

Study of Aspiration Sclerotherapy in the Management of Hydrocele in Telangana PopulationChaitanya Kumar Jilla¹, Bhargavi. P², Yellapu Naga Karthik³¹Assistant Professor, Department of General Surgery, Malla Reddy Medical College for Women Jeedimetla, Suraram, Qutbullapur, Hyderabad, Telangana-500055²Assistant Professor, General Surgery, Malla Reddy Medical College for Women Qutbullapur, Hyderabad, Telangana-500055³Post Graduate, Department of General Surgery, Malla Reddy Medical College for Women Qutbullapur, Hyderabad, Telangana-500055

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Conflict of interest: Nil

Abstract:**Background:** The surgical method to treat hydrocele is painful and may injure reproductive organs. Prolonged stays at the hospital is an economic burden on patients. Hence, an alternate method of non-surgical treatment at OPD is acceptable to the majority of patients.**Method:** Out of 60 (sixty) patients with hydrocele, thirty were treated surgically by Jaboulay's procedure and thirty with injection Sclerotherapy (IS). In Sclerotherapy first 2% lignocaine was injected with a 24-gauge needle and fluid is aspirated using 18-gauge needle under aseptic conditions. At the puncture site, the cannula was left in situ, and a mixture of STD's and 2% xylocaine of volume equivalent to 10% aspirated fluid were instilled. The aspirated fluid was sent for cytological analysis. Tight scrotal binding was done after the procedure. Patients were followed for 7 days, 1 month, and 6 months. After the procedure, patients with recurrence were treated surgically.**Results:** There were significant results in the aspired volume, of hospital stay, work resumption ($p < 0.000$). In the comparison of post-aspired and post-surgical 83.3% had pain, 26.6% fever, and 13.3% infection were observed in the surgical group. Mild volume recurrence: 6.6% gross volume recurrence, 3.3% was observed in I.S. group. Cure percentage was 9 (100%) in 0–50 volume, 10 (66.6%) in 50–99 volume, and 5 (83.3%) in >100 ml volume in I.S. group.**Conclusion:** Hydrocele aspiration and Sclerotherapy were successful in correcting 83.3% of simple, non-septated hydroceles. It avoids hospital expenses, and patients can resume their work on same a day as it was an OPD treatment and recurrence was treated surgically.**Keywords:** Sodium Tetradecyl Sulphate (STD's), Coamoxiclav, VAS Trans-Illumination, Telangana.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Hydrocele causes a change in scrotal size, which can be a disturbing physical change for any adult male. Scrotal pain during intercourse or physical activity, discomfort related to an enlarged scrotum, the cosmetic appearance of the scrotum, concerns about damage to the reproductive organs, or possible malignancy are reasons why men seek evaluation for an increase in scrotal size. It is observed in the adult male, usually after 40 years of life [1].

The conventional treatment of symptomatic hydrocele is surgical [2] and hydrocelectomy continues to be the most common method of treatment. Complications of scrotal surgery for the benign condition include prolonged pain, recurrence of haematoma infection, and injury to

the scrotal contents, including the testicles and/or vas deference [3]. Moreover, surgical management is associated with substantial costs, including absence from work for recovery and use of hospital resources, including stays at the hospital.

Hydrocele aspiration and sclerotherapy were first reported in 1975 as non-surgical outpatient treatments for hydrocele. Numerous chemical and pharmacological agents have been used in sclerotherapy; hence, an attempt was made to compare the pros and cons of both surgical and sclerotherapy techniques.

Material and Method

60 (sixty) patients regularly visited the general surgery department of Malla Reddy Women

Medical College, Suraram Qutbullapur, Hyderabad, Telangana -500055 were studied.

Inclusion Criteria: Patients above 18 years with vaginal hydrocele who gave their consent in writing were included in the study.

Exclusion Criteria: Hydrocele due to malignancy, patients with previous scrotal surgery, patients below 18 years, Immune-compromised patients were excluded from the study.

Method: Patients were divided into two groups: 30 patients for injection sclerotherapy and the remaining 30 patients for hydrocelectomy. Jaboulay's procedure was followed in hydrocelectomy surgeries.

