

# Clinical Study of Preperitoneal Mesh Repair in Bilateral and Recurrent Inguinal Hernias.

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## ABSTRACT

**Background:** Groin hernia is the one of most common performed surgery. There are many methods of hernia repair. Pre peritoneal mesh repair is one of best recommended repair for hernia. Aim: To study the effectiveness of Pre peritoneal mesh repair for bilateral and recurrent inguinal hernia with respect to wound healing duration, duration of hospital stay, post-operative complication and recurrence raten. **Methods:** All the patients included in the study underwent surgical management for Groin hernia. No patient in the study group underwent conservative management. Patients underwent preperitoneal mesh repair operative procedure for bilateral and recurrent inguinal hernias. **Results:** In our study inguinal hernia was more common in age groups of 31 to 60 years. 96.6% of our patients were males and 3.34% were females. Indirect and right sided were common in the study. All patients were operated in spinal anesthesia. Time taken for patients to get back to normal activity was 7-10 days. Post operative pain was mild to moderate in our study. The post operative complication rate was minimal and during the brief follow up there were two recurrences. **Conclusion:** Open preperitoneal mesh repair with suprapubic transverse incision has found to have short duration of surgery, less perioperative complication and cost effectiveness to the patient. Still surgeons experience and orientation required in the repair.

**Keywords:** Inguinal hernia, Hernia repair, Mesh.

## INTRODUCTION

Hernias may be generally defined as a protrusion of abdominal viscera outside the abdominal cavity through a natural or acquired defect. The Latin word hernia means rupture or tear and in Greek means an "offshoot", a "bud" or bulge. "A protrusion of any viscus from its proper cavity is denominated a hernia. The protruded parts are generally contained in a bag by a membrane with which the cavity is naturally invested" - Sir Astley Cooper 1804.<sup>[1]</sup>

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Inguinal hernias are among the most common problems encountered by the surgeon. Total 15% of surgical procedures are done are groin hernia repairs. Seventy five percent of all abdominal wall hernias occur in the groin. Success of hernia surgery depends on its ability to prevent recurrence and to minimize complications. Present hernia repair techniques involve anterior approach with mesh fixation like Lichtenstein repair, sutureless technique of Gilbert and mesh plug hernioplasty of rutkow, these techniques involve dissection of cord structures

with attendant complications like nerve entrapment, testicular atrophy, orchitis and chronic groin pain. Inguinal hernia surgery has continued to evolve from tissue repair to tension free mesh repair. Various tension free mesh repair have been explained in both anterior and posterior preperitoneal approach. Though laparoscopic repair is popular in preperitoneal method, this method is still under debate because of long duration of surgery, need for general anesthesia, and associated complications.<sup>[2]</sup> Laparoscopic surgery requires well equipped instruments and cost effective to the patient is more. Open preperitoneal mesh repair with smaller muscle suprapubic transverse incision has found to have short duration of surgery, less perioperative complication and cost effectiveness to the patient.<sup>[3]</sup> Need of present study is to review the effectiveness and complication of Preperitoneal mesh repair in our institution.

## MATERIALS AND METHODS

This prospective study was conducted in Department of General Surgery, Tirunelveli Medical College. Patients with bilateral inguinal hernias and recurrent inguinal hernias undergoing preperitoneal mesh repair for a period of 1.5 years. Ethics committee approval and informed consent obtained. Patients

with Bilateral and recurrent inguinal hernias were included in the study. Complicated inguinal hernia patients were excluded from the study. Patients were explained about the type of surgery and anesthesia. Each patient was explained about the advantage of the said surgery, short duration of surgery, less perioperative complication and cost effectiveness. Patients were followed up at 1 week, 6 weeks and 1 year.

## RESULTS

Our study shows that 79% were direct, 21% were indirect of all bilateral and recurrent inguinal hernias in study. In our study groin swelling was most common presentation followed by pain with swelling. [Table 1] In our study most of patients presented in 51 to 60 years of age followed by 60 to 70 years of age, 99% of patients are male. [Table 2] In our study most of the patients were presented 6 months to 1 year of illness followed by 6 months. [Table 3] In our study most of patients were smokers, heavy strenuous workers. Obstructive symptoms chronic cough, prostatism was present. [Table 4] In our study most of patients were heavy strenuous workers. [Table 5] In our study most of patients had mild pain following surgery. [Table 6] In our study time taken for surgery was around 40 min to 45 min. [Table 7] In our study post operative complications were seroma formation, hematoma and urinary retention. [Table 8] In our study one patient had recurrence which was treated with anterior approach. [Table 9] The mean time taken for patients to get back to normal activity was 10-12 days.

