

A Clinical Study of Effectiveness of Sac Eversion with Minimal Separation in the Treatment of Hydrocele

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Abstract

Context: Primary vaginal hydrocele is commonest disease worldwide. In tropics lymphatic filariasis is main cause. Surgery is treatment of choice. A number of methods are described. "Sac eversion with minimal separation" is described to have many advantages. This study is done to know the efficacy of the method over others. **Aims:** To study the efficacy of "Sac eversion with minimal separation technique". **Settings and Design:** Prospective experimental study, General Surgery department of Narayana Medical College from 15th October 2014 to September 2016. **Methods and Material:** Detailed history, clinical examination, investigations from patients with primary vaginal hydrocele is noted in proforma. All are operated by this technique. Post operative complications are documented. **Statistical analysis used:** Percentages and mean. **Results:** Among 64 cases maximum incidence was found in 3rd decade, agriculturist and coolies. Many cases presented with symptoms for 2 - 4 years. Right sided scrotal swelling was common. Scrotal oedema was the common complication. Average hospital stay was 2 days. **Conclusions:** This technique is good compared to conventional procedures because it is much easier and simpler, consumes less time, can be done with small incision under local anaesthesia. As the sac is not stripped from the surrounding scrotal tissues, bleeding is minimal, post operative haematoma does not occur and other complications

like pain, fever, infection, disruption of wound are prevented.

Keywords: Hydrocele; Sac eversion technique; scrotal oedema; hematoma.

Introduction

Primary vaginal hydrocele is defined as abnormal accumulation of serous fluid between the visceral and parietal layers of tunica vaginalis [1]. It is one of commonest disease occurring worldwide. Surgery has been the traditional treatment of choice for hydrocele, which is relatively simple and generally known. A number of simple methods of treatment of hydroceles with fewer complications are described such as 1) Lords Procedure [2,3] 2) Jaboulay's technique [2] 3) Simplified Minimal dissection technique by P.K. Jhawar and L.S Sharma [4]. 4) Winkelmann's Procedure [5]. Sac Eversion with minimal separation by S. Mahaboob [6,7] All these methods have their own advantages however; they are not practicable in Long standing Hydroceles, Cases of recurrence after tappings, Cases of failed attempts of Sclerosing and Filarial hydrocele. Such cases are common in rural India especially in filarial endemic zones. A simple technique "Sac eversion with minimal separation" is described for the treatment of above mentioned hydroceles. It is said to have the following advantages 1) It can be done under local anaesthesia. 2) Needs minimum dissection. 3) Minimum discomfort to the patient. 4) No drain is necessary. 5) done as an OP -procedure. 6) Complications are negligible with no recurrence. Dr. S. Mahaboob, (1991) described "Sac eversion

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with minimal separation" technique in long standing filarial hydroceles and chylocoele under local anaesthesia [6,7] Chalasani V, Woo HH (2002) advocated small incision to treat large hydroceles. They found hydrocele repair can be done safely through a 3 cm incision [8]. Winkelmann's and Bergman's procedures were proved to be satisfactory for the surgical treatment of patients with hydrocele by Al-Khalil N, Panchev P (2004) [9].

Materials and Methods

Source of data: All patients who were admitted in General Surgery department of Narayana Medical college with primary vaginal hydrocele, from October 2014 to September 2016. *Research design:* A prospective experimental study *Inclusion criteria:* Patients between 18 - 70 yrs, with primary vaginal hydrocele, those willing for surgery *Exclusion criteria:* scrotal swellings other than primary vaginal hydrocele. *Methodology:* Detailed history is taken, clinical examination was done, Lab evaluation done to evaluate the comorbid conditions. USG is done to confirm primary vaginal hydrocele. Institutional ethical committee approval was taken prior to commencement of the study. All patients underwent surgery by Sac Eversion With Minimal Separation Technique under cord block. Post operative complications like pain, Fever, secondary haemorrhage, haematoma, Scrotal Oedema, Infection, Stitch abscess, pyocele, Orchitis, Testicular torsion, Postoperative lymph scrotum, Recurrence are noted and documented in the proforma.

