

Comparison of Post-Operative Pain after Lap Mesh Hernioplasty and Open Mesh Hernioplasty

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ABSTRACT

Objective: To compare the outcome of two tension free methods of hernia repair: laparoscopic mesh repair versus open mesh technique in terms of severity of chronic post-operative pain.

Material and methods: In this randomized controlled trial, total 100 male patients with inguinal hernia, age between 20-60 years were selected from Department of Surgery, Arif Memorial Teaching Hospital Lahore. Duration of study was 6 months (from April 2021 to October 2021). Chronic pain was compared between the groups.

Results: In our study, mean age in group A and B was 41.84+8.92 years and 43.18+8.58 years respectively. Chronic pain was recorded in 4%(n=2) patients in Laparoscopic group (Group-A) and 28%(n=14) patients in Lichtenstein group (Group-B) while 96%(n=48) patients in Laparoscopic group (Group-A) and 72%(n=36) patients in Lichtenstein group (Group-B) had no chronic pain. Difference was significant (P=0.001). Pain intensity shows that 96%(n=48) patients in Laparoscopic group (Group-A) and 16%(n=8) patients in Lichtenstein group (Group-B) had no pain while moderate pain was reported in 4%(n=2) patients and 72%(n=36) patients respectively in Laparoscopic group and Lichtenstein group and severe pain was noted in Group-B as 12%(n=6), p value was 0.001.

Group A was subjected to Laparoscopic Mesh repair and Group B hernia was repaired by Lichtenstein repair

Conclusion: We concluded that laparoscopic mesh repair versus open mesh technique in terms of severity of chronic post-operative pain, laparoscopic mesh repair is found with significant lower pain.

Keywords: Laparoscopic mesh repair, inguinal hernia, open mesh, severity of chronic post-operative pain.

INTRODUCTION

A hernia is a weakening in the abdominal wall that allows some of the contents of the abdominal cavity to bulge out.¹ The indirect cause of an inguinal hernia is a processus vaginalis that does not shut properly during development. The testis moves, pulling a peritoneum tube down. This tube ought to spontaneously fibrose and fall apart, but it usually does not and a hernia forms as a result.¹

There are currently two methods for inserting mesh: the open approach and the minimally invasive laparoscopic procedure. The laparoscopic approach has the benefits of less post-operative discomfort, quicker healing, and a shorter hospital stay. Hemostasis, seroma, and persistent pain are some less frequent issues. Serious side effects have also been reported, including nerve damage, major vascular damage, intestinal blockage, and bladder injury. The laparoscopic method is expensive, requires a long learning curve, and is difficult to master.²

Inguinal hernias were treated in this manner soon after laparoscopic cholecystectomy became the gold standard for cholelithiasis. Contrary to laparoscopic cholecystectomy, which the surgical community quickly embraced, laparoscopic hernia repair has remained a controversial topic ever since it was first offered.³ Open hernia repair has been replaced with laparoscopic hernia repair.⁴

Laparoscopic hernioplasty has a variety of advantages over open hernioplasty. From the patient's standpoint, the two most crucial elements are the decreased postoperative discomfort and speedy recovery.⁵ TEP was linked to a reduction in chronic pain. After TEP vs. Lichtenstein repair, inguinal discomfort was less frequently observed (1% vs. 22%, P.001).⁶

In a different study, the postoperative pain data showed that the laparoscopic group had much lower pain scores overall using a 4-grade verbal pain analogue scale and had significantly fewer requests for rescue analgesia than the open group.⁷

Although learning and performing the laparoscopic hernia repair is difficult, there are advantages such as less post-operative pain, an early hospital departure, a short hospital stay, and a low risk of complications and recurrence. Although this treatment takes more time during surgery in the first stages of learning, the risk of post-operative complications and recurrence is rather low.⁸

We are conducting this study because laparoscopic hernia repair is not in common practice in Pakistan and both surgeons and patients have reservations regarding this modality. Moreover there is no local study present that has compared these two methods exclusively. Whatever the case is this study will help the surgeons to select a procedure with more good results.

MATERIAL AND METHODS

In this randomized controlled trial, total 100 male patients with inguinal hernia, age between 20-60 years were selected from Department of Surgery, Arif Memorial Teaching Hospital Lahore. Duration of study was 6 months (from April 2021 to October 2021).

Patients with massive hernias assessed on physical examination, unfit for general anesthesia on clinical evaluation, patients with recurrent hernias assessed on history and patients who underwent previous lower abdominal surgery on medical record were excluded.

Patients were examined and randomly divided into one of two treatment interventions through simple random sampling generated through computer software. Group A was subjected to Laparoscopic Mesh repair and Group B hernia was repaired by Lichtenstein repair, respectively. The two groups were compared for post-operative pain. Postoperative pain was using Visual analogue Scale at 1 month. The data was entered in the structured proforma.

The data was analyzed by using computer software SPSS version 18. Numerical data was presented in form of mean and SD, while categorical data was shown as frequency.

