

## Study of Aspiration Sclerotherapy in the Management of Hydrocele in Telangana Population

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### Abstract:

**Background:** Aspiration sclerotherapy is popular because it is economical, can be treated in an outpatient department, and patients can resume their duties on the same day of treatment. Though surgery is the gold standard, treatment is traumatic, expensive, and can cause morbidity.

**Method:** Out of 50 (fifty) patients with hydrocele, 25 were treated surgically by Jaboulay's procedure, and aspiration sclerotherapy (AS) was carried out by aspiration of fluid by an 18-gauge needle under aseptic conditions. 2% lignocaine was injected with a 24-gauge needle at the puncture site, the canula was left in situ, and 10% of the aspirated volume of STDs and 2% xylocaine were instilled. The aspirated fluid was sent for cytological binding, which was followed for 7 days, 1 month, and 6 months. After the procedure, the recurrence was treated surgically.

**Results:** There were significant results in aspired volume of fluid, hospital stay, and work resumption with a significant p value ( $p < 0.001$ ). The recurrence of mild volume in the IS group was 8%, and 4% was gross volume cure percentage was 8.33% in 5 patients, 66.6% in 8 patients, and 100% in 7 patients. Remaining recurrences were rectified surgically.

**Conclusion:** Aspiration sclerotherapy (AS) is safe, quick, far less costly, and reasonably effective, but recurrences require surgical intervention.

**Keywords:** STD's = sodium tetradecyl sulphate, VAS, AS = aspiration sclerotherapy, recurrence.

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### Introduction

Hydroceles can occur at any age. In an adult male it often causes sexual dysfunction and erectile dysfunction too [1]. Therefore it is important to treat the condition to improve their overall sexual health. It is also essential to treat co-morbidities to achieve normal reproductive health. Large hydroceles also cause lower urinary tract symptoms [2].

The majority of hydroceles are treated with conservative treatment. The aspiration and sclerotherapy is usually in practice. If the patient is not fit for surgical repair or unwilling to undergo scrotal surgery [3], phenol is used as sclerosing agent, polidocanol is also used as sclerosing agent, but surgical treatment has been gold stand for management of hydrocele and widely accepted as most definitive modality especially for communicating and loculated hydroceles. However

it is traumatic, painful and associated with high morbidity and prolonged convalescence [4].

Sclerotherapy for hydrocele has grown in popularity as it is safe, effective and economical outpatient therapy but the cure rate varies for 53% to 98% and recurrence needs surgical intervention. Hence an attempt is made to correlate the both techniques with its pros and cons.

### Material and Method

50 (fifty) patients visited the Surabhi Institute of Medical Science, Siddipeth, Telangana-502375 were studied.

### Inclusion Criteria:

Patients over 18 years of age 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, and immunocompromised patients were excluded from the study.

#### Method:

Patients were divided into two groups: 25 patients for injection sclerotherapy, and the remaining 25 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 a xylocaine mixture. Complete emptying was ensured by manipulation of the scrotum before instillation. An equal proportion of xylocaine 2% and STD's of volume equivalent to 10% of the total aspirated volume were used for instillation. The aspirated fluid was sent for cytological analysis. Tight scrotal binding was done after the procedure. An intravenous single dosage of coamoxiclav 1.2 gramme 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 hematoma were assessed on clinical examination and USG scrotum. Repeat aspiration and sclerotherapy were done for recurrence after ruling out hematoma. All patients were followed up for a maximum of six months. After six 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 from June 2021 to May 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 Aspiration sclerotherapy and hydrocelectomy

- Aspirated volume – 78.68 ( $\pm 26.14$ ) in AS group, 95.12 ( $\pm 30.15$ ) in surgery group, t test was 2.06 and  $p < 0.04$ .
- Hospital stay – 00 in AS group, 2.85 ( $\pm 1.6$ ) in the surgery group, t test was 8.90, and  $p < 0.001$
- Work resumption – 00 in As group and 15.03 ( $\pm 5.40$ ) in surgery group, t test was 13.9 and  $p < 0.001$

