



A STUDY OF LAPAROSCOPIC TOTAL EXTRAPERITONEAL HERNIA REPAIR WITHOUT MESH FIXATION

General Surgery

- Dr. Anurag Mahar** Post Graduate Resident, Department of General Surgery, Government Medical College, Haldwani, District – Nainital, Uttarakhand PIN – 263139.
- Dr. Bhuvan*** Associate Professor, Department of General Surgery, Government Medical College, Haldwani, District – Nainital, Uttarakhand PIN – 263139. *Corresponding Author
- Dr. Manoj Verma** Post Graduate Resident, Department of General Surgery, Government Medical College, Haldwani, District – Nainital, Uttarakhand PIN – 263139.

ABSTRACT

INTRODUCTION - Based on the International guidelines for groin hernia management endorsed by all five continental hernia societies, mesh fixation in TEP is unnecessary. In both TEP and TAPP it is recommended to fix mesh in M3 hernias to reduce recurrence risk. Despite aforementioned guidelines, almost all surgeons prefer to perform laparoscopic TEP hernia repair with mesh fixation using tackers, fibrin sealants etc.

METHODS - All repairs were performed by the same surgeon using the laparoscopic TEP hernia repair without mesh fixation. All patients were contacted by telephone 1 week after surgery. Patients with complaints or indications of a suspected recurrence were asked to return to the clinic and were followed up regularly at the outpatient clinic. We used the last recorded follow-up data for our statistical analysis.

RESULTS - All patients studied were male (n=30; 100%). Majority of the patients belonged to the age group 21-30 years. Postoperative pain encountered in all patients was mostly mild to moderate in intensity. Majority of patients belonged to VAPS score of 3 (n=10; 33.3%) followed by 2 (n=8; 26.7%). Chronic groin pain was the most common post-operative complication followed by scrotal oedema. Wound infection occurred in only one case (port-site infection) in the form erythema, tenderness and serosanguinous discharge.

CONCLUSION - Laparoscopic TEP repair with no mesh fixation is safe and feasible for primary recurrent inguinal hernias. Compared with the literature, our patients had fewer postoperative complications, less chronic pain, and no increase in operative time or length of hospital stay. Non-fixation of mesh may decrease the incidence and severity of postoperative chronic pain.

KEYWORDS

Inguinal Hernia, TEP, Mesh fixation, Recurrence

INTRODUCTION

A hernia is a protrusion of a viscus or a part of a viscus through an abnormal opening in the walls of its containing cavity^[1]. These defects most commonly involve the abdominal wall and occur only at sites including inguinal, femoral, umbilical areas etc. Approximately 75% of abdominal wall hernias occur in the inguinal region. Elective surgery for inguinal hernia is a common and simple operation. Globally, the inguinal hernia repair has become one of the most important procedures in improving quality of life and preventing disability. Today, laparoscopic techniques have been validated as safe and effective in the treatment of groin hernias and have become commonplace. The laparoscopic approaches were initially developed in the early 1990s as laparoscopic techniques diffused throughout other specialties of general surgery.^[2] The advantage of the TEP repair is the access to the preperitoneal space without intraperitoneal infiltration. Consequently, this approach minimizes the risk of injury to intra-abdominal organs and port site herniation through an iatrogenic defect in the abdominal wall. TEP is indicated for repair of bilateral inguinal hernias or for unilateral hernias when scarring makes the anterior approach challenging. Based on the International guidelines for groin hernia management endorsed by all five continental hernia societies, the International Endo Hernia Society and the European Association for Endoscopic Surgery,^[3] in almost all cases, mesh fixation in TEP is unnecessary. In both TEP and TAPP it is recommended to fix mesh in M3 hernias (large medial) to reduce recurrence risk. Despite aforementioned guidelines, almost all surgeons prefer to perform laparoscopic TEP hernia repair with mesh fixation using tackers, fibrin sealants etc.

MATERIAL & METHODS

SOURCE OF DATA:

Cases admitted and operated in surgery department at Dr. Sushila Tiwari Government Hospital, Haldwani undergoing laparoscopic TEP hernia repair were clinically evaluated.

METHOD OF COLLECTION OF DATA:

Data was collected from patients admitted between January 2019 to September 2020 who underwent laparoscopic TEP hernia repair in the Department of Surgery, Government Medical College, Haldwani. Patients were followed throughout their postoperative phase in the

hospital till they were discharged as well as 3 months following their discharge from hospital.

INCLUSION CRITERIA:

1. Patient with age more than 18 years and less than 60 years and fit for surgery.
2. Uncomplicated inguinal hernia

EXCLUSION CRITERIA:

1. Complicated inguinal hernia
2. Patients not giving consent to be part of the study

METHOD OF STUDY:

All repairs were performed by the same surgeon using the laparoscopic TEP hernia repair without mesh fixation.

All patients were contacted by telephone 1 week after surgery. Patients with complaints or indications of a suspected recurrence were asked to return to the clinic and were followed up regularly at the outpatient clinic. We used the last recorded follow-up data for our statistical analysis.

Postoperative outcome was studied in terms of following:

1. Post-operative pain
2. Post-operative complications
3. Recurrence
4. Length of hospital stay

OBSERVATIONS AND RESULTS

Thirty patients were studied and evaluated and following observations were made. All patients studied were male (n=30; 100%). Majority of the patients belonged to the age group 21-30 years (n=11; 36.7%) followed by 31-40 years (n=8; 26.7%).

