

“A Study on Minimal Access Pull through Hydrocelectomy Procedure in GRH Madurai”

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Abstract:

Aim and objective: The main objective of this thesis is to study the post-operative complications among the primary vaginal hydrocele patients those underwent minimal access hydrocelectomy and conventional hydrocelectomy

Materials and methods: The study is conducted as a single blinded Randomized Control Trial with two arms – one arm of subjects with hydrocele who underwent minimal separation hydrocelectomy and the other arm of subjects with hydrocele who underwent conventional hydrocelectomy (Jaboulay’s procedure). Patients attended the surgery OPD with scrotal swelling for evaluation in GRH, Madurai

Observation and results: The overall complication rate (percentage of patients experienced any complication) among the patients underwent conventional hydrocelectomy was 66.6% whereas it was very low among patients underwent minimal separation hydrocelectomy of 16.6% and the difference in this distribution was statistically significant ($p < 0.001$). The mean operating time among those patients who underwent conventional hydrocelectomy was 30.83 ± 2.9 minutes with the range of 25 to 35 minutes and those who underwent the Minimal separation hydrocelectomy was 17.93 ± 1.28 minutes with a range of 15 to 20 minutes. The difference in the mean time between the two surgical procedures was statistically significant ($p < 0.01$).

Conclusion: The overall complication rate among patients underwent minimal access hydrocelectomy (17%) is very less compared to conventional hydrocelectomy (67%). The operating time of hydrocelectomy was around 13 minutes significantly lesser in minimal access hydrocelectomy (17.93 ± 1.28 minutes) compared to conventional hydrocelectomy (30.83 ± 2.9 minutes). The patients underwent minimal access hydrocelectomy (48.57 ± 21.19 hours) had a significantly lesser hospital stay of around 32 hours compared to conventional hydrocelectomy (80.5 ± 13.45 hours).

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I. Introduction:

Hydrocele is a abnormal collection of serous fluid in some part of the process. us vaginalis, generally .LLYthe tunica. Hydrocele is the most common benign swellii ng of the scrotum. The occurrences of hydrocele are estimated as 1% among the adult male population. “Primary vaginal hydrocele is well-defined as abnormal accumulation of serous fluid in tunica vaginalis.” Secondary hydrocele occur subordinate to disease of the testes and epididymis and its management mainly comprises of treatment of the underlying cause. Filarial hydrocele and chylocoele account for 80% of hydrocele in some humid countries where the parasite, Wuchereria Bancrofti, is endemic.

AIM AND OBJECTIVE:

This is a prospective study on minimal access pull through hydrocelectomy procedure in GRH Madurai for a period of one year.

MATERIALS AND METHODS:

Study Setting:

Dept.of General Surgery, Govt. Madurai Medical College, Madurai.

Study Duration:

1 year (April 2021– April 2022)

Study Population:

Patients attended the surgery OPD with scrotal swelling for evaluation

Inclusion Criteria

1. Those subjects diagnosed as primary vaginal hydrocele
2. Those who were willing for the surgery
3. Patients aged 18-56 years
4. Male Gender
5. With diagnosis of hydrocele
6. Patient without comorbidity
7. (TB, HT, DM, asthma, seizure)

Exclusion Criteria:

1. Those patients presented with spermatocele, testicular malignancies and scrotal hematocele.
2. Patients having filarial scrotum requiring scrotoplasty were not included in this study.
3. Secondary hydrocele due to acute infection and malignancy are excluded from the study.

Study design

The study is conducted as a single blinded Randomized Control Trial with two arms – one arm of subjects with hydrocele who underwent minimal separation hydrocelectomy and the other arm of subjects with hydrocele who underwent conventional hydrocelectomy (Jaboulay’s procedure).

II. Observation And Results:

Considering the baseline characteristics, there was no significant difference between the two groups.

