

## Original Article

# MINI HYDROCELECTOMY – A BETTER ALTERNATIVE IN THE MANAGEMENT OF MODERATE TO SEVERELY ENLARGED IDIOPATHIC HYDROCELE

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### ABSTRACT

**Background:** Hydrocele is the most common benign scrotal swelling. Although different treatment options are tried two surgical techniques got popularity, Lords Plication and Jabuleys repair. To establish the role of Mini Hydrocelectomy in the management of moderate to severely enlarge idiopathic hydrocele.

**Material and Methods:** This study was conducted at Social Security Teaching Hospital, Lahore. All patients suffering from moderate to severe hydrocele, who needs surgical exploration were included in the study. These patients were followed for six months postoperatively. Five different variables, pain, haematoma, infection, the persistence of swelling and reoccurrence were measured in these patients postoperatively and in the follow-up period.

**Results:** A total of 132 male patients who were suffering from moderate to severe hydrocele were included in this study. Among these 47 patients had left-sided, 67 had right-sided while 18 patients had a bilateral hydrocele, 82 had moderately enlarged hydrocele and 50 had severely enlarged. Regarding pain 20 patients (15.27%) developed mild pain, 107 (81.68%) moderate pain and 5 (3.82%) patients developed severe pain. Haematoma was developed in 5 (3.82%) patients. Only 3 patients (2.29%) suffered from wound infection. There was persistent scrotal swelling in 6 patients (4.58%). No patient was reported with reoccurrence.

**Conclusion:** In this study we tried to conclude that due to minimal manipulation and local trauma to the tissue, the overall complication rate is much less with more patient satisfaction.

**Key Words:** Pain, Wound infection, Antibiotic

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## INTRODUCTION

The most common benign disease of the scrotum is hydrocele.<sup>1,2</sup> It is a collection of fluid between the two layers, parietal and visceral, of tunica vaginalis. The pathogenesis of hydrocele is described as it is due to an imbalance between the secretion of fluid and then its reabsorption.<sup>3-5</sup> On an etiological basis the hydrocele is classified as congenital and acquired.<sup>1</sup> The common causes of acquired hydrocele are infection in the intrascrotal region, some systemic or regional diseases, neoplasm and scrotal or inguinal injuries. However, the most

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common cause is idiopathy.<sup>6</sup> To make a diagnosis, a clinical examination and scrotal ultrasound are considered to be the first options.<sup>7</sup>

In adult males its incidence is about 1%, especially in those above 40 years of age.<sup>8</sup> A recent study, which was carried out in Sweden, states that the incidence of men with hydrocele who require medical assistance is 60 per 100,000 patients per year. Among these approximately 17 per 100,000 patients require an active management plan.<sup>9</sup> Although different surgical techniques are tried, for its management, such as aspiration of fluid or injecting sclerosing agents in the scrotal sac but two conventional surgical techniques are most common in the management of idiopathic hydrocele. One is the Jabuleys technique for aversion of the sac and the other is Lord's placcation of tunica vaginalis. Due to durable success and low recurrence rate, both invasive procedures are acceptable for surgeons as well as patients.<sup>10-12</sup> However, like all invasive procedures, these procedures are also associated with a few post-operative complications. All these complications increase morbidity, reduce work hours and increase expenses.<sup>13</sup>

To reduce the morbidity of these procedures we selected this minimal access hydrocelectomy through a small scrotal skin incision in moderate to severely enlarged hydroceles. This fenestration of the sac causes direct contact with subcutaneous tissue which is rich in lymphatics.

## MATERIAL AND METHODS

This study was conducted at Social Security Teaching Hospital, Lahore. All patients suffering from moderate to severe hydrocele, who needs surgical exploration, and reporting to the urology outdoor department between 1<sup>st</sup> January 2016 to 31<sup>st</sup> December 2021 were included in the study. The patients were above 40 years of age and diagnosed with idiopathic hydrocele. These patients were followed for six months postoperatively. The patients with reoccurrence, previous scrotal surgeries or

neoplasm were excluded from the study. The patients with a fluid volume from 50 to 100 ml, measured on scrotal ultrasound, were labelled as moderately enlarged and more than this were as severely enlarged. Five different variables were measured in these patients postoperatively and in follow up period. These variables were pain, haematoma, infection, the persistence of swelling and reoccurrence. The pain was measured on a scale of 1 to 5 according to severity. Haematoma was assessed on examination and ultrasound while the infection was assessed clinically by fever, redness or pussy discharge from the wound. Persistent swelling and reoccurrence were assessed on ultrasound.

