

Original Article

Comparison between Mesh Fixation and Non-Fixation in Patients Undergoing Total Extraperitoneal Inguinal Hernia Repair

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BACKGROUND

The use of laparoscopic methods for inguinal hernia surgery is becoming increasingly widespread in surgical applications. Laparoscopic methods are preferred both by the patient and the doctor because of their minimally invasive nature. The most important advantages of laparoscopic hernia repair include less postoperative pain, good cosmetic results, and early return to daily activities.^[1,2] Different methods and mesh types are used in inguinal hernia repair. Most surgeons fix the mesh in accordance with the original definition of

ABSTRACT

Background: The most important advantages of laparoscopic hernia repair include less postoperative pain, good cosmetic results, and early return to daily activities. Different methods and mesh types are used in inguinal hernia repair. **Aims:** The objective of this study was to evaluate the complications and recurrence rates in patients who underwent laparoscopic inguinal hernia repair with and without mesh fixation. **Subjects and Methods:** A total of 183 patients who underwent total extraperitoneal (TEP) inguinal hernia repair in the general surgery clinic between January 2012 and January 2015 patients operated due to inguinoscrotal hernia and those lost to follow-up were excluded from the study. Patients were divided into two groups. Group 1 consisted of patients in whom 3D (Bard 3D Max) mesh was used and fixed with symphysis pubis absorbable tucker, while group 2 included patients without mesh fixation. All statistical analyses were performed using SPSS 22.0 statistical package software. The differences were considered statistically significant if the *P* value was less than 0.05. **Results:** In the study, 178 patients were included. The median age was 48 years. Of all patients, 98 had right-sided, 72 left-sided, and eight bilateral hernias. The mean follow-up duration was 45 months. The demographic data between the groups were similar. Operation time was 51.82 ± 18.87 min in group 1 and 52 ± 19.92 in group 2 ($P = 0.089$). No statistically significant difference was found between both groups in terms of the development of early and late complications. Intraoperative complications, port-site hernia, and mortality were not seen in any patient. **Conclusion:** TEP seems to be a safe and effective surgical approach in inguinal hernia treatment with acceptable operation times and postoperative results. It was determined that not performing mesh fixation in the TEP application did not cause a statistical increase in morbidity and recurrence rates.

KEYWORDS: *Extraperitoneal, hernia, inguinal, mesh, total extraperitoneal*

the total extraperitoneal (TEP) technique. Mesh fixation is widely used to provide mesh stabilization and prevent an early recurrence. However, concerns have been raised with regards to staplers leading to complications such as pubic injury and nerve damage, and fixation has been shown to cause chronic pain.^[3,4] We aimed to compare

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laparoscopic inguinal hernia repair with and without mesh fixation for the complications and recurrence rates.

SUBJECTS AND METHODS

A total of 183 patients who underwent TEP inguinal hernia repair in the general surgery clinic between January 2012 and January 2015 were enrolled in this study, retrospectively. Patients were retrospectively assessed by the hospital registry system. Patients operated due to inguinoscrotal hernia and those lost to follow-up were excluded from the study. All patients were operated under general anesthesia. Postoperative antibiotics were not used except for patients who developed wound infection. A standardized surgical technique was performed. Patients were divided into two groups. Group 1 consisted of patients in whom 3D (Bard 3D Max) mesh was used and fixed with symphysis pubis absorbable tucker, while group 2 included patients without mesh fixation. The mesh was placed so as to close the complete myopectineal orifice, which corresponds to the three potential inguinal hernia areas as lateral, medial, and femoral. The patients were discharged on the morning of the postoperative first day morning with oral paracetamol 325 mg (within 24 h) after the surgeon's examination and evaluation. The patients were called to the outpatient clinic 1 week after the discharge. In the follow-up, complications and the presence of recurrence were recorded. The patients were called back to the outpatient clinic in 6th month and then annually for control. Patients' demographics, hernia types, number and causes of conversions, and postoperative follow-up data were evaluated.

Statistical analyses

All statistical analyses were performed using SPSS 22.0 statistical package software (SPSS, Inc., Chicago, IL, USA). Categorical variables were expressed as frequencies and percentages. Chi-square test was used for comparison of continuous parametric variables. The differences were considered statistically significant if the *P* value was less than 0.05.