Aspiration and sclerotherapy were done as outpatient procedures using 18 gauge needles under aseptic conditions. Local anaesthesia using lignocaine 2% was injected with 24 gauge needles at the puncture site. The puncture area was identified by Tran's illumination of the scrotum, with care taken to avoid damage to blood vessels. Aspiration of all fluid was done, and the cannula was left in situ to instill sodium tetradecyl sulphate (STD's) and xylocaine mixture. Complete emptying was ensured by manipulation of the scrotum before instillation. Equal proportion of xylocaine 2% and STD's of volume equivalent to 10% of total aspirated volume were used for instillation. The aspirated fluid was sent for cytological analysis. Tight scrotal binding was done after the procedure. Intravenous single dosage of coamoxiclav 1.2 gram was given to all patients. Analgesics were given as per the needs of the patient. Patients were followed up on the 7th day, 1st month, and 6th month after the procedure for clinical examination and scrotal ultrasonography.

On follow-up, pain was assessed by the VAS score (visual analogue score). Fever and scrotal tenderness were considered signs of infection. Any recurrence and haematoma were assessed on clinical examination and USG scrotum. Repeat aspiration and sclerotherapy were done for recurrence after ruling out haematoma. All patients were followed up for a maximum of six months. After 6 months of repeated failed sclerotherapy,

patients were considered for surgery. The cure was considered if the scrotal size was normal and the testes were separately palpable with a negative transillumination test.

The duration of the study was May 2022 to June 2023.

Statistical analysis: Various clinical manifestations were compared with a t test and comparison of complications; both groups were classified by percentage, and the cure rate after injection sclerotherapy was also classified by percentage. The statistical analysis was carried out using SPSS software.

Observation and Results

Table 1: Comparison of clinical manifestations in injection sclerotherapy and hydrocelectomy

- Aspirated volume – 76.7 (± 40.24) in the IS group, 95.10 (± 32.48) in the surgery group; t test was 2.09 and $p < 0.05$.
- Hospital stay – Nil was in the IS group, 2.86 (± 1.8) in the surgery group, t test was 8.7, and $p < 0.000$
- Work resumption – Someday (nil) in IS group patients and 14.06 (± 6.51) in surgery group, t test was 11.08 and $p < 0.000$

Table 2: Comparison of complications in the IS and surgery groups

- Pain – 21 (70%) in the IS group, 25 (83.3%) in the surgery group.
- Fever – 2 (6.6%) in the IS group, 8 (26.6%) in the surgery group
- Infection – 0 (zero) in the IS group, 4 (13.3%) in the surgery group
- Haematocele – 1 (3.3%) in both groups
- Recurrence – Mild volume 2 (6.6%) and gross volume (3.3%) only IS group

Table 3: Cure rate after injection sclerotherapy according to volume

- Aspirated volume – 9 patients (0–50 ml), 15 patients (50–99 ml), 6 patients > 100 ml
- Cure percentage – 9 (100%) in 0–50 ml, 10 (66.6%) in 50–99 ml, and 5 (83.3%) in >100 ml

Table 1: Comparison of Injection sclerotherapy and Hydrocelectomy

Manifestation	IS group (30)	Surgery group (30)	t test	p value
Aspirated volume	76.70 (± 40.24)	95.10 (± 32.48)	2.09	$P < 0.05$
Hospital stay (days)	0.00 (± 00)	2.86 (± 1.8)	8.7	$P < 0.000$
Work resumption (days)	0.00	14.06 (± 6.51)	11.8	$P < 0.000$