RESULTS

Mean \pm SD was calculated as 41.84+8.92 in Laparoscopic group and 43.18+8.58 years in Lichtenstein group. Total 48%(n=24) patients in Laparoscopic group and 46%(n=23) patients in Lichtenstein group were between 20 years and 40 years, while 52%(n=26) patients in Laparoscopic group and 54%(n=27) patients in Lichtenstein group were between 41 years and 60 years. (Table No. 1)

Chronic pain was recorded in 4%(n=2) patients in group A (Laparoscopic group) and 28%(n=14) patients in group B (Lichtenstein group), while 96%(n=48) patients in group A

(Laparoscopic group) and 72%(n=36) patients in group B (Lichtenstein group) had no chronic pain, difference of chronic pain was significant (p=0.001). (Table No. 2)

Pain intensity shows that 96%(n=48) patients in group A (Laparoscopic group) and 16%(n=8) patients in group B (Lichtenstein group) had no pain while moderate pain was recorded in 4%(n=2) patients in group A (Laparoscopic group) and 72%(n=36) patients in group B (Lichtenstein group), severe pain was recorded in Lichtenstein group as 12%(n=6), p value was 0.001. (Table No. 3)

In age group 20-40 years, chronic pain was recorded in 1 patient and 13 patients in study Laparoscopic group and Lichtenstein group. Difference of chronic pain was not significant (P = 0.0001). In age group 41-60 years, chronic pain was noted in 1 patients of Laparoscopic group while in 23 patients of Lichtenstein group. Difference of chronic pain was significant (P = 0.000) (Table 4)

In 1-4 weeks duration of hernia group, chronic pain was noted in 2 patients of Laparoscopic group while in 37 patients of Lichtenstein group and difference was significant (P = 0.000). In >4 weeks duration of hernia group, in Laparoscopic group, no patient reported chronic pain while in Lichtenstein group, it was reported in 5 patients. Difference of chronic pain was significant with p value 0.0002. (Table 5)

In BMI <25 group, chronic pain was reported by 1 patients of Laparoscopic group while 26 patients of Lichtenstein group and difference of chronic pain was significant (P = 0.000). In BMI >25 group, chronic pain was found in 1 patient and 16 patients respectively in Laparoscopic group and Lichtenstein group. Difference of chronic pain was significant with p value 0.000. (Table 6)

Table 1: Age distribution

Age (in years)	Group A		Group B	
	N	%	N	%
20-40	24	48	23	46
41-60	26	52	27	54
Mean+SD	41.84+8.92		43.18+8.58	

Table 2: Comparison of chronic pain in two groups

Chronic pain	Group A		Group B		P value
	N	%	N	%	
Yes	2	4	14	28	0.001
No	48	96	36	72	

Table 3: Comparison of chronic pain intensity in two groups

Pain intensity	Group-A		Group-B		P value
	N	%	N	%	
None	48	96	8	16	0.001
Mild	0	0	0	0	
Moderate	2	4	36	72	
Severe	0	0	6	12	

Table 4: Stratification for age

Group	Chronic pain		P value
	Yes	No	
Age group 20-40 years			0.0001
A	1	23	
B	13	10	
Age group 41-60 years			0.000
A	1	25	
B	23	4	

Table No. 5: Stratification for duration of hernia

Group	Chronic pain		P value
	Yes	No	
Duration: 1-4 weeks			0.000
A	2	39	
B	37	8	
Duration: >4 weeks			0.0002
A	0	9	
B	5	0	

Table No. 6: Stratification for BMI

Group	Chronic pain		P value
	Yes	No	
BMI: <25			0.000
A	1	25	
B	26	5	
BMI: >25			0.000
A	1	23	
B	16	3	

DISCUSSION

Repair of inguinal hernia is one of the most commonly performed procedure by surgeons. Over the past hundred years, inguinal hernia had a little change until synthetic mesh was introduced. Open approach and laparoscopic approach are the two techniques that are used to place the mesh.

In our study, 48% patients in Laparoscopic group (Group-A) and 46% patients in Lichtenstein group (Group-B) were between 20 years and 40 years, while 52% patients in Laparoscopic group and 54% patients in Lichtenstein group were between 41 years and 60 years. Mean age was 41.84+8.92 years in Laparoscopic group and 43.18+8.58 years in Lichtenstein group.

Chronic pain was recorded in 4%(n=2) patients in Laparoscopic group and 28%(n=14) patients in Lichtenstein group while 96%(n=48) patients in Laparoscopic group and 72%(n=36) patients in Lichtenstein group had no chronic pain, difference of chronic was significant (P=0.001). Pain intensity shows that 96%(n=48) patients in Laparoscopic group and 16%(n=8) patients in Lichtenstein group had no pain while moderate pain was recorded in 4%(n=2) patients in Laparoscopic group and 72%(n=36) patients in Lichtenstein group, severe pain was recorded in Lichtenstein group as 12%(n=6) (P= 0.001).

One study showed less inguinal pain in TEP group (1%) as compared to Lichtenstein group (22%).⁶ These findings correspond to our results.

McCormack K and others⁹ compared open technique with laparoscopic technique, they found longer operation duration in laparoscopic group.

The data available showed less persisting pain and less persisting numbness in the laparoscopic groups. This study is supporting the results of our study, however, we did not record other variables of the surgery e.g. operative time, recurrence of hernia and duration of hospital stay, which may be done in coming trials.

A meta analysis reported insignificant difference of chronic pain between open and laparoscopic technique.¹⁰ The results of our study in accordance with the other studies justify the hypothesis "there is difference between post-operative pain after laparoscopic mesh repair and open inguinal hernia repair". Our results are primary in this regard and needs some-other trials to validate our findings.

CONCLUSION

We concluded that on compare of outcome of two tension free methods of hernia repair: laparoscopic mesh repair versus open mesh technique in terms of severity of chronic post-operative pain, laparoscopic mesh repair is found with significant lower pain.

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