



## General Surgery

**A PROSPECTIVE COMPARATIVE STUDY BETWEEN  
JABOULAY'S AND LORD'S PPLICATION IN THE MANAGEMENT OF  
PRIMARY VAGINAL HYDROCELE DONE IN THE DEPARTMENT OF  
GENERAL SURGERY IN TEZPUR MEDICAL COLLEGE AND HOSPITAL,  
TEZPUR, SONITPUR DISTRICT OF ASSAM.**

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**ABSTRACT** **Background:** Primary vaginal hydrocele is a common benign cause of scrotal swelling in adult males. Surgical management is definitive, with Jaboulay's procedure and Lord's plication being widely used techniques. This study compares their outcomes. **Methods:** A prospective comparative study was conducted in the Department of General Surgery, Tezpur Medical College and Hospital, Assam, over six months. Fifty patients with primary vaginal hydrocele were divided into two groups: Jaboulay's procedure (n=25) and Lord's plication (n=25). Data on operative time, complications, and hospital stay were analyzed using SPSS, with  $p < 0.05$  considered significant. **Results:** The mean age was  $39.4 \pm 10.2$  years, with right-sided hydrocele predominance (56%). Operative time was significantly shorter in the Lord's group ( $32 \pm 5.1$  min) compared to Jaboulay's ( $42 \pm 6.5$  min) ( $p = 0.01$ ). Postoperative complications, particularly scrotal edema (24% vs 8%), hematoma, and wound infection, were higher in the Jaboulay group. Mean hospital stay was shorter in the Lord's group ( $1.48 \pm 0.5$  vs  $3.48 \pm 0.5$  days;  $p = 0.02$ ). No recurrence was observed at 3 months. **Conclusion:** Both procedures are effective; however, Lord's plication offers advantages of shorter operative time, fewer complications, and reduced hospital stay, making it a preferable technique for primary vaginal hydrocele.

**KEYWORDS :** Primary Vaginal Hydrocele, Jaboulay's Procedure, Lord's Plication, Hydrocelectomy, Postoperative Complications, Surgical Outcomes.

**INTRODUCTION**

Hydrocele is an abnormal accumulation of serous fluid between the visceral and parietal layers of the tunica vaginalis and represents one of the most common benign causes of scrotal swelling in adult males. Primary vaginal hydrocele results from an imbalance between fluid secretion and absorption by the tunica vaginalis. Although often painless, progressive enlargement can lead to discomfort, heaviness, cosmetic concerns, and impairment of daily activities(1).

The condition is more prevalent in tropical and developing regions, where factors such as infection, trauma, and lymphatic obstruction may contribute to its development. Clinically, hydrocele presents as a gradually enlarging, painless, transilluminant scrotal swelling. Surgical intervention remains the definitive treatment for symptomatic cases.(2)

Among the various surgical techniques, Jaboulay's procedure and Lord's plication are most commonly performed. Jaboulay's procedure involves eversion of the tunica vaginalis following drainage of fluid but requires extensive dissection, which may increase postoperative complications such as hematoma, edema, infection, and prolonged hospital stay. In contrast, Lord's plication is a less invasive technique involving plication of the sac without extensive dissection, thereby reducing tissue trauma and postoperative morbidity(3).

Despite widespread use, the optimal surgical technique remains debated, with limited prospective comparative data available. Therefore, the present study aims to compare these two procedures in terms of operative time, postoperative complications, and hospital stay to determine the safer and more effective approach.

**Aim of the Study**

To compare the clinical outcomes of Jaboulay's procedure and Lord's plication in the surgical management of primary vaginal hydrocele.

**Objectives of the Study**

To study surgical management of hydrocele by different surgical procedures and to assess postoperative morbidity and overall outcome.

**MATERIALS AND METHODS****Study Design**

A Prospective comparative study between jaboulay's and lord's plication in the management of primary vaginal hydrocele done in the department of general surgery in Tezpur Medical College and Hospital, Tezpur, Sonitpur district of assam.

**Study Setting**

The study was conducted in the Department of General Surgery in Tezpur Medical College and Hospital, Tezpur, Sonitpur district of assam over a period of 6 months.

**Study Duration**

6 month.

**Study Population**

All adult male patients presenting with clinically diagnosed primary vaginal hydrocele during the study period were considered for inclusion.

**Sample Size**

A total of 50 patients were included in the study. Patients were divided into two groups of 25 patients each.