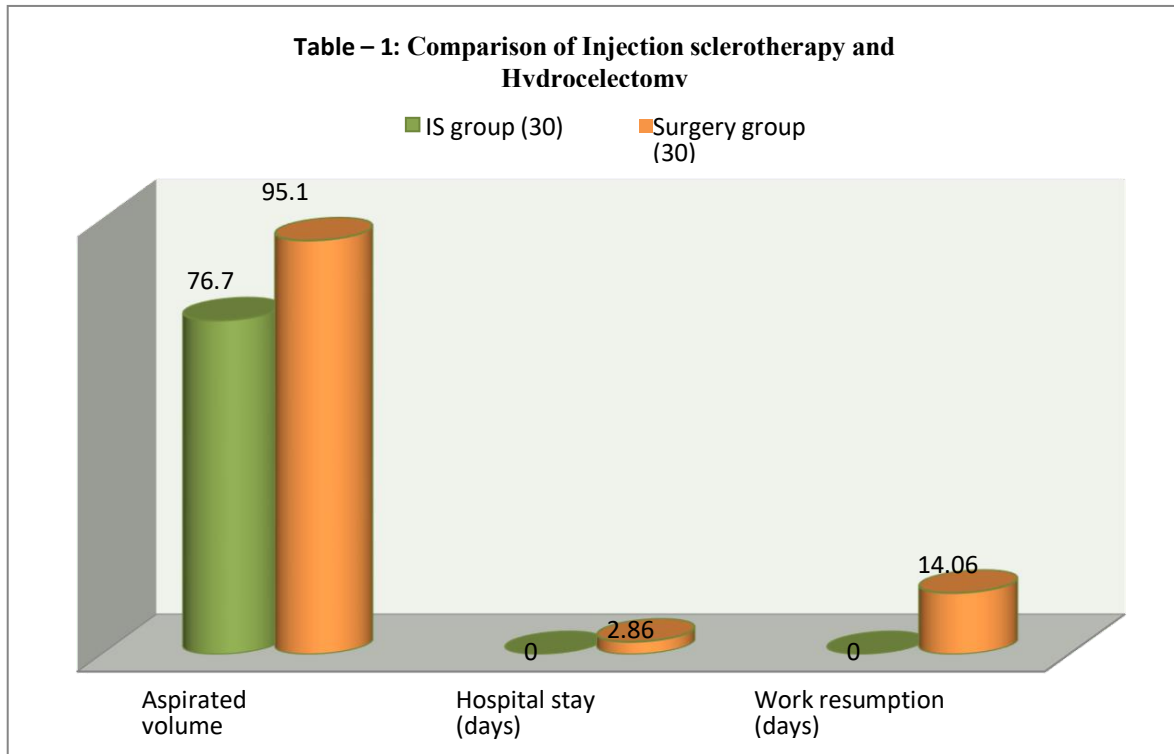


Figure 1: Comparison of Injection sclerotherapy and Hydrocelectomy

Table 2: Comparison of Post-aspirated and Post-surgical complications in both groups

Complications	IS group (30)	Surgical group (30)
Pain	21 (70%)	25 (83.3%)
Fever	2 (6.6%)	8 (26.6%)
Infection	0	4 (13.3%)
Haematocele	1 (3.3%)	1 (3.3%)
Recurrence		
a) Mild volume	2 (6.6%)	0
b) Gross volume	1 (3.3%)	0

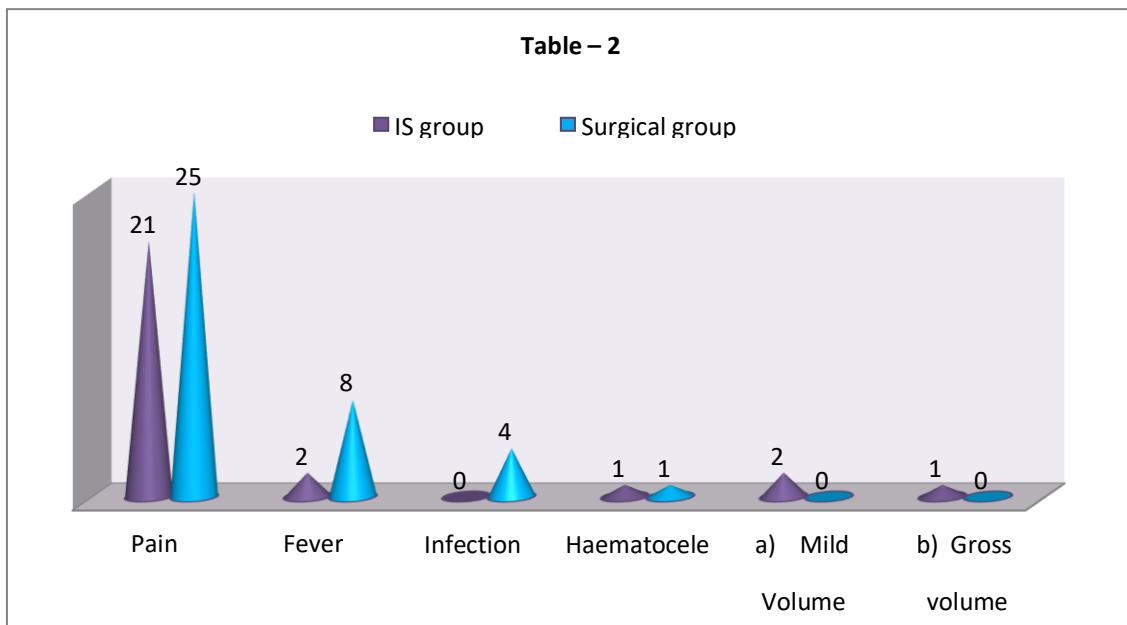


Figure 2:

