Excision	18	11	6	1
Evacuation of clot and eversion of sac	2	0	2	0
Incision and drainage	2	0	0	2
Total	50	19	28	3

Discussion

Cystic swellings of the scrotum are among common surgical problem. In this study 50 cases with cystic swellings of scrotum, were admitted to Department of Surgery, Adichunchanagiri Institute of Medical Sciences, B.G. Nagara .

Majority of the patients were in age group of 31-40 years (32%), came with primary presenting complaint as scrotal swelling almost in 56% of cases, most of them came with right sided swelling which was 60% of total cases. 48% of the cases had duration of symptoms with in 6 months, however many other had scrotal swelling with pain or pain alone as a complaint, few presented with fever.

Primary vaginal hydrocele was the commonest cystic swelling (56%), epididymal cyst (26%) being the second most common. Primary hydrocele is idiopathic in origin, epididymal cyst is due to cystic degeneration of the epididymis, haematocoele followed recent trauma and pyocoele was secondary to infection of hydrocele.

On examination, skin rugosity loss was seen on the affected side in majority of patients, swelling was cystic and fluctuant. Transillumination test was

positive in most of the cases, however longstanding chronic hydrocoele had few transillumination negative. Transillumination test was negative in spermatoceae, haematocoele and pyocoele. Hydrocoele was more common on the right side than left side, this observation is with respect to study done by C. Mahalingam (1985) [13] and Boukinda F (2003) [14].

After scrotal examination, scrotal ultrasonography was done for confirmation of diagnosis in relevant cases.

All the cases underwent routine blood investigations. In all 50 cases, surgical treatment was carried out. Spinal anaesthesia was the anaesthesia of choice in majority of the cases, though in younger age group and in cases of failed spinal anaesthesia, use of General anaesthesia was done. Local anaesthesia using 2% xylocaine and Midazolam was used for excisions of sebaceous cyst and epididymal cyst.

Lord's plication was the procedure found simple , most effective and with least complication rate in comparison of any other surgical modalities for hydrocoele.

O.P. Agarwal in 1983 did a comparative study on radical cure of hydrocoele. In this study he showed that

Table 12: Comparison of present study with the previous studies

Author	Year	Journal	Lords Plication		Excision/Eversion of sac	
			No. of Cases	Haematoma	No. of Cases	Haematoma
Effron et al ⁶³	1967	SGO	29	01	30	09
Dahl et al ⁶⁴	1972	Arch Surg	25	01	23	06
Reddy et al ⁶⁵	1972	IJS	400	Negligible	-	-
Rai et al ⁶⁶	1978	IJS	50	-	20	15
Present study	2015 to 17	-	19	01	9	02

Table 13: Comparison of the Present Study with Aggarwal Series

Series	No. of Cases	Lords Plication		Excision/Eversion of sac		
		Haematoma	Wound Infection	No. of Cases	Haematoma	Wound Infection
Aggarwal Series ⁶⁷	50	-	-	50	14	8
Present Study	19	01	-	09	02	01

among 50 cases who were operated by Lord's Plication, none of them developed haematoma or infection, whereas in 50 cases who underwent eversion of sac 14 (28%) cases developed haematoma and 8 (16%) cases developed infection [15]. In present study, among 9 cases who underwent eversion of sac, 2 cases developed haematoma and 1 case developed wound infection, while in Lord's Plication 1 case had haematoma, 3 cases had scrotal edema, but no wound infections.

This study shows that Lord's Plication for hydrocele is easy, cost-effective, most importantly safe and efficient. For cases of small to moderate sized primary hydrocele, Lord's Plication is the procedure of choice. But in cases with large hydrocele or a thick walled hydrocele, eversion of sac is the preferred operative procedure.

Post operatively, pain was constant complication by all the 50 cases. Other complications being scrotal edema present in 13 cases, and 5 cases had post operative haematoma. This was the sequel of sac separation and dissection. However, it was found least in Lord's Plication, because procedure avoids the opening of the cleavage between the sac and surrounding tissue, thus reducing the oozing and subsequent haematoma. This procedure (Lord's Plication) is avoided in long standing large hydrocele with thick sac, in which eversion of sac was preferred.

