Section: General Surgery

Original Research Article

COMPARATIVE STUDY BETWEEN INGUINAL VERSUS SCROTAL APPROACH OF IDIOPATHIC PRIMARY VAGINAL HYDROCELE

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Abstract

Background: A hydrocele is a collection of peritoneal fluid between the parietal and visceral layers of the tunica vaginalis, which directly surrounds the testis and spermatic cord. Hydroceles arise from an imbalance of secretion and reabsorption of fluid from the tunica vaginalis. Hydrocele is one of the most common causes of painless swelling of the Scrotum and one of the most commonly encountered cases in Govt. Chengalpattu medical college. The aim is to compare the two surgical approaches for hydrocele. 2. Complications related to two surgical techniques. 3. Their effect on wound healing rate, hospital stay return to activities and post operative morbidity. **Materials and Methods:** A prospective observational study was conducted between MARCH 2021 to JUNE 2022 with the aim of comparing inguinal approach versus scrotal approach for hydrocele surgery.100 patients were enrolled in this study and divided into GROUP A and GROUP B (n=50). They were compared on the basis of post operative time , length of hospital stay, return to home for activity and post operative complications. **Result:** Patients aged range from 20 to 35 years (28.94+-3.407) in GROUP A and from 21 to 35 years(28.72+-3.860) in GROUP B. In comparison to the inguinal approach, the scrotal technique required less time during surgery but was associated with more post-operative problems, including pain and scrotal edema, and a longer hospital stay. Less post-operative complications, a shorter hospital stay, and an earlier return to normal daily activities were all benefits of the inguinal approach. **Conclusion:** Inguinal hydrocele surgery is a preferable alternative to scrotal hydrocele surgery for idiopathic primary hydrocele.

INTRODUCTION

Hydrocele is known to occur in man since time immemorial. It was first mentioned by Indian doctors in the fifth century BC.[1-3]

Sushruta (6th century BC) described hydrocele in the context of ancient Indian surgery. According to Sushrutha, any swelling in the body results from the thridhosha (three defects), namely vatha, pitta, and kapha.[4-6]

The causes of diseases, in the opinion of Charaka, include:

- The improper, excessive, or ineffective administration of medications.
- The effects of heat and cold on the climate.
- Abuse of intellectual capacity.

Sushrutha, the pioneer of Indian surgery, had recorded the information. Around 2,500 years ago, the author of "Sushrutha Samhitha" wrote about hydrocele.

Hydrocele enbissac was first described by Dupuytren in 1934, and Bickle came up with the name abdomino scrotal hydrocele in 1919.

Andrews described the bottle procedure for treating hydrocele in 1907.

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Salomon described the extrusion procedure for hydrocele in 1955.
Lord PH described a blood-free procedure for treating an epididymal cyst and spermatocele in 1970.
Moloney noted positive outcomes from sclerotherapy in 1975. It is affordable because it is done as an outpatient operation.
Gunaydin G et al 1995 study revealed that fluids. In normal circumstances, epididymal cysts and spermatoceles do not get infected.
The English historian Captain Edward Gibbon (1737–1794), widely known for his "History of the Decline and fall of the Roman empire," felt humiliated by hydrocele. Secondly, he passed away.
Mathew Jaboulay, a surgical professor at Lyons from 1860 until 1913, France described the procedure for hydrocele, including the partial excision and eversion of the sac.
Peter Lord (1964) described the hydrocele plication procedure.

MATERIALS AND METHODS

Study design randomized: prospective observational study
Study period: March 2021 To June 2022
Study area: Govt. Chengalpattu Medical College, Chennai
Study population: Patients with idiopathic primary vaginal hydrocele admitted in Department of General Surgery in CMCH, Chengalpattu
Sample size: 100, based on statistical analysis.
The study includes a sample size of 100 patients in GOVT CHENGAPATTU medical college hospital between March 2021 to June 2022. Patients with idiopathic vaginal hydrocele admitted in Govt.chengalpattu medical college in ward under General surgery at Chengalpattu medical college & Hospital between March 2021 to June 2022 will be taken for study after applying inclusion and exclusion criteria. Detailed history and thorough clinical examination are taken from each patient. Information will be recorded using a semi structured questionnaire. Patients will undergo hydrocelectomy via inguinal or scrotal approach. The outcomes are recorded and compared using SPSS software. Then the patients will be followed up on day 2, 3, 4, 5 until the date of discharge and a careful inspection of the surgical wound site will be done to look for any redness, bruising, warmth over and around the wound and sutured site and development of any serous or bloody discharge or pus from the operated site. Patients' complaints were recorded as per questionnaire and patients asked to answer the questionnaire as per proforma. All patients were given IV antibiotics and analgesics. Daily cleaning and dressing were done. In case of infection pus culture or wound culture was to be sent. All the patients included in the study sample was followed up and the time taken to return to their daily normal routine activity was noted. This statistical study will finally show how many patients in the study population in each group had normal healing, early return to work, post operative pain and, how many people developed bruising, development of serosanguineous discharge or pus, induration, hematoma formation from the wound site, and finally the statistics of the Number of patients in each group will be studied.

