e-ISSN: 0975-5160, p-ISSN: 2820-2651

Available online on www.ijtpr.com

International Journal of Toxicological and Pharmacological Research 2025; 15(1); 149-156

Original Research Article

A Prospective Study on Outcome of Sharma and Jhawer Technique as a Treatment of Small and Medium Sized Primary Vaginal Hydrocele in a Rural Tertiary Care Hospital

Preetam Chaudhuri[1], Shib Shankar Kuiri[2], Nirupam Sarkar[3], Kanchan Kundu[4*]

[1]PGT, Department of General Surgery, Bankura Sammilani Medical College, Bankura
[2]Associate Professor, Department of General Surgery, Jhargram Govt Medical College, Jhargram
[3]PGT, Department of General Surgery, Bankura Sammilani Medical College, Bankura
[4]PDT, Department of Urology, NRS Medical College, Kolkata

Received: 18-10-2024 / Revised: 21-11-2024 / Accepted: 26-12-2024
Corresponding author: Dr. Kanchan Kundu
Conflict of interest: Nil

Abstract:

Introduction: Hydrocele is known to occur in man since time immemorial. It was Mathew Jaboulay (1860-1913) who contributed the operation of partial excision with eversion of the sac after that so much modification has been in this field in search of an easy and less morbid procedure. However, still the surgery for hydrocele has a significant morbidity rate.

Materials and Method: An observational prospective study conducted in Bankura Sammilani Medical College and hostpital within the time frame of about 1 year with 50 patients admitted for undergoing hydrocele operation. Outcome was compared with standard Jaboulay's procedure in terms of duration of surgery, post op pain, fever, scrotal edema, hematoma, wound infection and duration of hospital stay.

Result and Analysis: In our study majority belongs to the age group of 26-35yrs.Mean duration of surgery was 15.16mins. Incidence of post op pain (VAS>5) and fever was 22% and 6%. Though 6% developed scrotal edema and 4% post op infection but hematoma in only 1 case. Mean duration hospital stay was 3 days.

Conclusion: As dissection of hydrocele sac is the main culprit behind the morbidity hence Sharma and Jhawer techniques which include minimal dissection has statistically significant superiority in duration of surgery, post operative pain, edema and hematoma. No statically significant difference was there with Jabouloy's procedure in terms of post op fever and infection. Hence decreased post-operative stay compared to other surgical modalities and decreased cost incurred for patients.

Keywords: Hydrocele, Sac Excision, Hematoma, Wound Infection.

Introduction

Hydrocele is known to occur in man since time immemorial. Indian surgeons have reported it as early as 5th century BC.

It was MATHEW JABOULAY (1860-1913) who contributed the operation of partial excision with eversion of the sac in the treatment of hydrocele.

Peter Lord (1964) described the plication operation for hydrocele.

In 1979 SHARMA – JHAWER described a technique which involved lesser complications as compared to other procedures

However, still the surgery for hydrocele has a significant morbidity rate.

The common complications include

- Bleeding
- Haematoma
- Scrotal Edema
- Testicular pain
- Infection
- Injury to the cord structures and epididymis
- Torsion of the testis in the order of decreasing frequency.

Commonest among these is post-operative haematoma which is due to oozing from small vessels. Unless meticulous haemostasis is secured oozing from small vessels may continue into the layers of the loose scrotal tissue giving rise to a haematoma. It is apt to say that a patient comes for surgery of a tennis ball and goes back with a cricket ball, considering the size and weight.

To study which among all these procedures has the least morbidity, in our study we have compared the popularly used Lord’s plication for small and Jaboulay’s operation for medium sized uncomplicated primary vaginal hydroceles with Sharma and Jhawer’s minimal dissection technique in two separate compartments.

Nagamunieah, Bhanu Bharath Naik et at.[2] A Comparative Study of Clinical Presentation, Surgical Procedures and Complications of Primary Vaginal Hydrocele, IOSR Journal of Dental and Medical Schemes 2015 Oct; 14 (20 ver II): 10-22: found that –

Lord’s Plication, Jhawer and Sharma techniques in comparison to conventional methods are much easier and simpler in technique, consume less time. They can be done through a small incision and as the sac is not stripped from the surrounding scrotal tissues, cause minimal bleeding, post-operative hematoma does not occur and consequently disruption of wound etc. can be prevented.They also found that both lord’s plication, Jhawer and Sharma technique to be superior to other techniques if the hydrocele is of small to moderate size. But in case of large hydrocele with thickened and calcified sac radical excision is the best choice.

