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**Original Research Article**

# Clinical profile and surgical management of primary vaginal hydrocele: our experience in a rural India

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## ABSTRACT

**Background:** Hydrocele is one of the commonest diseases occurring worldwide. Since olden days surgical procedures have been described for the treatment of hydrocele. Aim of the study was to analyse the clinical profile, diagnosis and surgical management of primary vaginal hydrocele in adults (>12 years)
**Methods:** A prospective study of 60 male patients of age range of more than 12 years with a history of scrotal swellings were studied for their clinical profiles, diagnosis and management. The study was carried out in Government Medical College, Miraj, Maharashtra, India from November 2010 to November 2012. In the present study Jaboulay's Procedure was performed on 48 patients and Lord's Procedure was performed on 12 patients.
**Results:** The data was collected and results were analysed. Post-operatively about 1.6% of patients developed hematoma, 5% developed wound infection, 21.66% of the patients developed skin oedema and only 1 patient i.e 1.6 % had recurrence over a period of 2 years of follow up. Out of the total 60 patients,12 patients who underwent Lord's plication 8.33%,0%,0% developed skin oedema, hematoma and wound infection respectively as compared to 25%,2.08%,6.25% in the remaining 48 patients who underwent Jaboulay's procedure, respectively.
**Conclusions:** These two surgical procedures were very safe, easy to perform and economical and associated with minimal recurrence. Lord's procedure has lesser incidence of post-operative complications as compared to Jaboulay's procedure.

**Keywords:** Jaboulay's Procedure, Lord's Procedure, Primary vaginal hydrocele

## INTRODUCTION

Hydrocele is one of the commonest diseases occurring worldwide. Since olden days' surgical procedures have been described for the treatment of hydrocele. The surgical procedures commonly used for the treatment of hydrocele is the radical operation in which the parietal layer of the tunica vaginalis is completely removed and its cut edges are sutured posteriorly.[1,2]

The common complications observed during the surgery of hydrocele are bleeding, injury to the cord structures and epididymis, torsion of the testis after a faulty positioning post operatively.[1,2] Commonest among these is post-operative hematoma which is due to oozing from small vessels. Unless meticulous hemostasis is secured oozing from small vessels may continue into the layers of the loose scrotal tissue giving rise to a hematoma which cannot be prevented effectively by draining the scrotum. Hematoma acts as fertile pabulum for bacteria, infection may supervene, often facilitated by drainage tubes.[1,2]

## METHODS

The study was conducted on the patients in Government Medical College, Miraj, Maharshtra, India between November 2010 to November 2012. The patients who presented in the OPD with a swelling in the scrotum were

identified and following inclusion and exclusion criteria applied:

***Inclusion criteria***

- Solitary selling in the scrotum incorporating the testis.
- The swelling should be positive for trans-illumination.
- It should be possible to get above the swelling at the base of the scrotum.

***Exclusion criteria***

- Swelling arising from the skin of the scrotum.
- Solitary swelling in the scrotum which is separate from the testis.
- Diffuse swelling in the scrotum incorporating the testis but negative on trans-illumination.
- Swelling in which there was associated impulse on coughing and reducibility.

The study was approved from Institutional Ethics Committee. Written informed consent taken from all the patients and their relatives. A proforma was filled up from the admission day until the patient was discharged and through follow-up period. In all the cases, routine investigations were done which included hemogram, random blood sugar, blood for TC, DC, ESR, scrotal ultrasound. Most of the patients undergoing surgery were given spinal anaesthesia and 1 patient was operated under local anaesthesia. The 60 patients underwent open surgery and were selected to undergo Lord's plication or Jaboulay's procedure depending on the size of the hydrocele sac.[1-4]

Post operatively all patients were given tight scrotal support and appropriate antibiotics and analgesics. Corrugated rubber drain was removed after 48 hrs. The sutures in most cases were removed between 6-12 days. Except in few cases associated with partial dehiscence or discharge from wound, sutures were removed between 12-14 days and the patients were hospitalized and observed till the wound healed. The patients were monitored for immediate and late complications, focusing on scrotal edema, hematoma, infection and recurrence using the following criteria:

*Scrotal edema*: any degree of scrotal wall swelling with loss of normal rugae.

*Hematoma:* any visible or palpable collection of blood.

*Infection:* any evidence of inflammation of the scrotal wound with induration, erythema, increased temperature and exudation.

*Recurrence*: any visible or palpable fluid collection that appears and persists 3 months post-operatively.

## RESULTS

The youngest patient was 16 years old while the oldest patient was 75 years of age with maximum number of cases seen in 20 - 29 years age group followed by that in 30 - 39 year age group while minimum number of cases were seen in 70 – 79 years age group. Almost equal number of cases seen in most of the occupations indicating that hydrocele does not have any predilection for a occupation.