- Group A: Patients undergoing Jaboulay's procedure (eversion of sac)
- Group B: Patients undergoing Lord's plication

**Inclusion Criteria**

- Adult males with primary vaginal hydrocele
- Patients willing for surgical treatment

**Exclusion Criteria**

- Secondary hydrocele
- Recurrent hydrocele
- Hydrocele associated with inguinal hernia
- Patients unwilling to participate in the study

**Ethical Approval**

- This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval for the study was obtained from the Institutional Ethics Committee of the participating tertiary care hospital prior to commencement of the study.

**Informed Consent**

- Written informed consent was obtained from all participants after explaining the nature, purpose, and possible risks of the study. Participation was voluntary, and confidentiality of patient data was strictly maintained throughout the study.

**Study Groups**

Group	Procedure	Number of patients
Group A	Jaboulay's procedure	25
Group B	Lord's plication	25

**Statistical Analysis**

Data were entered into Microsoft Excel and analyzed using SPSS software.

- Continuous variables were expressed as mean  $\pm$  standard deviation
- Categorical variables were expressed as frequency and percentage
- Chi-square test was used to assess associations between categorical variables
- Student's t-test was used to compare continuous variable

- A p-value <0.05 was considered statistically significant.

**Preoperative Evaluation**

All patients underwent a detailed clinical evaluation including:

- Detailed history taking
- General physical examination
- Local examination of the scrotum
- Routine laboratory investigations:
  - Complete blood count
  - Blood sugar
  - Renal function tests
  - Urine examination
- Ultrasonography of the scrotum when required to confirm diagnosis and rule out other scrotal pathology.

**Surgical Procedure**

**Jaboulay's Procedure**

Under spinal anesthesia, a scrotal incision was made over the hydrocele sac. The tunica vaginalis was opened and hydrocele fluid drained. The sac was dissected from surrounding tissues and everted behind the testis, and the edges of the sac were sutured to prevent reaccumulation of fluid.

**Lord's Plication**

After drainage of hydrocele fluid through a scrotal incision, the tunica vaginalis was plicated around the testis using multiple interrupted sutures without extensive dissection of the sac.

All surgeries were performed under aseptic precautions.

**Postoperative Management**

All patients received:

- Prophylactic antibiotics
- Analgesics
- Scrotal support
- Wound care

Patients were monitored for postoperative complications and followed up in the outpatient department.

**Outcome Measures**

The following parameters were assessed:

1. Operative time
2. Postoperative complications
  - Scrotal edema
  - Hematoma
  - Wound infection
3. Duration of hospital stay
4. Recurrence during follow-up

**Follow-Up**

Patients were followed up for 3 months after surgery to evaluate postoperative recovery and detect any recurrence.

**RESULTS**

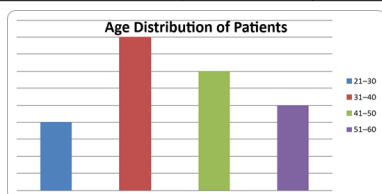
A Prospective comparative study between jaboulay's and lord's plication in the management of primary vaginal hydrocele done in the department of general surgery in Tezpur Medical College and Hospital, Tezpur, Sonitpur district of assam.

**Distribution OG Age:**

The mean age of the study population was 39.4 ± 10.2 years, indicating that primary vaginal hydrocele was most observed among middle-aged adult males in this study.

**Table 1: Age Distribution of Patients**

Age group (years)	Number	Percentage
21-30	8	16%
31-40	18	36%
41-50	14	28%
51-60	10	20%

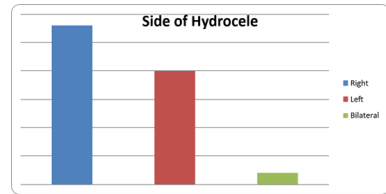


**Side of Hydrocele:**

The table represents the distribution of hydrocele according to the side of involvement among the study participants. In the present study, right-sided hydrocele was the most common, observed in 28 patients (56%). Left-sided hydrocele was found in 20 patients (40%), while bilateral hydrocele was relatively uncommon and observed in 2 patients (4%).

**Table 2: Side of Hydrocele**

Side	Number	Percentage
Right	28	56%
Left	20	40%
Bilateral	2	4%

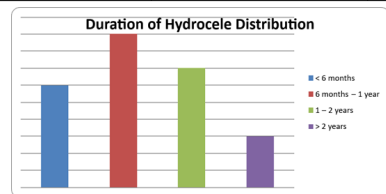


**Duration of Hydrocele:**

**Duration of Hydrocele Among Study Subjects**

This table shows the duration of hydrocele symptoms among the study participants. In the present study, the majority of patients (36%) presented with a duration of hydrocele between 6 months and 1 year. This was followed by 1-2 years duration in 28% of patients, while 24% of patients presented within 6 months of symptom onset. Only 12% of patients had hydrocele for more than 2 years.