It will establish the SHARMA AND JHAWER TECHNIQUE as the most beneficial technique for the patient with least complications in small and medium sized primary vaginal hydrocele in BankuraSammilani Medical College and Hospital.

1. A clinical study of effectiveness of sac eversion with minimal separation in the treatment of hydrocele by K. Lokesh, Kavithaet. al.[3], New Indian Journal of Surgery : Vol 10 No. 1, Jan – Feb 2019 : found that-Sac eversion with minimal separation technique is a good surgical technique for the primary vaginal hydrocele compared to the other conventional procedures because it is much easier and simpler in technique, consumed less time and can be dome through a small incision and can be done under local anesthesia. As the sac is not stripped from the surrounding scrotal tissues, bleeding is minimal, post-operative hematoma does not occur and consequently other complications like pain, fever, infection, disruption of wound can be prevented.
2. Randomised prospective comparative study on the efficacy of Sharma and Jhawer’s operation with lord’s plication and Jaboulay’s operation in the treatment of primary vaginal hydrocele by Dr. M. Joyner Abraham[4] on May 2019 found that-

Between the three procedures analyzed, in their setting Sharma and Jhawer's minimal dissection technique had statistically significant lesser complications, lesser time to revert back to normal and cost effective than Lord's plication for small sized primary vaginal hydrocele and Jaboulay's operation for medium sized primary vaginal hydrocele. Hence Sharma Jhawer's is the best beneficial for the patient and with least complications for treating small and medium sized primary vaginal hydrocele.

3. The observational study of minimal dissection technique and conventional eversion of sac in primary vaginal hydrocele by Dr. Sunny, Dr. R K Patra[5], International Journal Dental and Medical Sciences Research, (vol. 3, issue 5, Sep-Oct 2021) : found that-

Both the procedures are safe in both experienced and young surgeon hands so far as post-operative hematoma, fever, scrotal edema and attainment of normal size of scrotum is concerned both the procedures and comparable. However compared to Jaboulay's procedure, the Sharma and Jhawer's technique has a shorter duration of surgery in both unilateral and bilateral cases and a significant shorter duration of post-operative hospital stay. So far as a secondary outcome are concerned, no difference was observed in recurrences between either of the groups.

Aims and Objectives:

To study the outcome of Sharma and Jhawer technique as a treatment at small and medium sized primary vaginal hydrocele in patients of Bankura Sammilani Medical College and Hospital.

To assess complications and short term outcome/ morbidity of Sharma and Jhawer technique in terms of

1. Duration of surgery.
2. Hematoma and scrotal edema in post-op period.
3. Pain, Swelling and fever in post-operative period
4. Duration of hospital stay and time to return to normal activity

An observational prospective study conducted in a periphery tertiary care hospital and medical college within the time frame of about 1 year (from 1st September 2022 – 31st August 2023) after obtaining clearance from Institutional Ethical Committee.

Total number of 50 patients admitted in General Surgery ward during that period for undergoing hydrocele operation at our hospital. As per departmental record average, weekly attendance of new cases of small and medium sized primary vaginal hydrocele in our OPD are approximately 1 in number. Hence in this study we may get 50 cases (≈52 weeks) in duration of the 12 months period of inclusion.

Inclusion Criteria:

Male patients coming in OPD and indoor at Bankura Sammilani Medical College and Hospital with scrotal swelling clinically diagnosed as vaginal hydrocele-

1. Hydrocele with size upto 5cm in greatest diameter is considered as small size hydrocele
2. Hydrocele size >5cm and upto 10 cm in greatest diameter is considered as medium sized hydrocele

Exclusion Criteria:

1. Scrotal swelling other than hydrocele
2. Patients who are not willing to give consent
3. Presence of infection in scrotum

After inclusion all the hydrocele patient underwent Ultrasound to categorize into small and medium sized at the same time secondary hydrocele were excluded from study. Then during operation duration of surgery was recorded. In post-operative period data like scrotal swelling, haematoma, pain, fever, infection, duration of hospital stay and time to return to normal activity has been collected.