**Table 2:** Comparison of Post-aspirated and surgery complication in both groups

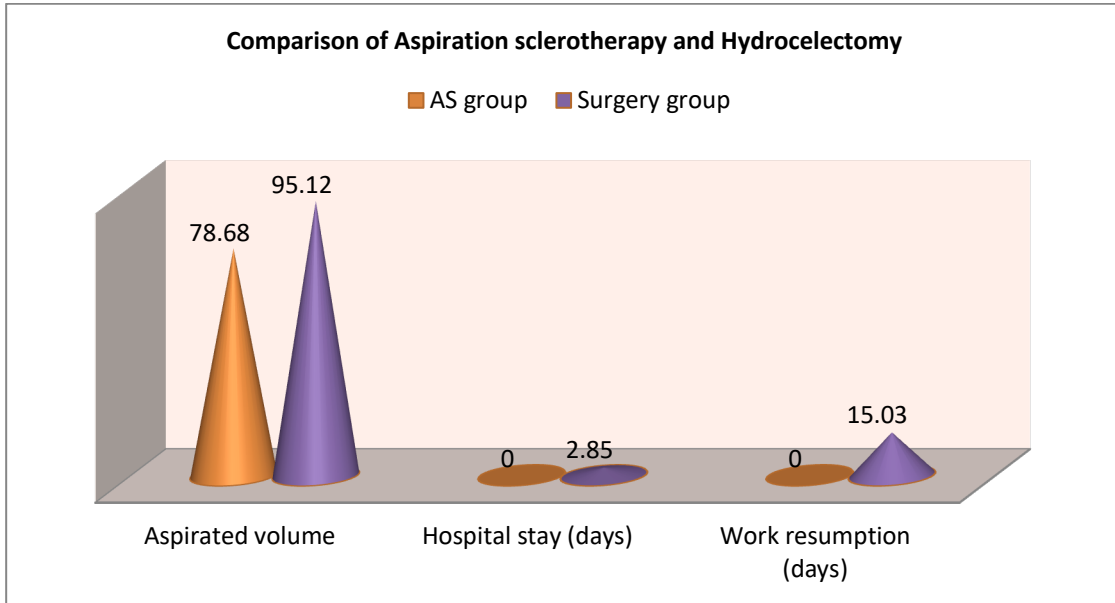
- Pain – 18 (72%) in AS group, 21 (84%) in the surgery group.
- Fever – 2 (8%) in AS group, 7 (28%) in the surgery group
- Infection – 0 in AS group, 3 (12%) in the surgery group
- Haematocoele – 1 (4%) in AS group, 1 (4%) in surgery group
- Recurrence – 2 (8%) in AS group Mild volume, and 00 (zero) in surgery gross volume and zero percentage in surgery group

**Table 3:** Cure rate after Aspirated sclerotherapy according to volume

- Aspirated volume – 0-50 ml in 7 50-99 ml in 12 and >100 ml in 6 patients
- Cure percentage – 7 (100%), 8 (66.6%) and 5 (83.3%) patients

**Table 1: Comparison of Aspiration sclerotherapy and Hydrocelectomy**

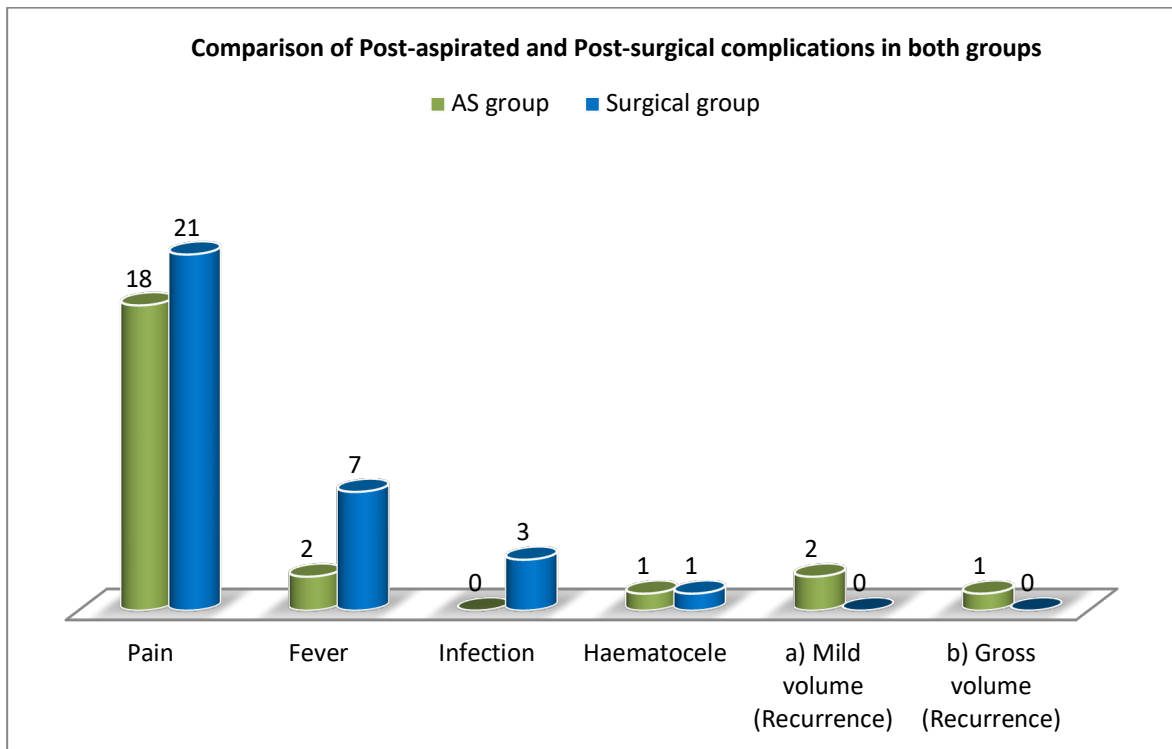
Manifestation	AS group (25)	Surgery group (25)	t test	p value
Aspirated volume	78.68 ( $\pm 26.14$ )	95.12 ( $\pm 30.15$ )	2.06	$P < 0.04$
Hospital stay (days)	0.00 ( $\pm 00$ )	2.85 ( $\pm 1.6$ )	8.90	$P < 0.001$
Work resumption (days)	0.00	15.03 ( $\pm 5.40$ )	13.9	$P < 0.001$