## RESULTS

A total of 132 male patients who were above 40 years of age and suffering from moderate to severe hydrocele were included in this study. The age of patients was between 40 to 53 years with a mean age of  $46.6 \pm 3.9$  years. Among these 47 patients had left sided, 67 had right sided while 18 patients had a bilateral hydrocele, 82 had moderately enlarged hydrocele and 50 had severely enlarged. Regarding pain none of the patients suffered from very mild or very severe pain, 20 patients (15.27%) developed mild pain, 107 (81.68%) moderate pain and 5 (3.82%) patients developed severe pain. The pain subsided within a week and none of the patients complained later on. Haematoma was developed in 5 (3.82%) patients which were mild and subsided in a month. Only 3 patients (2.29%) suffered from wound infection and required antibiotic coverage for more than one week. There was persistent scrotal swelling in 6 patients (4.58%) which subsided gradually within six months. No patient was reported with reoccurrence, as confirmed on scrotal ultrasound, on six months of follow up.

**Table-1:** Post-operative complications and their frequencies.

Pain	Mild	Moderate	Severe
	20 (15.27%)	107 (81.865%)	05 (3.82 %)
Haematoma	05 (3.82%)		
Wound Infection	03 (2.29%)		
Persistence Swelling	06 (4.58%)		

**Figure-1:** Incision on a moderately enlarged hydrocele.**Figure-2:** Wound showing sac**Figure-3:** Excision of the sac.**Figure-4:** Wound closure

## DISCUSSION

Worldwide, the two most popular surgical techniques are widely accepted. These are the Lord's Plication and Jabuley's eversion of the sac.<sup>10-12</sup> People had tried other minimally invasive techniques but due to increased morbidity, these are abandoned. These minimally invasive procedures were less expensive but have an increased reoccurrence rate and poor satisfaction of the patients as compared to conventional hydrocelectomy procedures.<sup>14</sup> The objective of mini hydrocelectomy was to decrease the postoperative complications without compromising the efficacy of the procedure and the safety of the patient. Quick recovery and earlier return to work cause less financial cost also.<sup>15</sup>

Different people had tried different methods of minimal hydrocelectomy. People had tried traditional Lord's plication and Jabuley's inversion of sac through a small incision or a pull through technique in which a large sac is pulled through a small incision.<sup>16,17</sup> All these techniques are used through a small incision in which the sac of hydrocele was excised almost completely either by inversion or plication of the sac. Again these procedures have more morbidity, especially haematoma formation, as compared to mini hydrocelectomy.<sup>17</sup> In mini hydrocelectomy we fenestrated the sac and put it in contact with the subcutaneous tissue of the scrotum, which is rich in lymphatics.

In the era of minimal access surgery, mini hydrocelectomy is a novel surgical

procedure for the management of hydrocele.<sup>18</sup> In it, through a 2-3 cm incision a small portion of the parietal layer of tunica vaginalis is removed. In our study the average time of surgery was 11 minutes. Almost all patients were satisfied with this surgical technique in their follow up period. Scrotal oedema was the most common complication (4.58%) which was settled within six months. As compared to Jabouleys inversion of sac in which the haematoma formation rate is 6.6%<sup>19</sup> our haematoma formation rate was 3.82% which was mild and settled within one week. A recent study mentioned that the overall complication rate is significantly less in mini hydrocelectomy.<sup>20</sup> In traditional surgeries of hydrocele there is a 4% chance of epididymal injuries while in mini hydrocelectomy it is almost nil because in this technique we do not, even, touch the epididymis. In traditional surgeries, there is more dissection of the sac resulting in oedema of scrotal skin and haematoma formation but in mini hydrocelectomy, these complications are also less. Our study also showed similar results as in studies conducted in different parts of the world. It also showed minimum post operative morbidity.

## CONCLUSION

In this study, we tried to conclude that due to minimal manipulation and local trauma to the tissue, the overall complication rate is much less with more patient satisfaction. Moreover, early recovery leads to early joining at workplace, thus putting less financial burden.

**Financial disclosure:** None

**Conflict of interest:** None

## AUTHOR'S CONTRIBUTION

SH: Concept, design and writing

MAK: Manuscript writing

AH: Manuscript writing

MI: Manuscript writing

AAS: Critical review

NAG: Critical review

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