Steps:

The scrotum is scrubbed well and painted with spirit & betadine.

a) Incision

The scrotum is held with its skin stretched by the assistant, 4cm incision made avoiding subcutaneous vessels.

b) Evacuation of the sac

The sac with all the fascial layers together is picked up with two tissue forceps and emptied with a trocar and cannula. The same holes are then extended on either side avoiding visible blood vessels. Through the opening polar delivery of testis is done.

c) Creation of space in the scrotum

To lodge the testis, with its sac back into the scrotum, a testis size space is created between the scrotal subcutaneous layers outside and the testicular fascial layers on the inside. This is easily done by introducing the two index fingers to do blunt separation of tissues and make room just enough to allow a tight fit of testis when reloaded in the scrotum.

d) Reloading of testis

The testis with its everted sac is put back into the new space in the scrotum very carefully.

e) Wound closed in layers

After achieving complete haemostasis, wound is closed in layers with 3'0 chromic catgut.

For statistical analysis, data was also entered into Microsoft Excel spreadsheet and then analyzed by SPSS (version 27.0, SPSS Inc. Chicago, USA) and Graph Pad Prism (version 5). Data has been summarized as mean and standard deviation for numerical variables and count and percentage for categorical variables. A chi-squared test was any statistical hypothesis test wherein the sampling distribution of the test statistic is chi-squared distribution when the null hypothesis is true. Without other qualifications 'chi-squared test' after is used as short for person's chi-squared test. Unpaired proportions where compared by chi-square test or Fischer's exact test, as appropriate. Explicit expressions that can be used to carry out various t-tests are given below. In each case, the formula for a test statistic that either exactly follows as clearly approximates a t-distribution under the null hypothesis is given. Also approximate degrees of freedom are given in each case. Each of these statistics can be used to carry out either a one-tailed test or a two-tailed test.Once a t value is determined, a p-value can be found using a table of values from student's t-distribution. If the calculated p-value is below the threshold chosen for statistical significance (usually 0.10, 0.05 or 0.01 level) then the null hypothesis is rejected in favour of the alternative hypothesis.

P-values ≤ 0.05 was considered for statistically significant.

Result and Analysis

Table 1: Post-Operative Hematoma

Hematoma	Jaboulay's	Sharma and Jhawer	P-value
Present	11%	2% [1 case]	0.009838
Absent	89%	98%	
Total	100%	100%	

Chi-square statistic is 0.6639, P-value 0.009838 [< 0.05 statistically significant]