**Figure 1: Comparison of Aspiration sclerotherapy and Hydrocelectomy**

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

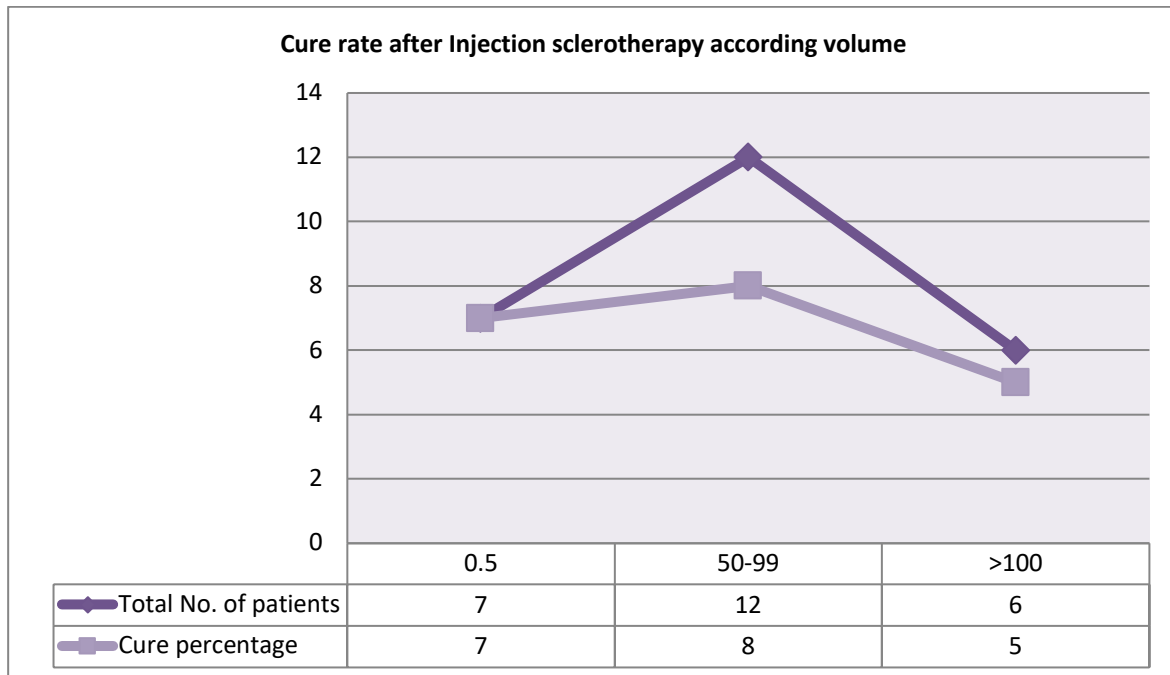
Complications	AS group (25)	Surgical group (25)
Pain	18 (72%)	21 (84%)
Fever	2 (8%)	7 (28%)
Infection	0	3 (12%)
Haematocele	1 (4%)	1 (4%)
Recurrence		
a) Mild volume	2 (8)	0
b) Gross volume	1 (4%)	0



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

**Table 3: Cure rate after Injection sclerotherapy according volume**

Aspirated volume (ml)	0.50	50-99	>100
Total No. of patients	7	12	6
Cure percentage	7 (100%)	8 (66.6%)	5 (83.3%)



**Figure 3: Cure rate after Injection sclerotherapy according to volume**

**Discussion**

Present study of AS in the management of hydrocele in the Telangana population. In the comparison of AS and hydrocelectomy, the aspirated volume was 78.680 (± 26.14) in the AS group and 95.12 (± 30.15) in the surgery group. The t test was 2.06 and p<0.004. Hospital stay was 0 (zero) in the AS group, 2.85 (±1.6) in the surgery group, and the t test was 8.90 and p<0.001. In work resumption 00 and 15.03 (± 6.40) in the surgery group, the t test was 13.9 and p<0.001 (Table 1). In comparison, post-operated complication pain was 18 (84%) in the AS group and 21 (84%) in the surgery group. Fever was 2 (8%) in the AS group, 7 (28%) in the surgery group, infection was 3 (12%) only in the surgery group, hemocele was 1 (4%) in both groups, and recurrence was mild. Volume was 2 (8%) gross volume, 1 (4%) only in the AS group (Table 2). Cure rate after injection Aspiration sclerotherapy in 0–50, 7–50–99, 12>100 Six patients were observed, and the cure percentage was 7 (100%), 8 (66.6%), and 5 (83.3%). The remaining recurrence was addressed by surgery. (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 anesthesia. Larger hydroceles that undergo surgical repair have a greater chance of complications 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 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.

This research study was approved by Surabhi Institute of Medical Science, Siddipeth, Telangana – 502375

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