Table 3: Cure rate after Injection sclerotherapy according volume

Aspirated volume (ml)	0.50	50-99	>100
Total No. of patients	9	15	6
Cure percentage	9 (100%)	10 (66.6%)	5 (83.3%)

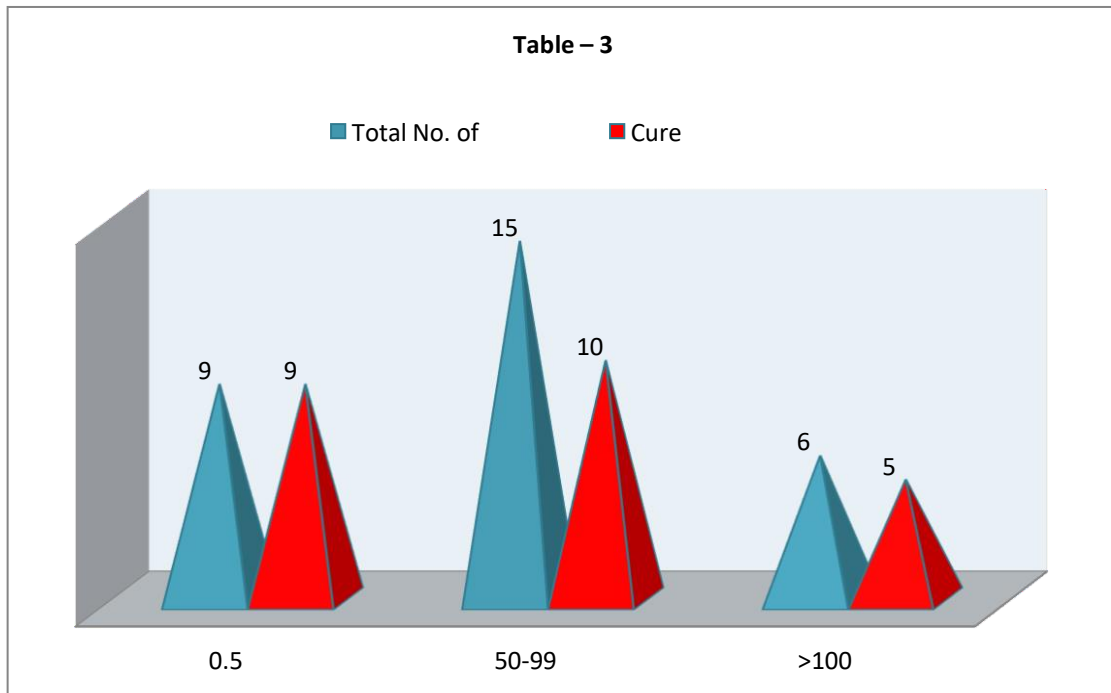


Figure 3:

Discussion

Present study of aspiration sclerotherapy in the management of hydrocele was conducted in the Telangana population. In this study clinical manifestation, aspirated volume was 76.70 (±40.24) ml in the IS group and 95.10 (±32.48) in the surgery group; the t test was 2.09 and p<0.005. Hospital stay was 2.86 (±1.8) days only in the surgery group, work resumption was 14.06 (±6.51) days for the surgery group only, and p<0.00 (p value was highly significant) (Table 1). In the comparison of post- aspirated and post-surgical complication study pain, 21 (70%) in the IS group and 25 (83.3%) in the surgery, group Fever: 2 (6.6%) in the IS group, 8 (26.6%) in the surgery group; Infection: 4 (13.3%) only in the surgery group; Haematocele: 1 (3.3%) in the IS group, 1 (3.3%) in the surgery group; Recurrence Only Volume: 2 (6.6%) gross volume, 1 (3.3%) only in the IS group (Table 2). The cure rate was after injection Sclerotherapy according to volume: 9 (100%) 0–50 ml, 10 (66.6%) 50–99 ml, and 5 (83.3%) > 100 ml (Table 3). These findings were more or less in agreement with previous studies [5,6,7].