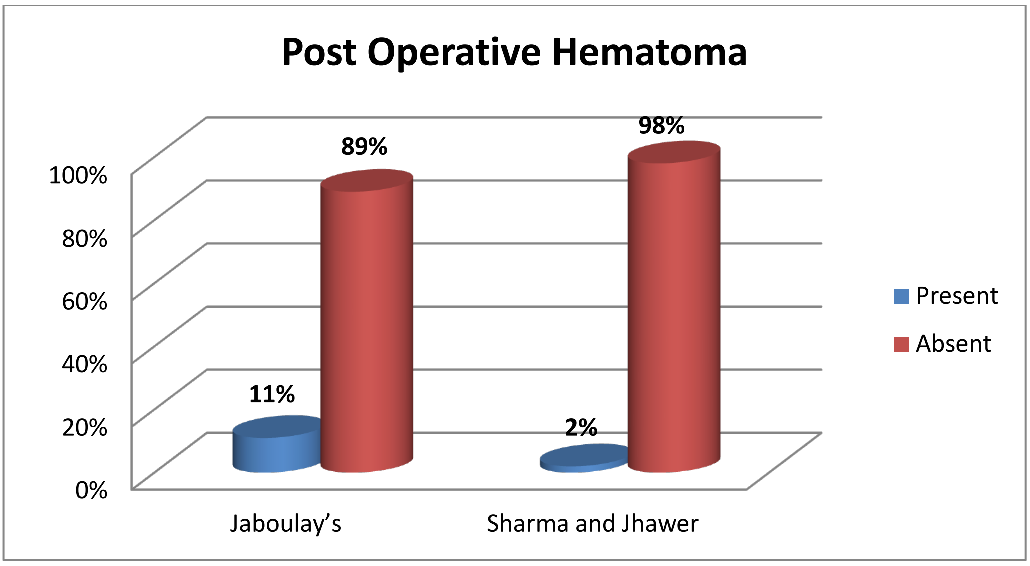

Figure1: Bar Diagram of Post-Operative Hematoma

Table 2: Post-Operative Scrotal Edema

Scrotal Edema	**Jaboulay's**	**Sharma and Jhawer**	**P-value**
Present	33%	6% [3 case]	< 0.0001
Absent	67%	94%	
Total	100%	100%	

Chi-square statistic is 23.2203, P-value <0.0001 [statistically significant]

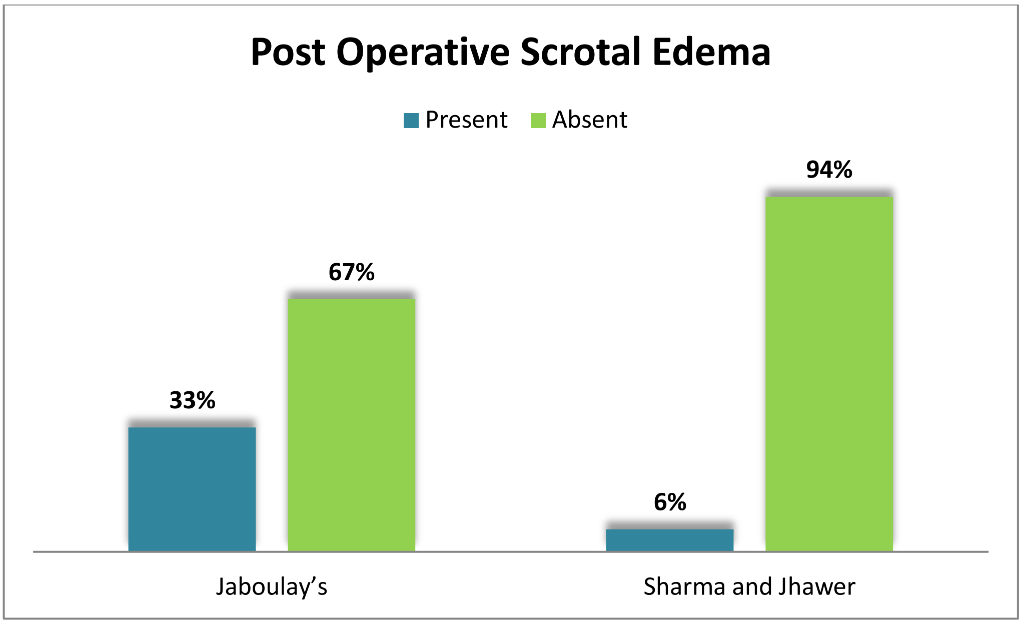

Figure2: Bar Diagram of Post-Operative Scrotal Edema

Table 3: Post-Operative Pain

Pain	Jaboulay's	Sharma and Jhawer	P-value
Present	61%	22% [11 case]	< 0.0001
Absent	39%	88%	
Total	100%	100%	

Chi-square statistic is 31.3253, P-value <0.0001 [statistically significant]