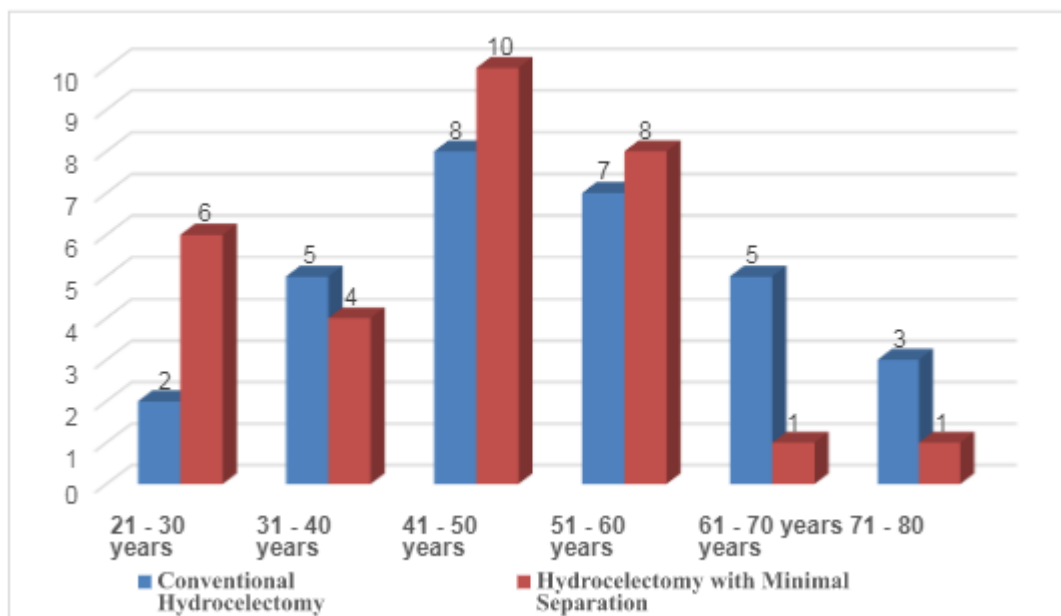


Fig 24 : Distribution of age categories in conventional and minimal separation hydrocelectomy groups.

The distribution of participants in the both groups of the study population in different age categories was almost nearly equal with no much difference.

Table 1: Distribution of age categories of the subjects in the two groups of the study population

AGE_CAT	PROCEDURE		Total	Fisher exact p value
	Conventional Hydrocelectomy	Hydrocelectomy with Minimal Separation		
21 - 30 years	2 (25%)	6 (75%)	8 (100%)	
31 - 40 years	5 (55.55%)	4 (44.44%)	9 (100%)	

41 - 50 years	8 (44.44%)	10 (55.55%)	18 (100%)	0.332
51 - 60 years	7 (46.66%)	8 (53.33%)	15 (100%)	
61 - 70 years	5 (83.33%)	1 (16.66%)	6 (100%)	
71 - 80 years	3 (75%)	1 (25%)	4 (100%)	

The difference in the distribution of study participants in the both groups was statistically insignificant.

Table 2: Distribution of symptoms of the participants in the two groups of the study population

SYMPTOMS	PROCEDURE		Total	Fisher exact p value
	Conventional Hydrocelectomy	Hydrocelectomy with Minimal Separation		
Painless scrotal swelling Left	7 (46.66%)	8 (53.33%)	15 (100%)	0.096
Painless scrotal swelling Right	14 (50%)	14 (50%)	28 (100%)	
Discomfort with scrotal swelling Left	4 (50%)	4 (50%)	8 (100%)	
Discomfort with bilateral scrotal swelling	5 (55.55%)	4 (44.44%)	9 (100%)	
Total	30 (50%)	30 (50%)	60 (100%)	

The presentation of symptoms of the patients is almost equal in both groups of the study population and the difference in the distribution is statistically insignificant.

Table 3: Distribution of presentation of side of hydrocele of the participants in the two groups of the study population

SIDE	PROCEDURE		Total	Fisher exact p value
	Conventional Hydrocelectomy	Hydrocelectomy with Minimal Separation		
Left	12 (50%)	12 (50%)	24 (100%)	0.143
Right	13 (48.14%)	14 (51.85%)	27 (100%)	
Bilateral	5 (55.55%)	4 (44.44%)	9 (100%)	
Total	30 (50%)	30 (50%)	60 (100%)	

The presentation of side of hydrocele of patients in the both groups had no much difference with right side more common followed by left side and a few by both sides. The difference in the distribution is statistically insignificant.