Duration of Hydrocele	Number of Patients	Percentage
< 6 months	12	24%
6 months – 1 year	18	36%
1 – 2 years	14	28%
> 2 years	6	12%
Total	50	100%

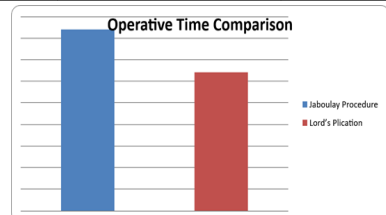


**Operative Time Comparison Table:**

In present study, the mean operative time for Jaboulay's procedure was 42 ± 6.5 minutes, whereas the mean operative time for Lord's plication was 32 ± 5.1 minutes. The difference between the two groups was found to be statistically significant (p = 0.01)

**Table: Comparison of Operative Time Between Procedures**

Procedure	Mean Operative Time (minutes)	Standard Deviation	p-value
Jaboulay Procedure	42min	±6.5	
Lord's Plication	32min	±5.1	0.01



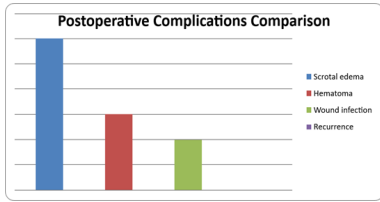
**Postoperative Complications:**

This table demonstrates the incidence of postoperative complications in both surgical groups. Most common complication is postoperative scrotal edema and occurred in 24% of patients in the Jaboulay group and 8% in the Lord's plication group, with a statistically significant difference (p = 0.04).

**Table 3: Postoperative Complications**

Complication	Jaboulay (n=25)	Lord (n=25)	p value
Scrotal edema	6 (24%)	2 (8%)	0.04
Hematoma	3 (12%)	1 (4%)	0.28

Wound infection	2 (8%)	0	0.15
Recurrence	0	0	—



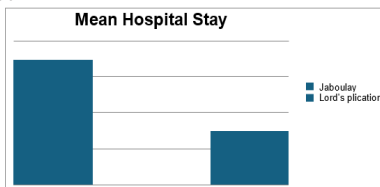
**Duration of Hospital Stay**

In the present study, patients who underwent Jaboulay's procedure had a mean hospital stay of 3.4 days, whereas patients treated with Lord's plication had a shorter mean hospital stay of 1.48 days. Statistical analysis showed that this difference was statistically significant (p = 0.001).

**Table 4: Duration of Hospital Stay**

Procedure	Mean stay (days)	SD
Jaboulay	3.48	±0.50
Lord	1.48	±0.50

p value = 0.001



**DISCUSSION**

A Prospective comparative study between jaboulay's and lord's plication in the management of primary vaginal hydrocele done in the department of general surgery in Tezpur Medical College and Hospital, Tezpur, Sonitpur district of assam.

**Comparison of Age Distribution with Previous Studies**

**Table: Comparison of Age Distribution with Previous Studies**

Study	Sample Size	Mean Age (years)
Saber et al. (2015)(4)	124	37±11.4
Mohd Hamid et al(5)(2017)	60	39.6
Prabhat et al.(6)(2019)	78	31-40
Jithendhar P et al(7) (2020)	60	37.4
Shaheen et al (9)(2024)	86	49.9
Present Study	50	39.4 ± 10.2

The mean age of patients in the present study was 39.4 ± 10.2 years, which is comparable with previous studies conducted by Saber et al, Mohd Hamid et al , Prabhat et al and jithendhar P et al. These studies also reported that hydrocele commonly occurs in the third to fifth decades of life. The similarity in findings suggests that primary vaginal hydrocele predominantly affects middle-aged adult males.

**Comparison of Side of Hydrocele with Previous Studies**

**Table: Comparison of Side of Hydrocele with Previous Studies**

Study	Right (%)	Left (%)	Bilateral (%)
Dr. Nazim Jat et al (2018) (3)	190	100	10
Prabhat et al.(6) (2019)	33	29	16
Jithendhar P et al(7) (2020)	67	30	3
Present Study	56	40	4

In the present study, right-sided hydrocele was more common (56%), followed by left-sided hydrocele (40%), while bilateral hydrocele was rare (4%). Similar observations were reported by Jithendhar P et al., Dr. Nazim Jat et al and Prabhat et al. The predominance of right-sided hydrocele has been reported in several clinical studies, although the exact reason remains unclear.

