

Comparison of post-operative pain after laparoscopic total extraperitoneal mesh repair of indirect inguinal hernia with tacker and without tacker fixation

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ABSTRACT

Objectives: To compare the post-operative pain after laparoscopic total extraperitoneal mesh repair of indirect inguinal hernia with tacker and without tacker fixation.

Materials & Methods: This comparative study was done at Surgical Department of Bahawal Victoria Hospital, Bahawalpur from May 2020 to November 2020 over the period of 6 months. Total 182 patients with indirect inguinal hernia, having age range from 20 to 60 either male or female were selected. In group A patients, laparoscopic TEP mesh repair of inguinal hernia without tacker fixation was done while in group B patients, laparoscopic TEP mesh repair of inguinal hernia with tacker fixation was done. Patients were assessed for post-operative pain and outcome (satisfactory/unsatisfactory) at 1 month follow up.

Results: Average of patients was 41.33 ± 12.37 years and 40.83 ± 12.04 years in group A and group B. Out of 182 patients, 170 (93.41%) were males and 12 (6.59%) were females. Mean post-operative pain in Group A was 1.46 ± 1.50 while in Group B was 1.77 ± 2.08 (p-value=0.2505). Satisfactory outcome was noted in 84 (92.31%) patients and 67 (73.63%) patients of group A and B and the difference was significant (P = 0.001).

Conclusion: Results of this study showed that there is a significant difference of satisfactory outcome (less post-operative pain) between the non-fixation and fixation group. Difference of satisfactory outcome was also significant between male patients, diabetics and obese patients of both groups.

Keywords: Inguinal hernia, laparoscopic, mesh, tacker fixation.

INTRODUCTION

A hernia happens when an internal organ pushes through a weak spot in your muscle or tissue. Femoral hernias, inguinal hernias umbilical hernias are the main types of hernia. Males (27%) are more victim of inguinal hernia as compared to females (3%).¹ Indirect and direct inguinal hernia are the two types of inguinal hernias (IH).²

In routine surgery, IH is very common procedure. There are different methods to manage IH but Tension-free repair is very commonly performed procedure due to low recurrence rate.³ Open anterior and laparoscopy are the two categories of this procedure.⁴ Laparoscopic hernia repair can be performed by total extraperitoneal (TEP) approach or trans-abdominal preperitoneal approach.⁵⁻⁶ The main benefit of TEP is less post-operative pain and morbidity.⁷ Seroma formation, GA (general anesthesia), need to fix the mesh and difficult learning curve are the disadvantages of TEP.⁸ Mesh fixation with metal staples increase the cost and post-operative pain.⁹⁻¹⁰

Purpose of the present study is to compare post-operative pain after laparoscopic total extraperitoneal mesh repair of indirect inguinal hernia with tacker and without tacker fixation. Findings of this study may help us to choose pain free procedure so that we may be able to reduce the morbidity of the such patients.

MATERIAL AND METHODS

This comparative study was done at Surgical Department of Bahawal Victoria Hospital, Bahawalpur from May 2020 to November 2020 over the period of 6 months. After approval from local ethical review committee and written informed consent from each patient, total 182 patients with

indirect inguinal hernia, having age range from 20 to 60 either male or female were selected. Patients with irreducible hernia, obstructed and strangulated hernias (not reducible on examination), patients with h/o previous surgery of lower abdomen and patients unfit for anesthesia were excluded from the study.

Two equal groups A and B were made randomly. In group A patients, laparoscopic TEP mesh repair of inguinal hernia without tacker fixation was done while in group B patients, laparoscopic TEP mesh repair of inguinal hernia with tacker fixation was done. Assessment of pain was done after 1 month of surgery and outcome was noted in term of satisfactory/unsatisfactory. Findings was noted on pre-designed proforma along the demographic profile of patients.

Outcome was measured in terms of post-operative pain after one month. If patients had no or mild pain (VAS = 0-3), outcome was considered as satisfactory. If patients had moderate or severe pain (VAS = 4-10), outcome was considered as unsatisfactory.

Data was analyzed by using SPSS version 18. Numerical data was presented as mean and SD and categorical data was presented as frequencies.