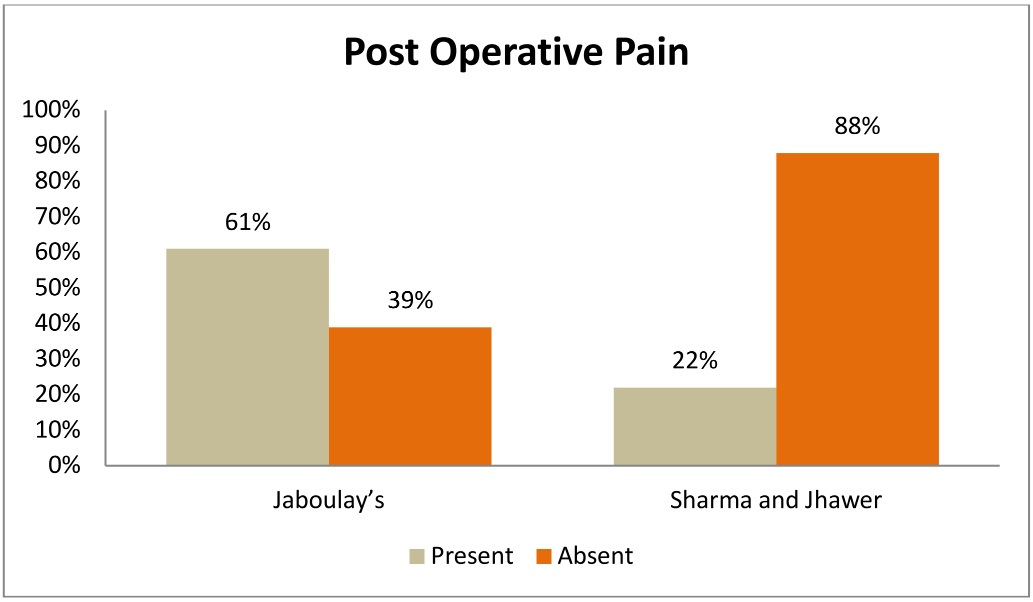

Figure3: Bar Diagram of Post-Operative Pain

Table 4: Post-Operative Fever

Fever	Jaboulay's	Sharma and Jhawer	P-value
Present	6%	6% [3 case]	1
Absent	94%	94%	
Total	100%	100%	

Chi-square statistic is 0, P-value 1 [statistically insignificant]

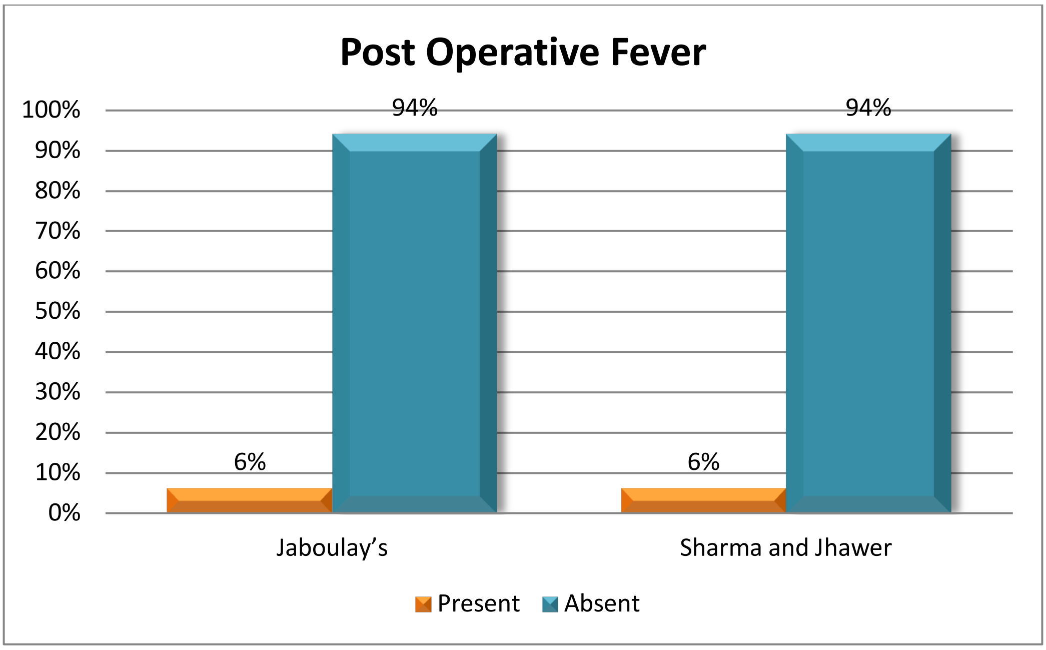

Figure4: Bar Diagram of Post-Operative Fever

Table 5: Post-Operative Infection

Infection	Jaboulay's	Sharma and Jhawer	P-value
Present	5%	4% [2 case]	0.73303
Absent	95%	96%	
Total	100%	100%	