**Table 1: Distribution of Mode of presentation**

Symptoms	Number of patients	Percentage
Groin swelling	42	55%
Swelling with pain	34	45%

**Table 2: Distribution of Age at presentation**

Age groups(yrs)	Number of patients	Percentage
21-30	4	5%
31-40	5	7%
41-50	12	16.6%
51-60	34	45%
61-70	21	27%

**Table 3: Distribution of Duration of illness**

Duration	Number of patients	Percentage
Less than 6 months	10	33.3%
6 months -1 year	15	50%
>1 year	5	16.7%

**Table 4: Distribution of Risk and predisposing factors**

Risk factors	Number of Patients	Percentage
Prostatism	3	10%
Constipation	2	6.6%
Coughing	6	20%
Heavy weight lift	15	50%
Smoking	21	70%
Obesity	6	20%

Occupation	Number of Patients	Percentage
Heavy strenuous work	15	50%
Light work	9	30%
Retired and unemployed	6	20%

**Table 5: Distribution of Study patient's Occupation**

Pain grading	Number of Patients	Percentage
None	4	5%
Mild	21	28%
Moderate	4	5%
Severe	1	1%
Unbearable	0	0%

**Table 6: Distribution of Post operative pain**

Time taken for the procedure	Number of patients	Percentage
35 min	5	7%
40 min	23	30%
45 min	43	56.5%
50 min	2	2.5%
55 min	2	2.5%
60 min	1	1.5%

**Table 7: Distribution of Time taken for the procedure**

Complication	Number of patients	Percentage
Seroma	5	6.5%
Seroma with edema	0	0%
Haematoma	1	1.5%
Urinary retention	1	1.5%
Superficial wound infection	1	1.5%
Neuralgia	0	0%

**Table 8: Distribution of Complication of hernia repair**

Recurrence	Number of patients	Percentage
No recurrence	75	98.68%
Recurrence	1	1.31%

**Table 9: Recurrence following surgery**

Age group (yrs)	Louies and Wendell <sup>[4]</sup>	Delvin <sup>[5]</sup>	Present study
31-40	16.2%	11.6%	7%

**Table 10: Comparison of age at presentation**

DISCUSSION			
Inguinal hernia surgery is the most frequently performed operation in general surgery and so even modest improvements in clinical outcomes are important. The results of the present study were compared with those of the previous studies as follows:			

41-50	17.3%	17.3%	16%
51-60	27.4%	28.6%	45%
61-70	23.3%	-	27%

The incidence of age at presentation of inguinal hernia was maximum between 30-60 yrs of life in a study by Louies and Wendell, Delvin.<sup>[4,5]</sup> In the above studies the maximum incidence of age between 3<sup>rd</sup> and 6<sup>th</sup> decades of life, the results are comparable with present study. In study by Ira, 90% inguinal hernia cases were males and 10% females. Studies by Amid P 94% were male patients and 6% female patients occurring at any age, males were more commonly affected than females.<sup>[6]</sup> In this study 98.68% were male and 1.31% were females. The percentage of females within this study is less compared to other studies. This may be due to the decreased awareness in women about hernia. Social, economic and education level of female patient contributing to the less no of female presenting to hospital with inguinal hernia in early stage in our study. This may be also due to difference in the embryology and anatomical content of the inguinal canal. Occupation In our study most of patient occupation (50%) involves strenuous work followed by light and indeterminate work (30%). Rest of the patients were (20%) unemployed and sedentary. In present study, occupation involving strenuous work (50%) of the study population could be the precipitating factor by increasing the intra abdominal pressure. Most common presentation of hernia is swelling. In present study of 76 patients 55% of patients presented with swelling in groin and 45% of patients presented with dragging type of pain along with swelling in groin. This shows that 45% of population neglected hernia till they developed pain. This negligence and decreased awareness among people leads to increase rate of complications. This needs emergency surgery with high morbidity and mortality. In our study 79% were direct and 21% were indirect hernias as bilateral hernias were mostly direct hernias.

**Table 11: Comparison of Risk Factors**

Factors which increase intra abdominal pressure	Hair A et al <sup>[7]</sup>	Present study
	28%	70%

In our study 70% were smokers and 20% were obese (whose BMI > 26.5) prostate enlargement in 10% of patients. These factors contributing for formation of hernia and have influence on present study population.

Majority of patients in our study presented within 6 months to 1 year of duration of symptoms and operated. It is comparable to previous studies. The duration of post operative stay has been falling in recent years. In our study 80% of the patients were discharged on 6<sup>th</sup> day and 20% of the patients were discharged on the 7<sup>th</sup> post operative day due to

inadequate home care facilities. Previous studies show that post operative stay for short stay surgery was 2-3 days and 3-4 Veenendaal LM.<sup>[8]</sup> Local complications like seroma, haematoma, urinary retention were present and 3.33% had seroma. All the complications were treated conservatively. In previous studies haematoma noted in 3.8% of cases Clinique saint jean, 10.1% of Cases Veenendaal LM.<sup>[8,9]</sup> These are similar to the present study and comparable with the previous studies. Return to normal activity does not only depend on the type of repair done and type of Anaesthesia rather it depends on the socio-economic status, education level and type of work they do. In our study patients who were obese and those who do heavy and strenuous work took more time when compared to patients who do light work. The mean time to return to normal activity was 10-12 days. In present study the recurrence rate is 1.31%. Author Ugahary has reproduced only 1-2.3% of recurrence Clinique saint jean.<sup>[9,10]</sup> However, the procedure is difficult to reproduce in nonexpert hands.

### CONCLUSION

Pre peritoneal mesh repair technique was very cost effective and patients were satisfied with the Procedure executed. This preperitoneal approach allows a minimal invasive tension free procedure, with protection for the nerves. Study demonstrates that pre peritoneal mesh repair is a safe technique for operating on bilateral and recurrent inguinal hernias. However, the procedure is easy to perform in experienced hands. This technique must be compared to other inguinal hernia operation techniques in the near future.

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