Inclusion Criteria

- Patients aged more than 18.
- Patient gave consent for study
- Patient gave consent for surgery
- Patients with Unilateral Primary vaginal hydrocele.

Exclusion Criteria

- Giant, multilocular hydroceles and recurrent hydroceles.
- Patients with suspected clinical or ultrasonographic findings of testicular tumor.
- History of scrotal or inguinal surgery/ Radiotherapy.
- Non transilluminated hydrocele, multi locular and recurrent hydrocele.
- Patients not willing for surgery
- Patients not willing to give an informed written consent.

RESULTS

In the study we had 100 participants from both Group A and Group B, each group have 50 participants respectively. [Table 1]
Mean age of the participant is 28.94 and standard deviation is 3.407 in Group A and Mean age of the participant is 28.72 and standard deviation is 3.860 in Group B. [Table 2]

Table 1: Group Distribution of Study Participants

Group	Number	Percentage
GROUP A	50	50.0
GROUP B	50	50.0
Total	100	100.0

Table 2: Age distribution of study participants

Age Group Distribution					
			Group		Total
			GROUP A	GROUP B	
Age group	20 - 25 years	Count	9	11	20
		% Within Group	18.0%	22.0%	20.0%
	26 - 30 years	Count	22	21	43

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		% Within Group	44.0%	42.0%	43.0%
	31 - 35 years	Count	19	18	37
		% Within Group	38.0%	36.0%	37.0%
Total		Count	50	50	100
		% Within Group	100.0%	100.0%	100.0%

Table 3: Mean age and Standard deviation of the two groups

AGE vs. GROUP					
	Group	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Age	GROUP A	50	28.94	3.407	0.482
	GROUP B	50	28.72	3.860	0.546
Unpaired t- Test P value					0.763
Not Significant					

Table 4: Distribution of study participants based on the duration of stay

DURATION OF STAY vs. GROUP					
	Group	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Duration of stay (Days)	GROUP A	50	3.98	0.869	0.123
	GROUP B	50	6.10	1.147	0.162
Independent samples t- Test P-value					<0.001*
Significant					

Since the p value is <0.001, this shows there is a significant association between duration of stay and groups.

Table 5: Discharge Distribution

Wound discharge vs. group					
			Discharge		**Total**
			YES	**NO**	
Group	GROUP A	Count	10	40	50
		% Within Discharge	30.3%	59.7%	50.0%
	GROUP B	Count	23	27	50
		% Within Discharge	69.7%	40.3%	50.0%
Total		Count	33	67	100
		% Within Discharge	100.0%	100.0%	100.0%
Chi Square Test P- value					0.006*
Significant					

Since the p value is 0.006 (p<0.05) which shows there is a significant association between discharge and groups.

Table 6: Comparison of pain between two groups

PAIN vs. GROUP					
	Group	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Pain in days	GROUP A	50	2.50	0.544	0.077
	GROUP B	50	5.94	0.793	0.112
Unpaired t- Test P- value					<0.001*
Significant					

Since the p value is <0.001, this shows there is a significant association between pain in days and groups.

Table 7: comparison of operative time between two groups

OPERATIVE TIME vs GROUPS					
	Group	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Operative time (min)	GROUP A	50	50.90	5.019	.710
	GROUP B	50	34.70	4.334	.613
Unpaired t- Test P- value					<0.001*
Significant					

Since the p value is <0.001, this shows there is a significant association between operative time and groups.

DISCUSSION

Inguinal: The preferred technique for children hydroceles is the inguinal approach with ligation of the processes vaginalis high within the internal inguinal ring (typically, communicating). A high control/ligation of the cord structures inguinal approach is required if a testicular tumour is found on testicular ultrasonography. In research by Saka et al., 69 hydrocele patients had either open repair (29 patients) or laparoscopic percutaneous extraperitoneal closure (40 patients), and the safety and effectiveness of the two procedures were compared. For the two surgeries, there were no appreciable variations in the length of the process, the anesthetic, or the complications; neither technique saw any recurrences. Additionally, the authors discussed the characteristics of the internal inguinal ring (IIR) that were seen in cases of hydrocele and inguinal hernia that were treated throughout the study period. For patients with inguinal hernias, 92% of the IIRs were widely opened PPV, compared to 59.1% of narrow PPVs in cases of hydrocele. Peng et al. reported the successful utilization of mini