Results

Table 1: Age Distribution

Age in years	No. of patients	Percentage %
18-20	1	1.56
21-30	5	7.8
31-40	17	26.5
41-50	19	29.6
51-60	8	12.5
>60	14	21.8
Total	64	100

Table 2: Type of Occupation

Occupation	No of Patients	Percentage %
Students	3	4.7
Private workers	7	10.9
Govt employees	8	12.5
Businessmen	6	9.4
Coolies	13	20.3
Agriculturists	27	42.2
Total	64	100

Table 3: Side of Hydrocele

Side	No. of Patients	Percentage%
Right	30	46.87
Left	26	40.63
Bilateral	8	12.5
Total	64	100

Table 4: Laterality of Hydrocele in Different Age Groups

Age in years	Unilateral	%	Bilateral	%
11-20	1	1.56	0	0
21-30	5	7.8	0	0
31-40	16	25	1	1.56
41-50	15	23.4	4	6.25
51-60	7	10.9	1	1.56
>60	9	14.06	5	7.81
Total	53	82.8	11	17.2

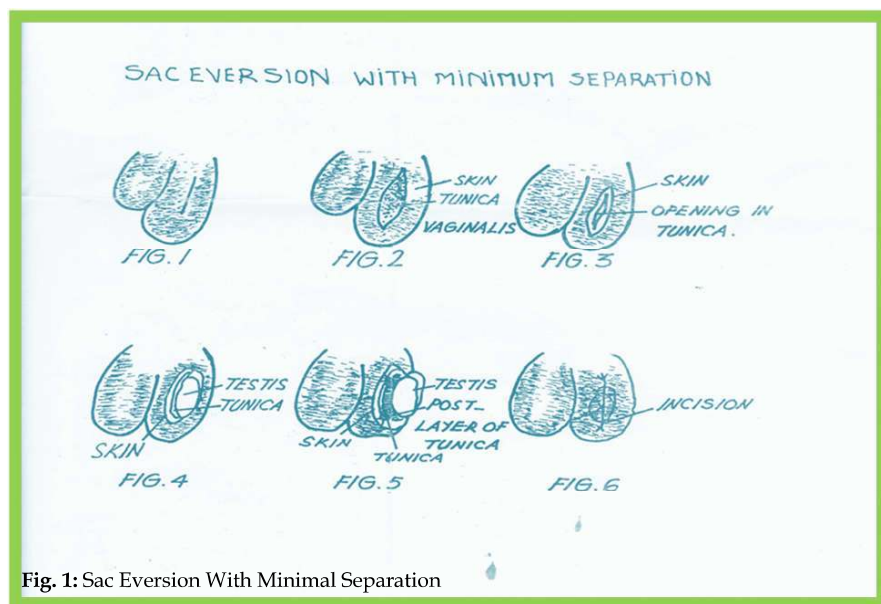


Fig. 1: Sac Eversion With Minimal Separation

Table 5: Duration of Hydrocele

Duration of symptoms	No. of patients	Percentage
0-1 yrs	10	15.6
1.1- 2 yrs	12	18.7
2.1- 3 yrs	13	20.4
3.1- 4 yrs	13	20.4
4.1- 5 yrs	8	12.5
5.1- 6 yrs	3	4.6
>6 yrs	5	7.8
Total	64	100

Table 6: Presenting Complaints

Complaints	No of patients	Percentage %
Swelling	64	100
Dragging type of pain	21	32.8
Mechanical discomfort	37	57.8

Table 7: Post Operative Pain

Post op pain	Day 1	%	Day 2	%	Day 3	%
No pain	0	0	30	47	56	87.5
Mild	30	47	25	39	8	12.5
Moderate	26	40.5	9	14	0	0
Severe	8	12.5	0	0	0	0
Total	64	100	64	100	64	100

Table 8: Post Operative Complications

Post operative complications	No of patients	Percentage %
Fever	3	4.2
Scrotal edema	12	16.7
Haematoma	1	1.4
Infection	3	4.2

All patients were ambulated from the first postoperative day onwards. All patients were discharged on the third post operative day.

Discussion

Table 9: Comparison of Age incidence

Age in years	Meredith F Campbell [10]	Present study
<20	10.74	1.56
21-30	27.63	7.8
31-40	16.23	26.5
41-50	19.52	29.6

Table 11: Postoperative complications in various surgical procedures

Type of operation	Lords plication	Jaboulay's procedure	Radical excision of sac	Jhawahar & Sharma technique	Present study
Pain	22.22	61.11	66.66	22.22	12
Fever	0	6.6	16.66	0	4.16
Scrotal Odema	18.75	33.33	61.11	11.11	16.67
Haematoma	0	11.11	38.88	0	4.16
Infection	0	5.5	11.11	0	4.16

51-60	17.32	12.5
> 60	8.55	21.8

Table 10: Comparison of side of hydrocele

Side	Meredith F Campbell	Present study
Right	51.30%	46.90%
Left	39.50%	40.60%
Bilateral	9.20%	12.50%

Pain

In the present study patients were assessed regarding pain on 1st, 2nd, 3rd post operative days according to VAS. By 3rd day only 12% of cases had mild pain. In Albrecht W et al. [11] (1992) study patients reporting postoperative pain was 15.8%. In a study done by Nagamuneiah et al. [12] to assess various procedures for hydrocoele, pain after Lords plication was present in 22.22% cases, in Jhawar and Sharma technique pain was in 22.22% cases, after Jaboulay's procedure pain was seen in 61.11% cases and after radical excision of sac 66.66% cases had pain. *On applying chi-square test the P value is found to be 0.0049; S.* This 'p value shows that the difference in the occurrence of post-operative complication pain among the procedures is statistically significant.