**Table 1: Duration of post-operative stay.**

| Operation | 0-5 days | 6-10 days | 11-15 days |
|---|---|---|---|
| Lord's Plication | 6 (50%) | 6 (50%) | 0 (0%) |
| Jaboulay's procedure | 12 (25%) | 26 (54%) | 10 (21%) |

**Table 2: Post-operative stay based on laterality (no. of cases %).**

| | Unilateral | Bilateral |
|---|---|---|
| 0-5days | 16 (32.6%) | 04 (36.36%) |
| 6-10days | 29 (59.18%) | 05 (45.45%) |
| 11-15days | 03 (6.12%) | 01 (9.09%) |
| >15days | 01 (2.04%) | 01 (9.09%) |
| Total | 49 (100%) | 11 (100%) |

Shortest duration for which the cases carried the hydrocele before being treated in the present study was 6 days and the longest was 20 years. Maximum number of cases had duration of 6 months or less while minimum number of cases had duration between 6 and 10 years. Hydrocele was found to occur more on the right side (55%) than on the left side (26.67%). Bilateral hydrocele was seen in 11 cases (18.33%). Jaboulay's repair was performed on 48 patients and Lord's plication was performed on 12 patients. Corrugated rubber drain was put in all cases. Table below shows that in Lord's procedure there was shorter post-operative stay with 100% of the patients being discharged within 10 days which is similar in Jaboulay's procedure but more patients being discharged between 6-10 days. However, 21% of patients undergoing Jaboulay's procedure required greater post-operative stay with the patients being discharged between 11-15 days also there was no

gross difference in average hospital stay whether the hydrocele was unilateral or bilateral. Post- operative pain was more in bilateral hydrocele while wound infection and skin oedema was more common in unilateral hydrocele, possibly due to larger size of unilateral hydrocele. As compared to Jaboulay's repair there was no incidence of infection, hematoma formation and recurrence in Lord's plication whereas a higher incidence of post-operative pain and skin oedema was seen with Jaboulay's repair.

**Table 3: Post-operative complications.**

| Complications | Lord's Plication (12) | Jaboulay's procedure (48) |
|---|---|---|
| Pain | 4 (33.33%) | 20 (41.66%) |
| Hematoma | 0 (0%) | 1 (2.08%) |
| Skin edema | 1 (8.33%) | 12 (25%) |
| Wound Infection | 0 (0%) | 3 (6.25%) |
| Recurrence | 0 (0%) | 1 (2.08%) |

**Table 4: Post-operative complications (based on laterality).**

| Complications | Pain | Hematoma | Skin oedema | Wound infection | Recurrence | None |
|---|---|---|---|---|---|---|
| Unilateral | 17 | 00 | 11 | 03 | 01 | 30 |
| Bilateral | 07 | 01 | 02 | 00 | 00 | 04 |
| Total | 24 | 01 | 13 | 03 | 01 | 34 |

**Table 5: Post-operative complications based on laterality (in percentage).**

| Complications | Pain | Hematoma | Skin oedema | Wound infection | Recurrence | None |
|---|---|---|---|---|---|---|
| Unilateral | 34.6 | 0 | 22.4 | 6.12 | 2 | 61.22 |
| Bilateral | 63.6 | 9 | 18 | 0 | 0 | 36.36 |

## DISCUSSION

The standard treatment of hydrocele is surgical and is widely accepted as the most effective modality. The disadvantages of surgical treatment are complications such as hematoma and infection. With careful surgery, these complications can be minimized. The following tables show the comparison of the present study with the previous studies with respect to various important components.

**Table 6: Comparison of age incidence in percentage.**

| Age group in years | Present study | Campbell study[5] |
|---|---|---|
| 0 - 9 | 0 | 2 |
| 10 - 19 | 10 | 7 |
| 20 - 29 | 25 | 25 |
| 30 - 39 | 23 | 15 |
| 40 - 49 | 13 | 18 |
| 50 - 59 | 13 | 16 |
| 60 - 69 | 8 | 6 |
| 70 - 79 | 7 | 1 |
| 80 & above | 0 | 0 |

This table shows that the hydrocele occurs in the 20-39 years' age group which is similar to that of the Campbell's study of 502 cases.[5] Age incidence is comparable in both studies and in between 20-39 years. In a study conducted by Dandapat MC et al, of the 500 patients, majority of them (61%) were in between 20 and 40 years age group.[6]

**Table 7: Comparison of duration of hydrocele.**

| Duration | Present study (% ) | Campbell study[5] (%) |
|---|---|---|
| 0-6 months | 37 | 31 |
| 6 months-1 year | 22 | 14 |
| 2-3 years | 20 | 25 |
| 4-5 years | 8 | 9 |
| 6-10 years | 5 | 10 |
| 10 years and above | 8 | 11 |

Above table shows that in the present study a maximum of 37% of patients carried the hydrocele for 0-6 months, similar to that of the Campbell, where 31% of patients carried the hydrocele for 0-6 months. With this it can be concluded that most patients get operated within 6 months of developing hydrocele.