**Comparison of Duration of Hydrocele with Previous Studies**

**Table: Comparison of Duration of Hydrocele with Previous Studies**

Study	< 6 Months (%)	6 Months – 1 Year (%)	1 – 2 Years (%)	> 2 Years (%)
Mohd Hamid et al (4)	37	22	20	13

Prabhat et al. (6)(2019)	12	18	17	30
Present Study	24	36	28	12

In the present study, the majority of patients (36%) presented with a duration of hydrocele between 6 months and 1 year, followed by 1–2 years duration in 28% of patients. About 24% of patients presented within 6 months of onset, while only 12% of patients had hydrocele for more than 2 years.

These findings are comparable with study conducted by Mohd Hamid et al., where most patients presented within the first year of onset of symptoms.

**Comparison of Operative Time with Previous Studies**

**Table: Comparison of Operative Time**

Study	Jaboulay Procedure (minutes)	Lord's Plication (minutes)
Sharma et al. (8) (2018)	43	33
Yadav G.et al.(9)	26±2.7	23.8±4.6
Jenil et al.(10)(2025)	46.8±8.1	38.7±6.5
Present Study	42 ± 6.5	32 ± 5.1

The present study demonstrated that Lord's plication required significantly less operative time compared with Jaboulay's procedure. Similar findings were reported in studies by Jenil et al., and Yadav D et al. The shorter operative time in Lord's plication may be due to minimal dissection of the hydrocele sac, which simplifies the procedure and reduces operative trauma.

**Comparison of Postoperative Complications with Previous Studies**

**Table: Comparison of Postoperative Complications**

Study	Jaboulay Complication Rate (%)	Lord's Complication Rate (%)
Dahl et al (1972)(9)	26%	0%
Mohd Hamid et al (5) (2017)	61%	10%
Prabhat et al.(6) (2019)	36%	12%
Shaheen et al (9)(2024)	41.9%	11.6%
P. Amutha et al (10) (2024)	36%	75%
Jenil et al.(10)(2025)	13.3%	6.6%
Present Study	44	12

In the present study, postoperative complications were observed more frequently in patients undergoing Jaboulay's procedure (44%) compared to Lord's plication (12%). Similar findings have been reported in previous studies, where Lord's plication demonstrated lower complication rates. This difference can be attributed to the less invasive nature of Lord's plication, which involves minimal dissection and reduced tissue handling.

**Comparison of Duration of Hospital Stay with Previous Studies**

**Table: Comparison of Duration of Hospital Stay**

Study	Jaboulay Procedure (days)	Lord's Plication (days)
Dahl et al (11)(1972)	5.9	3.0
Sharma et al. (8)(2018)	5.1	3.7
P. Amutha et al(10) (2024)	7.7	5.2
Jenil et al.(10) (2025)	2.7±0.8	1.8±0.6
Present Study	3.4	1.4

The mean duration of hospital stay in the present study was 3.4 days for Jaboulay's procedure and 1.4 days for Lord's plication. These findings are consistent with Dahl et al. and Jenil et al. that reported shorter hospital stays in patients undergoing Lord's plication. The reduced hospital stay may be due to less postoperative pain, fewer complications, and faster recovery.

**SUMMARY**

A Prospective comparative study between jaboulay's and lord's plication in the management of primary vaginal hydrocele done in the department of general surgery in Tezpur Medical College and Hospital, Tezpur, Sonitpur district of assam.

- In present study majority of patients were in the 31–40 years age group, with a mean age of 39.4 ± 10.2 years.

- In present study right-sided hydrocele was more common (56%) than left-sided disease (40%), while bilateral cases were rare.
- In present study most patients presented with hydrocele of 6 months–1 year duration (36%), followed by 1–2 years (28%), less than 6 months in 24% patients, and more than 2 years in 12% patients.
- In present study lord's plication required significantly less operative time ( $32 \pm 5.1$ ) minutes compared with Jaboulay's procedure ( $42 \pm 6.5$  minutes).
- In present study post-operative complications occurred in 14 patients (28%), with scrotal edema being the most common complication, followed by hematoma and wound infection.
- In the present study the mean duration of hospital stay was 3.4 days in patients undergoing Jaboulay's procedure, while it was 1.4 days in patients treated with Lord's plication, indicating earlier recovery with Lord's procedure.
- Overall, Lord's plication showed better outcomes with shorter operative time, fewer complications, and reduced hospital stay compared to Jaboulay's procedure.

## CONCLUSION

The present study demonstrates that both Jaboulay's procedure and Lord's plication are effective surgical techniques for the management of primary vaginal hydrocele. However, Lord's plication showed better overall outcomes, with shorter operative time, fewer postoperative complications, and faster postoperative recovery. These findings suggest that Lord's plication is a simple, safe, and reliable procedure for the treatment of primary vaginal hydrocele.

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