Table 1: Age-wise distribution

Age Groups	Frequency	%
19 - 20 yrs	2	6.7%
21 - 30 yrs	11	36.7%
31 - 40 yrs	8	26.7%
41 - 50 yrs	2	6.7%

51 - 60 yrs	7	23.3%
Total	30	100%
Mean $\pm$ SD	35.33 $\pm$ 13.34	
Median	31.5	
Min - Max	19 - 60	

Most common indication for which laparoscopic TEP repair performed was right indirect inguinal hernia (n=15; 50%) followed by left indirect inguinal hernia (n=10; 33.3%). Mean duration of operative procedure was 45.67 $\pm$ 3.88 min.

Table 2: Distribution of Final diagnosis

Final Diagnosis	Frequency	%
Bilateral Direct IH	1	3.3%
Left Direct IH	2	6.7%
Left Indirect IH	10	33.3%
Right Direct IH	2	6.7%
Right Indirect IH	15	50.0%
Total	30	100%

Postoperative pain encountered in all patients was mostly mild to moderate in intensity. Mean score of 3.30 $\pm$ 1.29 was observed. Majority of patients belonged to VAPS score of 3 (n=10; 33.3%) followed by 2 (n=8; 26.7%). All cases were successfully managed with a course of intramuscular Inj. Diclofenac and only one patient required intravenous infusion of Inj. Tramadol.

Table 4: Postoperative Pain distribution (according to VAPS)

Postoperative Pain (according to VAPS)	Frequency	%
1	1	3.3%
2	8	26.7%
3	10	33.3%
4	5	16.7%
5	4	13.3%
6	2	6.7%
Total	30	100%
Mean $\pm$ SD	3.30 $\pm$ 1.29	
Min - Max	1 - 6	

Chronic groin pain was the most common post-operative complication (n=9; 30%) followed by scrotal oedema (n=5; 16.7%). Wound infection occurred in only one case (port-site infection) in the form erythema, tenderness and serosanguinous discharge. There was no evidence of deep or organ space infection and patient was successfully managed with a course of empirical antibiotics and dressing. There were no instances of surgical emphysema, hematoma or seroma in any patients. On follow-up, no patients complained of recurrence of their symptoms.

Table 8: Distribution of Length of Hospital Stay (in days)

Length of Hospital Stay	Frequency	%
2	1	3.3%
3	12	40.0%
4	12	40.0%
5	4	13.3%
6	1	3.3%
Total	30	100%
Mean $\pm$ SD	3.73 $\pm$ 0.87	
Min - Max	2 - 6	

DISCUSSION

Inguinal hernia repair is one of the most common operations in the general surgical practice. Open and laparoscopic techniques for inguinal hernia repair are in use nowadays, both use a prosthetic mesh to cover the defects in the abdominal wall and create a tension-free repair. However, the laparoscopic approach is becoming increasingly popular in later years, due to shorter hospital stay, quicker recovery, and better cosmetic results.[4]

We have described the experience of a single surgeon performing laparoscopic TEP repair of primary inguinal hernias without mesh fixation in a series of 30 consecutive patients at our institution over a 20-month period. On the basis of criteria described, 30 patients were studied and evaluated and following observations were made. All patients studied were male (n=30; 100%). Majority of the patients belonged to the age group 21-30 years (n=11; 36.7%) followed by 31-40 years (n=8; 26.7%). Most common indication for which laparoscopic TEP repair performed was right indirect inguinal hernia

(n=15; 50%) followed by left indirect inguinal hernia (n=10; 33.3%). In a study by Mohammed HD et al [5], all patients had unilateral hernia, nine on the right side and 11 on the left side. The mean age was 41.60 $\pm$ 15.26 years. All patients were males (100%). Additionally, indirect hernias were found in 16 (80%) patients and direct hernias in four (20%) patients. Mean duration of operative procedure was 45.67 $\pm$ 3.88 min. Postoperative pain encountered in all patients was mostly mild to moderate in intensity. Mean score of 3.30 $\pm$ 1.29 was observed. Majority of patients belonged to VAPS score of 3 (n=10; 33.3%) followed by 2 (n=8; 26.7%). All cases were successfully managed with a course of intramuscular Inj. Diclofenac and only one patient required intravenous infusion of Inj. Tramadol. Kupershyak L et al [6] reported an average duration of postoperative pain of 4.5 $\pm$ 9.3 days. Testicular pain appeared in ten cases (8.8%) with a mean duration of 0.7 $\pm$ 3.3 weeks. Another study by Mohamed HD et al [5] reported the mean pain score according to VAPS of patient group undergoing laparoscopic TEP repair without mesh fixation was 0.90 $\pm$ 1.97. In their study, 16 (80%) patients had no pain; two (10%) cases with mild pain with VAPS 3; and two (10%) patients had moderate pain, both with VAPS 6.

Chronic groin pain was the most common post-operative complication (n=9; 30%) followed by scrotal oedema (n=5; 16.7%). Wound infection occurred in only one case (port-site infection) in the form erythema, tenderness and serosanguinous discharge. There was no evidence of deep or organ space infection and patient was successfully managed with a course of empirical antibiotics and dressing. There were no instances of surgical emphysema, hematoma or seroma in any patients. In our study, no patients complained of hernia recurrence on follow-up. In the early years of laparoscopic hernia repairs, strong fixation seemed to be the most important factor in the prevention of recurrence. With the increasing size of mesh and true macroporous materials now being used, the belief in strength has become less important and has given way to the concern that chronic pain is possibly caused by fixation. The controversy of fixation or non-fixation of mesh remains under scrutiny.

CONCLUSION

In conclusion, laparoscopic TEP repair with no mesh fixation is safe and feasible for primary recurrent inguinal hernias. Compared with the literature, our patients had fewer postoperative complications, less chronic pain, and no increase in operative time or length of hospital stay. Non-fixation of mesh may decrease the incidence and severity of postoperative chronic pain.

Elimination of fixation of mesh during TEP inguinal hernia repair significantly reduces the postoperative pain and it does not lead to increased rate of recurrence.

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