Epididymal cyst was the second most common cystic swelling treated by excision and were discharged within 5 days. Likewise spermatocele was seen in one patient who underwent excision. Evacuation and eversion of the sac was done for haematoma cases. Incision and Drainage for Pyocele cases followed by appropriate antibiotics.

Drain was kept in few cases as per the liking of the surgeon and was removed within 24-48 hrs. Scrotal support was given in almost all the post operative cases. Suitable antibiotics and analgesics were used as it helps to relieve pain, reduce edema and haematoma. Post operative complications were managed conservatively with antibiotics, analgesics, scrotal support and regular sterile dressings.

Hydrocele fluid was amber coloured in primary vaginal hydrocele, clear in epididymal cyst, haemorrhagic blood tinged in cases of haematocoele.

Post operatively majority of cases were discharged between 6-10 days. Few patients with scrotal edema and infection were kept till 11-15 days.

Regular follow up was done upto 2-4 months, and there were no complaints of recurrence of lesion in all the patients during this time period.

Limitations of the Study

Inguinoscrotal swellings like Congenital hydrocele, Funicular hydrocele, Filariasis hydrocele,

Infantile hydrocele and Encysted hydrocele of the cord were not included in this study.

Following up of patients was tedious job keeping in mind that the patients are from rural setup, illiterate and ignorant.

Conclusions

- Most of the patients with cystic swelling of the scrotum belonged to the 31-40 years of age group 32% followed by 41-50 years of age group (22%), 21-30 years (20%).
- Scrotal swelling was the most frequent complaint on presentation (56%).
- Right side (60%) was the leading side of presentation of swelling in comparison to left (22%).
- Maximum number of patients had symptoms of duration 0-6 months (48%).
- Primary vaginal hydrocele was the commonest cause of cystic swelling of scrotum (56%).
- Primary Vaginal hydrocele of long duration can produce pressure effects on the testis (flattening of testis).
- Lord's procedure had least complication rate and less postoperative hospital stay than any other surgical modality in treatment of primary vaginal hydrocele.
- Minimal tissue dissection during surgery and good haemostasis are the keys to avoid post-operative complications.
- Average Postoperative hospital stay duration was 8 days.
- No recurrence of lesion/swellings were found in all the followed up patients, during 2-4 months.

Summary

Scrotal Cystic swelling are among the common surgical problems. This study about cystic swellings of scrotum was done in the Department of surgery, Sri Adichunchanagiri Institute of Medical Sciences, B.G. Nagara, with regard to studying about the Methodology and management of cystic swellings of scrotum with respect to age distribution, presentation, management and postoperative complications.

Scrotal Swelling was the main complaint in most of the cases in this study.

Primary vaginal hydrocele was the commonest, followed by epididymal cyst, sebaceous cyst, haematocoele, pyocele and spermatocele.

Primary vaginal hydrocele is idiopathic in origin, Haematocoele was chiefly due to trauma, Pyocele was due to infection of the hydrocele.

After clinical examination of scrotal swellings, the diagnosis was established by scrotal ultrasonography.

All the cases in the present study underwent routine investigations.

All 50 cases in this study underwent surgical treatment. Spinal anaesthesia was most commonly used, General anaesthesia was given in younger patients and failed spinal anaesthesia cases.

Local anaesthesia was used for simple excisions.

Primary vaginal hydrocoele was managed by two techniques, Lord's plication, and Jaboulay's Eversion of sac. Lord's was the procedure which had least complication and lesser post operative hospital stay duration than any other procedure. Excision was done for epididymal cyst, spermatocele, and sebaceous cysts.

Multiple sebaceous cysts were treated by excision of the scrotal skin and primary suturing afterwards. Haematocoele was treated by evacuation and eversion of sac. Pycoele was incised and drained with appropriate antibiotics and analgesics.

All the cases were subjected to scrotal support post operatively along with suitable antibiotics and analgesics, corrugated rubber drain was placed in some cases and removed after 48 hours.

Postoperatively, pain was present in all cases, with scrotal edema in few cases, infection and haematoma which was treated conservatively.

Patients were discharged on average of 8 days.

Patients were then followed for 2-4 months, maximum of 6 months. No recurrences was found in follow-up period.

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