Acquired hydrocele may form as a reaction to tumours, infection or trauma, but most are idiopathic in origin. The pathophysiology of an acquired hydrocele is unclear, but it may result

from increased serous fluid secretion, a lack of efferent lymphatics, or a failure of lymphatics in the mesothelial lining to reabsorb fluid [8]. The hydrostatic pressure of a hydrocele has been demonstrated to be greater than the pressure of the blood vessels in the scrotum, which creates stasis in venous and lymphatic flow, which results in an increase in scrotal size [9]. Aspiration serves to remove the fluid from the hydrocele sac.

Previous studies reported that hydrocele patients treated with aspiration alone had a high rate of recurrence. It appears that sclerotherapy is necessary after aspiration to create the inflammatory response and subsequent fibrosis that impede the flow of fluid into the hydrocele sac, thus more effectively preventing recurrence [10]. Along with IS therapy, 3rd generation cephalosporin was given to patients to minimise pain and inflammation.

Hydrocelectomy is considered the gold standard treatment for hydrocele and remains the most efficient treatment modality. Hydrocelectomy is a procedure that needs to be carried out in the operating room with spinal or general anaesthesia. Larger hydroceles that undergo surgical repair have a greater chance of complication as well. Hydrocelectomy may be a preferred option in young adults for the possible complications of chemical epididymitis with IS therapy [11]. It is

also reported that there was a reduction in the sperm count up to the 6th month of sclerotherapy, but at the 12th month, the sperm count returned to baseline (normalcy) [12]. Hence, this fact must be advocated for young adults receiving sclerotherapy treatment.

Summary and Conclusion

Sclerotherapy treatment is a less invasive OPD treatment that is safe, quick, and cheaper than hydrocelectomy. The patients can resume their work on the same day of sclerotherapy. Surgical treatment remains a viable treatment option when there is a recurrence after sclerotherapy.

The present study demands further study of pathophysiological, biomechanical, genetic, nutritional, embryological and environmental factors because the exact pathogenesis of hydrocele is still unclear.

Limitation study

Owing to the tertiary location of the research centre, the small number of patients, and the lack of the latest technologies, we have limited findings and results.

References

1. Leung ML, Gooding GA – High-resolution sonography of scrotal contents in asymptomatic subjects, *AJR. Am. J. Roentgen* 1984; 143: 161-63.
2. Load PH – bloodless operation for the radical cure of idiopathic hydrocele *Br. J. Surg.* 1964; 51: 914–16.
3. Swartz MA, Morgan TM – Complications of scrotal surgery for benign conditions *Journal of Urology.* 2007; 69: 616–619
4. Moloncy GE – Comparison of results of treatment of Hydrocele and epididymal cyst by surgery and injection, *Br. Med. J.* 1975; 3: 478–80.
5. Tammela TL, Hellstorm PA – Ethaloamine oleate scleropathy for hydrocele and spermatoceles *J. Urol.* 1972; 147: 1551–1553.
6. Shan CJ, Lucon AM – Comparison study of sclerotherapy with phenol and surgical treatment for hydrocele *J. Urol.* 2003; 169: 1056–1059
7. Sigurdsson T, Johnson S – Polidocanol sclerotherapy for hydrocele and epididymal cysts. *J. Urol.* 1994; 151: 798–801.
8. Shallami S, Binous MY Sclerotherapy of idiopathic hydrocele with polidocanol Tunis. *Med. J.* 2011; 89: 440–42.
9. Rowe NE, Martin P – The western snip stitch and lug hydrocelectomy. *How I do it can Urol. Assoc. J.* 2016; 10: 9-10.
10. Agarwal MS, Yadhav H, Upadya A - Sclerotherapy for hydrocele revisited, *Ind. J. Surg.* 2009; 7 (1): 23–28.
11. Erdas E, Pisano G – Sclerotherapy and hydrocelectomy for the management of hydrocele in outpatient and day surgery settings *Chir. Ital.* 2006; 58(5): 619– 25.
12. Wood Ward PJ, Schwab CM – From the Archeries of the AFIP: Extra Testicular Scrotal Masses Radiological Pathologically Correlated Radiographic Sound. 2003; 23(1): 215–40.