Chi-square statistic is 0.1163, P-value 0.73303 [statistically insignificant]

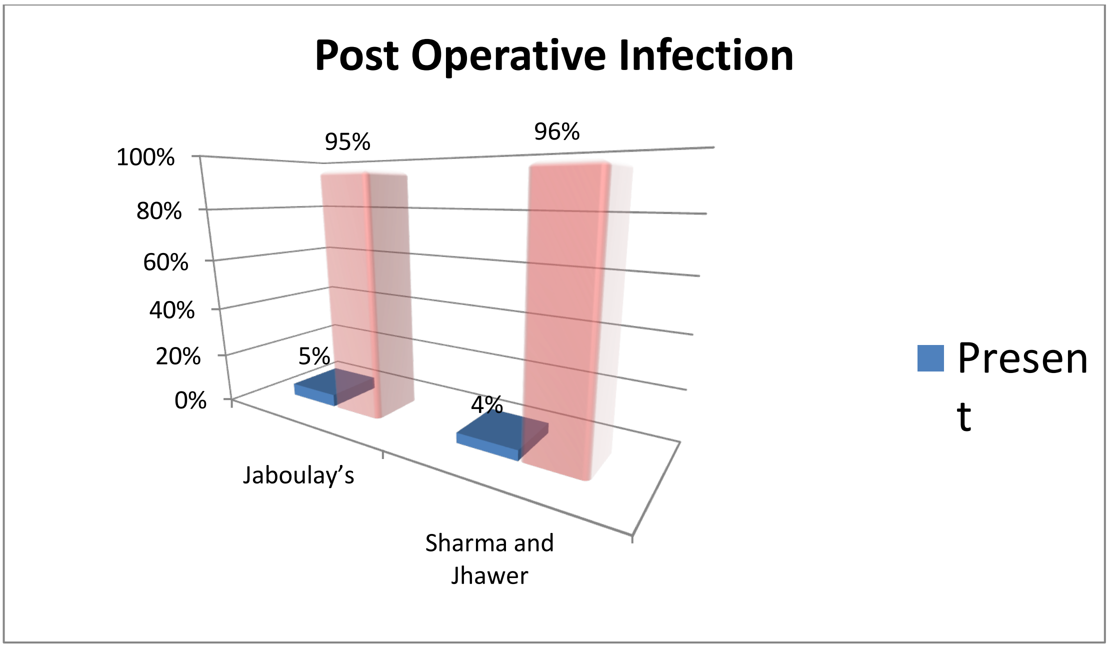

Figure5: Bar Diagram of Post-Operative Infection

Table 6: Duration of Surgery

Outcome	Jaboulay's	Sharma and Jhawer	P-value
Mean Duration of Surgery (in min)	31.1	15.16	< 0.0001

P-value is <0.0001 [statistically significant]

