

## Original Research Article

# A STUDY ON EVALUATION OF EFFECTIVENESS OF PRE-PERITONEAL MESH REPAIR FOR BILATERAL AND RECURRENT INGUINAL HERNIA

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## ABSTRACT

**Background:** Inguinal hernia repairs are the one of most common type of surgeries performed worldwide. Surgical treatment of the defect is the only permanent solution. This study was done to evaluate the effectiveness of using pre-peritoneal mesh to repair the defects in patients with bilateral and recurrent inguinal hernias.

**Materials and methods:** this prospective study was conducted including 100 patients presenting with bilateral inguinal hernias or recurrent inguinal hernia to the OPD of Department of surgery of KIMS, Narketpally over a period of 1 year.

**Results:** 98% of the patients were males and majority of the patients were in their middle age group. Most of the patients had groin swelling as the most common presenting complaint. Most of the patients were in occupations involving heavy strength work. Smoking and lifting of heavy weights are the most commonly observed risk factors in present study. Majority of the patients had their procedures finished within 30-45 min. most of the patients had mild post-operative pain and were discharged within 2 days of the procedure.

**Conclusion:** Open pre-peritoneal mesh repair is a cost-effective procedure with few post-operative complications, less requirement of anesthesia and short duration of surgery, early discharge from the hospital.

**Keywords:** Hernia, pre-peritoneal mesh repair, open approach, bilateral, recurrent hernia.

## INTRODUCTION

The word “hernia” is derived from Latin and it means an “offshoot” or “bulge”.<sup>[1]</sup> Hernias of groin region can be of two types- inguinal or femoral hernia. The inguinal hernia is a defect in the myofascial plane of the oblique and transversalis muscles that can allow for herniation of the abdominal contents into the defect.

Inguinal hernia repairs are the most commonly performed surgeries. The presently available hernia repair procedures are done via open approach or via laparoscopy. Tissue repairs (Bassini, Shouldice and Mc Vay) and prosthetic repairs (Lichtenstein tension free repair, plug and patch and Prolene hernia system (PHS)) are of open approach type. Trans-abdominal pre-peritoneal procedure (TAPP) and total extra-peritoneal procedure (TEP) are laparoscopic approaches.

Laparoscopic approaches are comparable to open approach in terms of recurrence. Moreover, laparoscopy is associated with higher costs of surgery, requirement of general anesthesia and requirement of higher technical expertise.<sup>[2]</sup>

Open pre-peritoneal mesh repair requires a small suprapubic incision, shorter duration of surgery, less expertise, and affordable to the patient.<sup>3</sup> This study aims to assess the effectiveness of suprapubic pre-peritoneal mesh repair surgery in the treatment of bilateral and recurrent inguinal hernias.

## MATERIAL AND METHODS

This prospective observational study was conducted in the Department of General surgery, KIMS, Narketpally, over a period of 1 year, i.e. from January 2023 to December 2023. Patients with bilateral inguinal hernias or recurrent inguinal hernias who

were attending the OPD of general surgery for undergoing pre-peritoneal mesh repair surgery were included in the study. Patients with unilateral inguinal hernias or with complicated inguinal hernia were excluded from the study.

A detailed history of the patients was taken along with general and local examination. A written informed consent was taken from each patient before being included in the study. Ethical committee approval was taken before beginning this study.

All necessary hematological and radiological investigations were done prior to the surgery as a part of pre-anesthetic check-up. Patients were explained regarding the procedure and type of anesthesia being used.

A Pfannenstiel incision was given above the inguinal ligament and the rectus muscles were retracted after incising the rectus sheath. Dissection was done to reach the inguinal sac. A 15 x 15 cm prolene mesh was placed in the pre-peritoneal space covering the deep ring and obturator foramen. The mesh was fixed to the adjacent structure, i.e. pubic symphysis, iliopsoas muscle. An intra-abdominal drain was placed, if seemed necessary and suturing was done to close the incision. The drain was removed on 2nd or 3rd day and the patient was discharged on the next day of drain removal.

Post- surgery and discharge, patients were followed up at 1 week, 6 weeks and 1 year.

Data was analyzed and represented in tables.