Also, in the present study, Campbell study and Dandapat MC et al study, hydrocele occurs more commonly on the right side than on the left side.[5,6] It can be concluded that the hydrocele has predilection to affect the right side than the left side. But there is no explanation why this predilection to right side. The average number of days of post-operative stay after the two types of operation, the duration of stay was comparatively less with Lord's plication as compared to Jaboulay's procedure.

The below table shows the comparison of incidence of skin oedema, hematoma and infection between the present study with that of the Rodriguez et al study in percentage.[7] In present study out of the total 60 patients,

patients who underwent Lord's plication 8.33%, 0%, 0% developed skin oedema, hematoma and wound infection respectively as compared to 25%, 2.08%, 6.25% in the remaining 48 patients who underwent Jaboulay's procedure, respectively.[12] As compared to various series of primary vaginal hydrocele, there was no incidence of infection and hematoma formation in Lord's plication. With reference to hematoma, as seen in the studies conducted by Lord, Efran et al, Dahl et al, Rai et al, Agrawal OP they have reported negligible incidence of hematoma by Lord's plication.[3,8-11]

**Table 8: Present study compared to Rodriguez et al study w.r.t post op complications.[7]**

| | Oedema% | | Hematoma% | | Infection% | |
|---|---|---|---|---|---|---|
| | **Lord's** | **Jaboulay's** | **Lord's** | **Jaboulay's** | **Lord's** | **Jaboulay's** |
| Present study | 8.33 | 25 | 0 | 2.08 | 0 | 6.25 |
| Rodriguez et al study[7] | 15 | 91 | 5 | 22 | 3 | 14 |

## CONCLUSION

Maximum number of patients were seen in the age group of 20 – 39 years with almost equal number of cases seen in most of the occupations indicating that hydrocele does not have any predilection for an occupation. Most of the patients presented within 6 months of development of hydrocele, with a scrotal swelling and a few had pain and heaviness, some of them had difficulty in walking and sexual act. Right sided hydroceles were more common. The average post-operative stay after was Lord's plication 6 days with no gross difference in the average hospital stay whether the hydrocele was unilateral or bilateral but post- operative pain was more in bilateral hydrocele while wound infection and skin oedema were more common in unilateral hydrocele, possibly due to larger size of unilateral hydrocele. There was no incidence of hematoma or recurrence after Lord's plication.

It was observed that amongst surgical procedures Lord's plication is much easier and simpler technique compared to Jaboulay's procedure and less time consuming because it's done through a smaller incision. Also, as the sac is not stripped from the surrounding tissue oozing is minimized and post-operative hematoma never occured in this series.

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## REFERENCES

1. Das S. A Practical Guide to Operative Surgery. 3rd edition. 1995:489-90.
2. Rintoul RF. Churchill Livingstone, Farquharson's Operative Surgery. 8th edition. 1995:678-80.
3. Lord PH. A Bloodless operation for the radical cure of Idiopathic Hydrocele. BJS. 1964;51:914-6.
4. Williams NS, Bulstrode CJK, O'Connell PR. The Testis and Scrotum, Bailey & Love's, Short Practice of Surgery. 25th edition, Arnold Publishers., London. 2000:1381-2.
5. Campbell MF. Hydrocele of tunica vaginalis- Study of 502 cases. SGO. 1927;45:192-200.
6. Dandapat MC, Mohapotro SK, Mohanty SS. The incidence of filaria as an aetiological factor for testicular hydrocele. Br J Surg. 1986;73:77-8.
7. Rodríguez WC, Rodríguez DD, Fortuño RF. The operative treatment of hydrocele: a comparison of 4 basic techniques. J Urol. 1981;125(6):804-5.
8. Efron G, Sharkey GG. The Lord operation for hydrocele. Surg Gynecol Obstet. 1967;125(3):603-6.
9. Dahl DS, Singh M, O'Conor VJ Jr, Sokol JK, Bulkley GJ. Lord's operation for hydrocele compared with conventional techniques. Arch Surg. 1972;104(1):40-1.
10. Rai S. Plication operation for hydrocele. IJS. 1978;40(9):481-4.
11. Agrawal OP. Radical cure of hydrocele by Lord's method as compared with eversion of the sac. IJS. 1983;45:329-31.

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