RESULTS

TEP inguinal hernia repair was performed in 183 patients during the study period. Five patients who were lost to follow-up were excluded from the study. Finally, 178 patients were included Figure 1. The median age was 48 (range: 18–83) years. Of all patients, 98 (55%) had right-sided, 72 (41%) left-sided, and eight (4%) bilateral hernias. The mean hospitalization duration was 1.2 days and the mean follow-up duration was 45 (range: 30–67) months. There were 72 patients in group 1, with 70 (97%) being males and two (3%)

females with a median age of 48 (range: 18–81) years. Group 2 included 106 patients with 101 (95%) being males and 5 (5%) females with a median age of 49 (range: 18–83) years [Table 1]. The demographic data between the groups were similar. Operation time was 51.82 ± 18.87 min in group 1 and 52 ± 19.92 in group 2. There was no statistically significant difference between the two groups in terms of operation time (*P* = 0.089). Conversion to open surgery was performed in three patients (4%) in group 1 and four patients (4%) in group 2. Evaluating the groups for the development of early complications, three patients developed seroma and one patient wound dehiscence in group 1, while four patients developed seroma in group 2. No statistically significant difference was found between both groups in terms of the development of early complications (*P* = 0.716). Evaluating for the development of late complications, one patient developed recurrence and four patients developed chronic pain in group 1, and four patients developed recurrence and one patient chronic pain in group 2 [Table 2]. No additional intervention was needed in any patient with chronic pain. There was no statistically significant difference

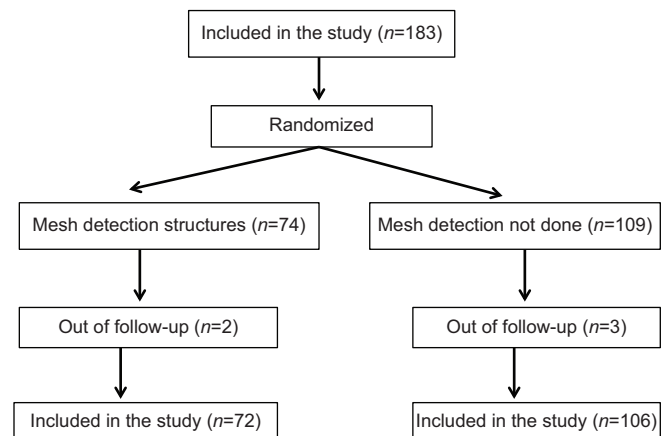


Figure 1: Flowchart of patients taken to study

Table 1: Demographic data of groups

	Group 1		Group 2	
	<i>n</i>	Percentage	<i>n</i>	Percentage
Male	70	97	101	95
Female	2	3	5	5

Table 2: Comparison between groups in terms of complication development

Complication	Group 1	Group 2	<i>P</i>	<i>P</i>	
Early complication	Seroma	3	4	0.894	0.716
	Wound-site separation	1	0	0.220	
Late complication	Chronic pain	4	1	0.150	0.528
	Recurrence	1	4	0.649	

between the groups in terms of the development of late complications ($P = 0.528$). Intraoperative complications, port-site hernia, and mortality were not seen in any patient.

DISCUSSION

An inguinal hernia is a common condition and more than 20 million inguinal hernia repairs are performed annually. In recent years, the rate of laparoscopic inguinal hernia repair has been increased to about 40%.^[5] Many studies have demonstrated the safety and efficacy of laparoscopic inguinal hernia repair. The most commonly used laparoscopic approaches are hernia repair with transabdominal preperitoneal (TAPP) and TEP techniques.^[6,7] The European Hernia Society recommends the TEP technique for laparoscopic hernia repair rather than transabdominal preperitoneal technique because of the lower risk of visceral injury, port-site hernia, and ileus with TEP.

Early complications seen after TEP may include urinary retention, epididymitis, wound-site infection, wound dehiscence, ileus, seroma, and hematoma. In our study, no patient developed urinary retention to required Foley catheter. The early complications developed in our study were seroma in three patients and wound dehiscence in one patient in group 1, and seroma in four patients in group 2. Approximately one out of five patients suffer inguinal pain following inguinal hernia repair. Chronic pain is less common in inguinal hernia repair with TEP because of less nerve damage.^[8,9] In this study, chronic pain was seen in 2.9% of all patients with four patients in group 1 and one patient in group 2.

Lowham *et al.* performed a multicenter study to evaluate the mechanisms causing recurrence after laparoscopic and open preperitoneal herniorrhaphy. They reported that hematoma and inadequate mesh fixation were the most common causes of recurrence for the surgeons experienced in open or laparoscopic preperitoneal hernia repair.^[10] Georgiou *et al.* reported the recurrence rate is approximately 1–2%.^[11] In a retrospective evaluation of 7,661 patients who underwent 10,053 laparoscopic hernia repairs, Felix *et al.* reported the most common cause of recurrence as inadequate lateral and medial fixation of the mesh.^[12] In our study, recurrence was seen in one patient in group 1, and four patients in group 2. There was no statistically significant difference in recurrence rates between the two groups ($P = 0.528$).

In a study by Siddiqui *et al.*, operation time was reported as under 100 (range: 40–98) min for unilateral repair.^[13] In our study, operation times were consistent with the literature. In our study, complications such as

intraoperative bleeding and additional conditions due to peritoneal injury were not observed.

In conclusion, TEP seems to be a safe and effective surgical approach in inguinal hernia treatment with acceptable operation times and postoperative results. It was determined that not performing mesh fixation in the TEP application did not cause a statistical increase in morbidity and recurrence rates.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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