Fever

In the present study patients 4.16% had fever in the post operative period. In the study done by Nagamuneiah et al. [12] to assess various procedures for hydrocoele Post operatively fever was noted in 6.6% cases who had Jaboulay's procedure, 16.66% cases who had radical excision of sac, whereas no one in Lord's plication or Jhawar and Sharma technique developed fever. *On applying chi-square test the p value is found to be P=0.09; NS.* This means that the difference in occurrence of postoperative complication fever among the four procedures is statistically nil significant

Haematoma

Haematoma was present in 4.12% of cases in the present study and in study done by Nagamuneiah

et al. [12] 11.11% cases of Jaboulay's and 38.88% in radical excision of sac, no case of Lord's plication or Jhawar and Sharma developed haematoma. *On applying chi-square test the P value is found to be $p < 0.001$; S.* This means that the difference in occurrence of postoperative complication haematoma among the four procedures is statistically significant.

In the present study where only minimal eversion and separation of sac is done, hematoma was noted only in 1 case. This is explained on the basis that much dissection is not required. Hence no haematoma formation occurred which is preclude to all other complications present with conventional methods of treatment.

Scrotal oedema

In the present study 16.70% cases developed scrotal odema. In study done by Nagamuneiah et al. [12] 16.66% of cases who underwent Lord's procedure developed odema in the scrotum. Singh DR et al. (1996) performed a study on Lord's procedures in 26 patients as outpatient operation, scrotal oedema was noted in 3 (11.53%) cases. Scrotal edema occurred not only due to infection but also due to dissection and breakage of lymphatics. Scrotal oedema was more in Jaboulay's procedure 33.33% cases and radical excision 61.11% and least in the Lord's plication 16.66% and Jhawar and Sharma technique 11.11%. Post operatively patients were given antibiotics, anti-inflammatory analgesics and scrotal support. *On applying chi-square test the P value is found to be $p = 0.005$; S.* This means that the difference in occurrence of postoperative complication scrotal oedema among the four procedures is statistically significant.

Infection

In the present study 4.12% cases developed wound infection. In study done by Nagamuneiah et al. [12] developed wound infection in 5.5% cases of Jaboulays and 11.11% of radical excision of sac. In Lord's plication and Jhawar and Sharma no infection was noted. *On applying chi-square test the P value is found to be $p = 0.28$; NS.* This means that the difference in occurrence of postoperative complication infection among the four procedures is statistically nil significant.

Recurrence: No recurrence was noted in any case.

Post operative hospital stay

In our series all patients had mean post operative stay of 3 days. One patient who developed

haematoma and 3 cases that developed wound infection stayed for 7-8 days and were discharged on 9th POD. In the study done by Nagamuneiah et al. [12] the patients who underwent Lord's procedure were discharged 6-8 days operative stay. And most of the patients who underwent Jhawar and Sharma technique had postoperative stay of 6- 8 days. Most of the patients who underwent Jaboulays procedure got discharged between 8-12 days. Patients who underwent radical excision of sac had more post operative stay most of them >12 days, and upto 24 days. This indicates excessive dissection lead to increased days of post operative stay.

Most complications like infections, scrotal oedema or haematoma were commonly noticed in procedures, which had extensive, dissections. Dissection of the sac wall leads to breakage or tearing of anastomotic vessels leading to bleeding and haematoma, scrotal edema. It was more with Jaboulay's procedure and radical excision of the sac. Excision of the non absorbing parietal layer of the tunica is essential to prevent recurrence. Dissection of the sac wall leads to tearing of the vessels leading to bleed and haematoma, so recent techniques have been evolved for minimal incision, minimal dissection hence less chance of haematoma or scrotal edema. So dissection of hydrocele sac only adds morbidity hence Lord's procedure and Jhawar and Sharma techniques which include minimal dissection has nil haematoma incidence and also decreased complication rate in our study. Hence decreased postoperative stay compared to other surgical modalities and decreased cost incurred for patients.

Conclusion

Sac Eversion with Minimal separation technique is a good surgical technique for the primary vaginal hydrocele compared to other conventional procedures because it is much easier and simpler in technique, consumed less time, and it can be done 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 haematoma does not occur and consequently other complications like pain, fever, infection, disruption of wound etc can be prevented. I am fully aware that 72 cases is too small a number to draw any definite conclusions. The follow up too has been short but under prevailing circumstances, I have made an attempt to do my best.

Conflict of Interest: Nill

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