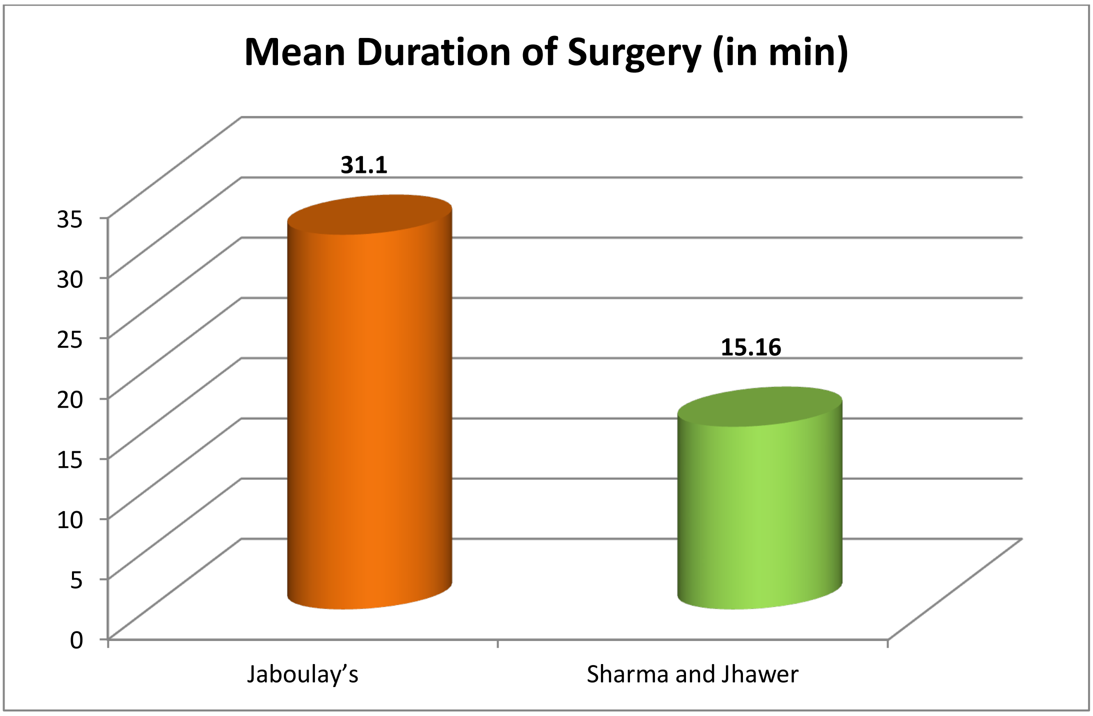

Figure6: Bar Diagram of Mean Duration of Surgery

Discussion

1. Age incidence: Hydrocele is found in all age groups but young adults are most commonly affected. Majority of the patients, in this study belong to the age group of 26 – 35 yrs (30%). The youngest was 17 yrs old and the oldest was 60 yrs of age.

2. Distribution of occupation: In this study, majority of the patients are agricultural labourers (28%). There are also patients from other professions like bus conductors, coolie, drivers, fruit sellers, gardeners, shop keepers etc.

3. Distribution of side: In this study, most of the patients have right sided hydrocele (58%). I have taken bilateral hydrocele cases as two separate cases.

4. Presenting symptom: In this study, most of the patients presented with only swelling (68%) followed by both pain and swelling (28%) and pain only in 4% cases.

5. Duration of illness: Majority of patients had a duration of 6m – 1y (48% cases) followed by duration of less than 6 months (44%) and least by more than 1yr duration (8%) in this study.

6. Duration of Surgery: In my study, the mean duration of Sharma and Jhawer technique is 15.16 mins. In the study done by M. Joyner Abraham et. al[4]. Mean duration of surgery for Jaboulay's procedure was 31.1 minutes. On applying chi-square test the p-value was found to be < 0.001. The p value shows that the difference in the surgery duration among the procedure is statistically significant.

Post-op Hematoma: Post-operative hematoma is present only in 2% of cases in my study and in study done by Nagamunieah et.[2], al. 11% cases of Jaboulay's procedure developed hematoma. On applying chi-square test the p-value is found to be 0.009838. This means that the difference in occurrence of post-operative hematoma among the procedures is statistically significant. In the present study where only minimal eversion and separation of sac is done, hematoma is noted only 1 case. This is explained on the basis that much dissection is not required in small and medium sized hydrocele. Hence, no hematoma formation occurred which is preclude to all other complications present with conventional methods of treatment.

7. Post-operative Scrotal Edema: In this present study, 6% cases developed scrotal edema. In study done by Nagamunieahet. al.[2], in Jaboulay's procedure (33.33% cases) scrotal edema occurred not only due to infection but also due to dissection and breakage of lymphatics. Post-operatively patients were given antibiotics, anti-inflammatory analgesics and scrotal support. On applying chi-square test the p-value is found to be < 0.0001. This means that the difference in occurrences of post-operative complication scrotal edema among the procedures is statistically significant.