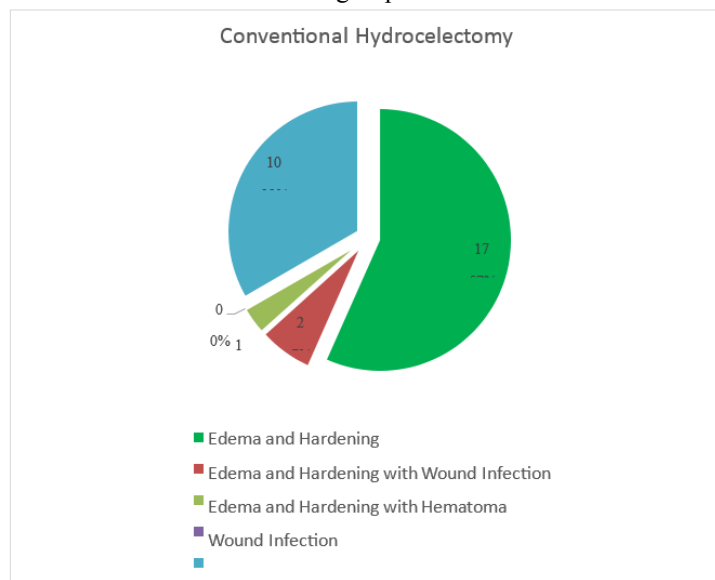
Table 4: Distribution of duration of hydrocele (in years) of the participants in the two groups of the study population

Variable	GROUP	N	Mean	Std. Deviation	p value by 't' test
DURATION OF HYDROCELE (Years)	Conventional Hydrocelectomy	30	7.57	4.08	0.356
	Hydrocelectomy with Minimal Separation	30	6.63	3.67	

Variable	Group	Minimum	Maximum	Range
DURATION OF HYDROCELE (Years)	Conventional Hydrocelectomy	1	17	16
	Hydrocelectomy with Minimal Separation	1	17	16

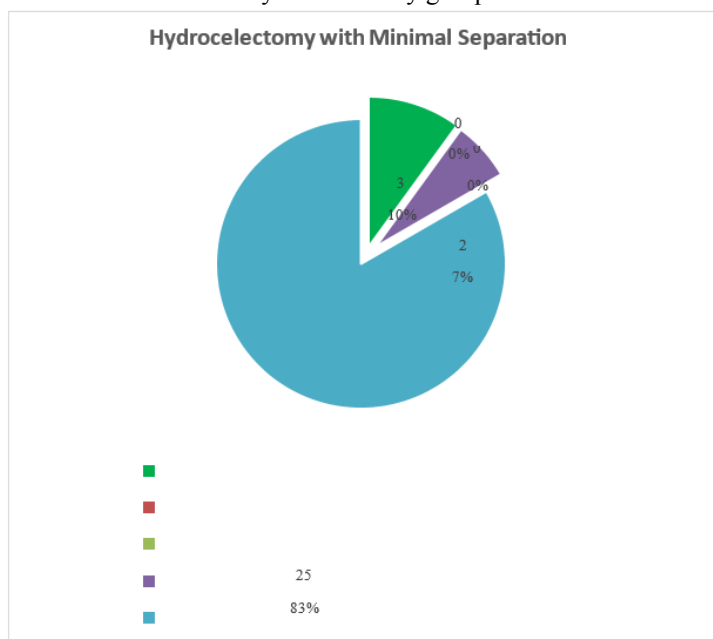
The mean duration of hydrocele of patients in the both groups of the study population had only a mild difference which was not statistically significant. The range of duration of hydrocele was 16 years (1 to 17 years) in both the study groups.