RESULTS

In present age range was 20-60 years with mean age of 40.98 ± 12.25 years. In study group A and B mean age was 41.33 ± 12.37 years and 40.83 ± 12.04 years. Mean duration of hernia was 5.86 ± 2.89 months. In study group A and B, mean duration of hernia was 5.89 ± 2.91 months and 5.85 ± 2.83 months respectively.

Outcome was satisfactory in 84 (92.31%) patients and 67 (73.63%) patients respectively in study group A and B and the difference was statistically significant (0.001) (Figure 1).

Patients were divided into 4 age groups, i.e. age group 20-30 year, age group 31-40 years, age group 41-50 years and age group 51-60 years. In age group A, satisfactory outcome was noted in 15 (93.75%) patients and 14 (77.78%) patients of group A and B respectively. But the difference was insignificant with p value 0.189. In age group 31-40 years, total 19 (86.36%) patients and 18 (78.26%) patients of group A and B was found with satisfactory outcome. But the difference was statistically insignificant with p value 0.477. In age group 41-50 years, outcome was satisfactory in 16 (84.21%) and 21 (77.78%) patients of group A and B and the difference was insignificant with p value 0.588. In age group 51-60 years, all 24 (100%) of group A and 14 (60.87%) patients of group B were found satisfied and the difference of satisfactory outcome was statistically significant (P = 0.001) (Table 1)

Outcome was found satisfactory in 77 (90.56%) male patients of group A and 64 (75.29%) male patients of group B. significantly higher number of male patients found satisfied in group A as compared to group B with p value 0.008. In group A, total 6 (100%) female found with satisfactory outcome and only 04 (66.67%) female patients of group B was found with satisfactory outcome but the difference was statistically insignificant with p value 0.121. (Table 2)

Two groups were created according to duration of disease i.e. ≤ 6 months and >6 months. In ≤ 6 months duration of disease group, satisfactory outcome was noted in 45 (91.84%) patients of group A and in 35 (72.92%) patients of group B. The difference of satisfactory outcome between the both groups was statistically significant with p value 0.014. In >6 months duration of disease group, satisfactory outcome was noted in 39 (92.86%) patients of group A and 32 (74.42%) patients. Difference of satisfactory outcome between the both study groups was significant (P= 0.022). (Table 3)

Satisfactory outcome was noted in 18 (90.0%) diabetic patients of group A and 13 (59.09%) diabetic patients of group B. difference of satisfactory outcome between both groups was statistically significant with p value 0.023. Total 66 (92.96%) non-diabetics of group A and 54 (78.26%) non-diabetics of group B found with satisfactory outcome and the difference of satisfactory outcome was significant (P = 0.013). (Table 4)

Total 27 (93.10%) patients of group A and 21 (67.74%) patients of group B was non obese. Significantly higher number of non obese were found with satisfactory outcome in group A as compared to group B. Total 57 (91.94%) and 46 (76.67%) patients of group A and B were obese. Significantly higher rate of satisfactory outcome was observed in obese patients of group A as compared to group B with p value 0.020. (Table 5)

Fig. 1: Comparison of satisfactory outcome between the both groups

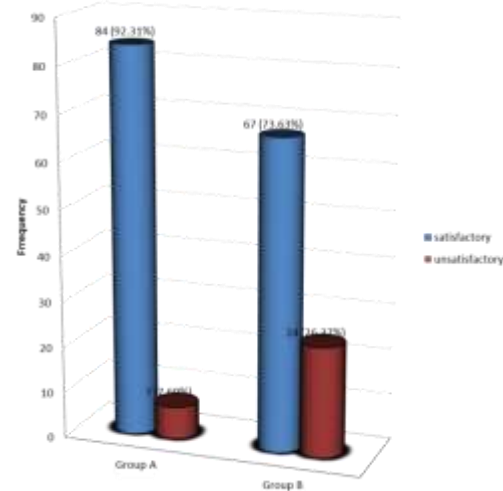


Table 1: Stratification of outcome with respect to age groups.

Age of patients (years)	Group A		Group B		p-value
	Outcome		Outcome		
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	
20-30	15 (93.75%)	01 (6.25%)	14 (77.78%)	04 (22.22%)	0.189
31-40	19 (86.36%)	03 (13.64%)	18 (78.26%)	05 (21.74%)	0.477
41-50	16 (84.21%)	13 (15.79%)	21 (77.78%)	06 (22.22%)	0.588
51-60	24 (100.0%)	00 (0.0%)	14 (60.87%)	09 (39.113%)	0.0001

Table 2: Stratification of outcome with respect to gender.