8. Post-operative Pain: In the present study, patients were assessed on post-operative days according to VAS scale, > 5 is considered as presence of pain in my study. In the post-operative period, only 22% patients have pain. In a study done by Nagamunieah et.[2] al., to assess various procedures for hydrocele, after Jaboulay's procedure pain was seen in 61.11% cases. On applying chi-square test the p-value was found to be < 0.0001. This 'p' value shows that the difference in the occurrence of post-operative complication pain among the procedures is **statistically significant.**

9. Post-Operative Fever: In the present study, 6% of patients had fever in the post-operative period. In the study done by Nagamunieahet. at.[2] to assess various procedures for hydrocele, post-operatively fever was noted in 6.6% cases who had Jaboulay's procedure had developed fever. On applying chi-square test the p-value is found to be p=1; NS this means that the difference in the occurrence of post-operative complication fever among procedures is statistically **not significant**.

10. Post-Operative Infection: In the present study, 4% cases developed wound infection. In the study done by Nagamunieah et.al.[2] Developed wound infection is 5.5% cases at Jaboulay's. On applying chi-square test, the p-value is found to be p=0.7303. This means that the infection among the procedures is **statistically not significant** though less number of patients developed wound infection.

11. Post-Operative Hospital Stay: In my study, patients had mean post-operative stay of 3 days. One patient who had developed hematoma, fever and infection was discharged on POD 5, another patient who had got post-operative wound disruption got discharged on POD 4 after controlling infection. In the study done be Nagamunieah et.al.[2] the patients who underwent Jaboulay's procedure got discharged between 8 – 12 days. This indicates excessive dissection lead to increased days of post-operative stay and need more time to revert back to normal life.

Summary:

Most complications like infections, scrotal edema or hematoma were commonly observed in procedures which had extensive dissections.

Dissection at the sac wall leads to breakage or tearing of anastomotic vessels leading to bleeding and hematoma, scrotal edema. It was more with Jaboulay's procedure and radical excision of sac. Excision of the non-absorbing parietal layer of the tunica is essential to prevent recurrence.

Dissection at the sac wall leads to tearing of the vessels leading to bleed and hematoma, so recent techniques have been evolved for minimal incision, minimal dissection hence less chance of hematoma or scrotal edema. So, dissection of hydrocele sac only adds morbidity hence Sharma and Jhawer techniques which include minimal dissection has very less incidence of hematoma and also decreased complication rate in my study. Hence decreased post-operative stay compared to other surgical modalities and decreased cost incurred for patients.

Conclusion

Sac eversion with minimal dissection technique; Sharma and Jhawer technique is a very good surgical technique for the small and medium sized vaginal hydrocele compared to other conventional procedures because it is much easier and simpler in technique, consumed less time and it can be done under local anesthesia. As the sac is not stripped from the surrounding scrotal tissues, bleeding is minimal, post-operative hematoma does not occur and other complications like pain, fever, infection etc. can be prevented.

I am fully aware that 50 cases is too small a number to draw any definite conclusion. The follow up too has been short but under prevailing circumstances I have made an attempt to do my best.

Though this technique not so much popular among surgeons but we hope this technique can be taken up as a better procedure for small and medium sized primary hydrocele in future.

Bibliography

1. Sharma LS, Jhawar PK. Surgery of hydrocele (A simplified minimal dissection technique). Ind J Surg 1979; 41: 700-704.
2. Nagamunieah, Bhanu Bharath Naiket at. A Comparative Study of Clinical Presentation, Surgical Procedures and Complications of Primary Vaginal Hydrocele, IOSR Journal of Dental and Medical Schemes 2015 Oct; 14 (20 ver II): 10-22.
3. A clinical study of effectiveness of sac eversion with minimal separation in the treatment of hydrocele by K. Lokesh, Kavithaet. al., New Indian Journal of Surgery: Vol 10 No. 1, Jan – Feb 2019.
4. Randomised prospective comparative study on the efficacy of Sharma and Jhawer's operation with lord's plication and Jaboulay's operation in the treatment of primary vaginal hydrocele by Dr. M. Joyner Abraham on May 2019.
5. The observational study of minimal dissection technique and conventional eversion of sac in primary vaginal hydrocele by Dr. Sunny, Dr. R K Patra, International Journal Dental and Medical Sciences Research, (vol. 3, issue 5, Sep-Oct 2021).