Fig 25: Percentage of Post-operative complications of the study subjects in the conventional hydrocelectomy group



93% of the patients presented with oedema and hardening out of which 33% also presented with wound infection and 3% also presented with hematoma. Only 7% had no post-operative complications.

Fig 26: Percentage of Post-operative complications of the study subjects in the minimal separation hydrocelectomy group



Only 10% of the study participants underwent minimal separation hydrocelectomy presented with oedema and hardening and only 7% presented with wound infection. 83% of the patients didn't experience any post-operative complications.

Table 5: Distribution of post-operative complications of the participants in the two groups of the study population

POSTOPCOMPL ICATIONS	PROCEDURE		Total	Fisher exact p value
	Conventional Hydrocelectomy	Hydrocelectomy with Minimal Separation		
Oedema and Hardening	17 (56.7%)	3 (10%)	20 (100%)	<0.001
Oedema and Hardening with Wound Infection	2 (6.7%)	0 (0%)	2 (100%)	0.246
Oedema and Hardening with Hematoma	1 (3.3%)	0 (0%)	1 (100%)	0.500
Wound Infection	0 (0%)	2 (6.7%)	2 (100%)	0.246

Edema and hardening was the most common complication and is more incident in patients who underwent conventional hydrocelectomy. The difference in the distribution of edema and hardening among the patients in the two study groups was statistically significant.

Table 6: Distribution of overall post-operative complications of the participants in the two groups of the study population

OVERALL POST- OPERATIVE COMPLICATIONS	PROCEDURE		Fisher exact p value
	Conventional Hydrocelectomy	Hydrocelectomy with Minimal Separation	
YES	20 (66.7%)	5 (16.7%)	<0.001
NO	10 (33.3%)	25 (83.3%)	

Taking into account, the overall post-operative complications suffered by the patients in both groups of the study population, the conventional hydrocelectomy group had more incidence of post-operative complications. Around 67% of the patients belonged to conventional hydrocelectomy group of the study

population suffered complications whereas only 17% of the patients belonged to minimal separation hydrocelectomy group suffered complications.

Table 7: Distribution of operating time of the patients in the two groups of the study population

	GROUP	N	MEAN	STD. DEVIATION	p VALUE BY 't' TEST
OPERATING TIME (Min)	Conventional Hydrocelectomy	30	30.83	2.94	0.0001
	Hydrocelectomy with Minimal Separation	30	17.93	1.28	

Variable	GROUP	Minimum	Maximum	Range
OPERATING TIME (Min)	Conventional Hydrocelectomy	25	35	10
	Hydrocelectomy with Minimal Separation	15	20	5

The difference in the distribution of operative time of the patients underwent two different surgical procedures were statistically significant with higher mean operating time in conventional hydrocelectomy than minimal separation hydrocelectomy.

Table 8: Distribution of time of hospital stay (in hours) of the patients in the two groups of the study population

Variable	GROUP	N	MEAN	STD. DEVIATION	p VALUE BY 't' TEST
HOSPITAL STAY (Hours)	Conventional Hydrocelectomy	30	80.50	13.45	0.0001
	Hydrocelectomy with Minimal Separation	30	48.57	21.19	

Variable	GROUP	Minimum	Maximum	Range
HOSPITAL STAY (Hours)	Conventional Hydrocelectomy	48	98	50
	Hydrocelectomy with Minimal Separation	25	95	70

The difference in the distribution of time of hospital stay of the patients underwent two different surgical procedures was statistically significant with higher mean time of hospital stay in conventional hydrocelectomy than minimal separation hydrocelectomy.

III. Conclusion;

The overall complication rate among patients underwent minimal access hydrocelectomy (17%) is very less compared to conventional hydrocelectomy (67%).The operating time of hydrocelectomy was around 13 minutes significantly lesser in minimal access hydrocelectomy (17.93 ± 1.28 minutes) compared to conventional hydrocelectomy (30.83 ±

2.9 minutes).The patients underwent minimal access hydrocelectomy (48.57 ±

21.19 hours) had a significantly lesser hospital stay of around 32 hours compared to conventional hydrocelectomy (80.5 ± 13.45 hours).

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