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laparoscopic procedures in 125 boys (aged 12-68 months) with several peritoneal folds in the hydrocele sac orifice. Results from a modified two-port laparoscopic procedure using a 3-mm grasping forceps to grab the folds around the internal inguinal ring were comparable to those from a single-port, double-needle, mini laparoscopic surgery in which an Endo Close needle was used to spread the peritoneal folds and facilitate circular extraperitoneal suturing. The new single-port approach, according to the authors, is safer, more efficient, and more aesthetically pleasing for the treatment of challenging paediatric hydroceles. In 483 children with hydrocele, Wang et al. found success with single-site laparoscopic percutaneous extraperitoneal closure of the internal ring. Their method, which makes use of an epidural and spinal needle, required a median operation time of 18 minutes (range, 10–30 min), and no patient experienced any difficulties during or after the procedure.[7-11]

Scrotal: For chronic noncommunicating hydroceles, the scrotal approach with excision or eversion and suturing of the tunica vaginalis is advised. In the event that an underlying cancer is suspected, this strategy should be avoided. The scrotal method, in contrast, is a successful alternative for the treatment of communicative hydrocele in young patients, according to Alp et al. In their study, which included 27 boys (30 testicular units) and 43 boys (46 testicular units) treated with a scrotal approach instead of the traditional inguinal approach, the operative time was significantly shorter in the scrotal group (P 0.0001), the early minor complication rate was similar in both groups, there were no major complications, and none of the patients experienced a recurrence of their hydrocele after a mean follow-up of 6 months.[12-14]

Intraoperative Details: The spermatic cord structures must be carefully observed during intraoperative considerations during inguinal repair. Reactive testicular vessels and the sensitive vasa should not be touched during surgery to reduce risks. The pampiniform plexus may develop thrombophlebitis as a result of excessive dissection around the testicular veins. For unrestricted scrotal fluid outflow, the distal processus is broadly spatulated. The internal inguinal ring is ligated above (deep to) the proximal processus. A comprehensive reexamination of the cord structures and either a partial or total excision of the hydrocele or needle aspiration of just the hydrocele should be performed before closing if a patent processus was not found during inguinal exploration.[15-17]

Excision of redundant tunica vaginalis (with or without eversion) and suturing of the reflected tunica behind the epididymis during scrotal approaches enable easier and more reliable postoperative examination of the testis. During this surgery, care must be taken to avoid damaging the vas or epididymis. To ensure hemostasis, a running hemostatic suture should be placed around the line of excision. Another method for treating big hydroceles is plication of the sac (Lord Procedure). Enhancing scarring and reducing recurrence while shortening the surgical procedure is achieved by electrocautery fulguration of the excised tunica vaginalis' edge.

Unexpected results can be handled as necessary by switching to an inguinal technique or using the scrotal approach (eg, testicular tumors). If a testicular tumour is found, a biopsy with frozen section and orchiectomy with excision of the spermatic cord up to the internal ring is recommended if the tumour is found to be present. For large hydroceles, it's a good idea to install a drain in the dependent part of the scrotum. Within the first 24-48 hours following surgery, a Penrose or other non-suction drain can be taken out. Expect a sizable hematoma and substantial edoema if a drain is not employed. Although it is nearly always temporary, this enlargement is frequently worse than the initial issue.

Hydroceles recover with little pain and very few restrictions. For 5-7 days, you should avoid taking a tub bath. Children in diapers have their wounds closed with tissue adhesive or an occlusive bandage. No limits on activities are necessary, and non-narcotic analgesics are only sometimes needed.

Supportive dressings in an athletic supporter or scrotal supporter are beneficial for patients undergoing scrotal techniques. Getting enough rest and avoiding strenuous activities reduce discomfort. Within 24-48 hours, you can resume taking showers. Narcotics that are synthetic or semi-synthetic may be used on occasion to ease postoperative pain. Adult patients should be informed that due to edema, the hydrocele may temporarily recur for about a month after surgery.

CONCLUSION

- In the study we have a population of 100 patients, 50 from Group A & 50 from Group B.
- Factors like post- operative pain, duration of stay and return of activity were analyzed for testing if there is any significant association between the groups.
- In our study the minimum age was 20 years, and the maximum age was 35 years.
- In group A we have 9 patients aged between 20 and 25 years, whereas in group B we have 11 patients.
- In the age between 26 and 30 years we have 22 patients from group A and 21 patients from group B.
- In the age between 30 and 35 years we have 19 from group A and 18 from group B.
- The mean age of the participant is 28.94 and standard deviation is 3.407 in Group A and mean age of the participant is 28.72 and standard deviation is 3.860 in Group B.
- When tested for the significance between the age in both the groups using unpaired t- test we got the p value of 0.763, this shows there is no

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significance association between the age in both the groups.

- When tested for the significance between duration of stay and the groups using unpaired t –test, we have the p value <0.001, this shows there is a significant association between duration of stay and groups.
- The p value is 0.006 when tested for the significance between discharge and groups using chi square test, this shows there is a significance association between them.
- There is a significant association between the pain in days between the groups, and the p value is <0.001.
- We also analyzed to test the significance of the operative time between the groups, and we found that there is a significant association between the operative time and the groups.

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