## RESULTS

A total of 100 patients were included in the study. The patients were aged between 20- 65 years with a mean age of 34.3 years. Majority of the patients belonged to middle age (40-50 years). There were 98 males and 2 females in the study. [Table 1]

Out of the 100 patients, 80 % had direct inguinal hernia and 20% had indirect inguinal hernia. Groin swelling was the most common presenting complaint (70%), followed by pain associated with swelling (30%). [Table 2]

Majority of the patients had shorter duration of surgery between 30- 45 min. post-operative pain was assessed and majority of the patients had mild pain. [Table 3]

Most common post-operative complication was formation of seroma. 85% of the patients were discharged within 2 days of surgery, while the rest 15% were discharged after 3 days of procedure. [Table 4]

**Table 1: Demographic details of patients, risk factors and duration of illness**

		No. of patients [n=100]
Gender	Male	98
	Female	2
Age-Group	20-30yrs	8
	31-40yrs	20
	41-50yrs	50
	51-60yrs	20
	61-70yrs	2
Physical activity	Heavy strenuous work	50
	Intermediate work	18
	Light work	12
	Sedentary (retired and unemployed)	20
Duration of illness	< 6 months	33
	6 – 12 months	50
	>12 months	17
Other risk factors	Prostatism	11
	Constipation	6
	Chronic cough	15
	Smoking	75
	Obesity	20
	Lifting of heavy weights recently	45

**Table 2: Time taken for surgery**

Time taken for the procedure	% of patients
30 – 45 min	92%
45- 60 min	6%
>60 min	3%

**Table 4: Distribution of Post- operative pain**

Pain grading	% of Patients
None	24%
Mild	60%
Moderate	15%
Severe	1%
Unbearable	0%

**Table 4: Complications after the procedure**

Complication	% of patients
Seroma	4%
Hematoma	0
Urinary retention	1%
Superficial wound infection	2%
Neuralgia	1%
Recurrence	1%

## DISCUSSION

Inguinal hernia repair surgery is one of the most commonly performed surgeries. In present study we assessed the effectiveness of pre-peritoneal mesh repair in 100 patients presenting with bilateral inguinal hernia or with recurrent inguinal hernia.

In present study majority of the patients belonged to 41-50 years of age. Similar incidence was seen in study done by Arumugam et al<sup>4</sup>. In a study done by Delvin et al<sup>5</sup>, maximum incidence of hernia is between 30 - 60 years of age. This might be attributable to the laxity of the abdominal muscles with increase in age.

98% of the study subjects were males and the rest 2% were females. In studies done by Ira et al<sup>6</sup> and Amid P et al,<sup>7</sup> males had the highest incidence of inguinal hernia than females, which is in accordance with the present study.

Most of them were doing heavy strenuous activity, followed by intermediate work. Similar observation was seen in study done by Pabitha et al.<sup>8</sup> This implies that occupation involving heavy work is a risk factor for development of hernias as the intra-abdominal pressure builds up during lifting heavy weights.

Smoking, lifting of heavy weights and chronic cough are the most commonly observed risk factors seen in present study. Most of the patients had the symptoms of groin swelling and pain since duration of 6-12 months.

Majority of the patients had the procedure finished within 30-45 min. 60% of the patients had mild post-operative pain and only 1% of the patients experienced severe post-operative pain. Majority of the patients were discharged within 2 days of surgery. Veenendaal et al,<sup>9</sup> had the observed that the shortest duration of hospital stay in their study was 3-4 days. The recent decrease in hospital stay may be attributable to better anesthesia and post-operative care and improved medications.

Unlike the study done by Arumugam et al,<sup>4</sup> where 3% of the patients experienced severe post-operative pain, only 1% had severe post-operative pain in present study. In a comparative study done between laparoscopic mesh repair and open mesh repair, the incidence of post-operative severe pain was higher in patients who underwent open mesh repair.<sup>10</sup>

Post-operative complications like seroma were seen in present study. The incidence is similar to study

done by Veenendaal et al.<sup>9</sup> Only 1 patient had recurrence of inguinal hernia in present study, which is similar to study done by Ugahary et al.<sup>11</sup>

## CONCLUSION

The study concludes that open pre-peritoneal mesh repair is a cost-effective method to treat bilateral inguinal hernias or recurrent inguinal hernias with lesser duration of hospital stay and early resumption of activities.

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