Gender	Group A		Group B		p-value
	Outcome		Outcome		
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	
Male	77 (90.59%)	08 (9.41%)	64 (75.29%)	21 (24.71%)	0.008
Female	06 (100.0%)	00 (0.0%)	04 (66.67%)	02 (33.33%)	0.121

Table 3: Stratification of outcome with respect to duration of disease.

Duration of disease	Group A		Group B		p-value
	Outcome		Outcome		
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	
≤6 months	45 (91.84%)	04 (8.16%)	35 (72.92%)	13 (27.08%)	0.014
>6 months	39 (92.86%)	03 (7.14%)	32 (74.42%)	11 (25.58%)	0.022

Table 4: Stratification of outcome with respect to diabetes mellitus.

Diabetes mellitus	Group A		Group B		p-value
	Outcome		Outcome		
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	
Yes	18 (90.0%)	02 (10.0%)	13 (59.09%)	09 (40.91%)	0.023
No	66 (92.96%)	05 (7.04%)	54 (78.26%)	15 (21.74%)	0.013

Table 5: Stratification of outcome with respect to obesity.

Obesity	Group A		Group B		p-value
	Outcome		Outcome		
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	
No	27 (93.10%)	02 (6.90%)	21 (67.74%)	10 (32.26%)	0.014
Yes	57 (91.94%)	05 (8.06%)	46 (76.67%)	14 (23.33%)	0.020

DISCUSSION

In this study age range was 20-60 years with mean age of 40.98 ± 12.25 years. In study group A and B mean age was 41.33 ± 12.37 years and 40.83 ± 12.04 years. Mean duration of hernia was 5.86 ± 2.89 months. In study group A and B, mean duration of hernia was 5.89 ± 2.91 months and 5.85 ± 2.83 months respectively. Most of the patients (30.77%) belonged to age group age group 41-50 years. In our study, out of 182 patients, 170 (93.41%) were males and 12 (6.59%) were females with male to female ratio of 14:1. IH are very common in male and female and about 25% males and 2% females suffered from IH during their life with male to female ratio as 7:1.¹¹ In one study by Wakodkar et al, mean age of the cases was 50.2 ± 13.81 years and 49.6 ± 14.94 years respectively in fixation and non-fixation group. In fixation group, all patients were males and in nonfixation group male patients were 97.78% and rest were females.¹⁰ In our study, mean post-operative pain in Group A (non-fixation group) was 1.46 ± 1.50 while in Group B (fixation group) was 1.77 ± 2.08 (p-value=0.2505). Outcome was satisfactory in 84 (92.31%) patients and 67 (73.63%) patients respectively in study group A and B and the difference was statistically significant (0.001). In a study by Wakodkar A et al¹⁰ has found post-operative pain at 1 month in 22.22% patients and 8.89% patients respectively in tracker fixation group and tracker non-fixation group.¹⁰ In literature, pain was noted in 9-22% of inguinal hernia repair.¹²⁻¹³ Many studies were conducted to compare the chronic pain after laparoscopic TEP repair with and without mesh fixation.¹⁴

However, data from those studies are conflicting. An RCT by Taylor et al¹⁵ not only found that mesh fixation was associated with a higher incidence of chronic pain but also found an association between the number of fixation tacks used and the incidence of pain. In contrast, Koch et al¹⁶ in their RCT reported that elimination of mesh fixation during laparoscopic TEP repair significantly reduced the use of postoperative narcotic analgesia but did not reduce postoperative pain. In another RCT Ferzli et al¹⁷ reported no difference in the incidence of postoperative pain between the two groups. In literature, there is variation (from 0.1% to 22.5%) in postoperative pain in patients with laparoscopic repairs for which staples are used to attach the mesh.¹⁸

CONCLUSION

Results of this study showed that there is a significant difference of satisfactory outcome (less post-operative

pain) between the non-fixation and fixation group. Difference of satisfactory outcome was also significant between male patients, diabetics and obese patients of both groups.

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