

Comparative Study of Post-Operative Pain in Open (Lichtenstein) Repair Versus Laparoscopic Repair for Unilateral Inguinal Hernia

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ABSTRACT

Introduction: Inguinal hernia repair is the most common procedure that general surgeons undertake all over the world. The increasing popularity of laparoscopic inguinal hernia repair is, in part, due to the clinical potentials with less post operative pain and a shorter duration of convalescence compared with an open hernia repair technique. The study focuses to compare the operative time, postoperative pain along with requirements of analgesics.

Material and methods: The present study was conducted on 60 patients admitted with diagnosis of inguinal hernia over the period of one and half years (Jan 2014-June 2015) in the Department of General Surgery, MMIMSR, MULLANA (DISTT AMBALA), Haryana, India. These patients were divided at random by lottery system in two groups of 30 patients each i.e. Group A and Group B. Group A was treated by Tension Free Hernia Repair by Lichtenstein technique. Group B was treated by Laparoscopic technique of hernia repair.

Results: VAS score in the Lichtenstein inguinal hernia repair group ranged from 1 to 8 for which the mean was 3.80 ± 1.86 during the 1st 12 hours whereas VAS score in the laparoscopic repair group ranged from 1 to 7 whose mean was 2.87 ± 1.78 . Analgesic tablet was given to the patients of both the group post-operative day 2 onwards as per requirement after 24 hours of operation. The mean analgesic tablet consumed was 5.27 ± 1.72 in Lichtenstein open mesh repair and 3.53 ± 1.93 in laparoscopic repair which was statistically significant.

Conclusion: Laparoscopic procedure showed clear advantages such as less postoperative and chronic pain, lower incidence of use of pain medication

Keywords: Post-Operative Pain, Lichtenstein, Repair Versus Laparoscopic, Unilateral Inguinal Hernia

laparoscopic inguinal hernia repair is, in part, due to the clinical potentials with less post operative pain and a shorter duration of convalescence compared with an open hernia repair technique.³ Considering the above stated facts, present study was undertaken.

MATERIAL AND METHODS

The present study was conducted on 60 patients admitted with diagnosis of inguinal hernia over the period of one and half years (Jan 2014-June 2015) in the Department of General Surgery, MMIMSR, Mullana (Dist. Ambala), Haryana, India.

These patients were divided at random by lottery system in two groups of 30 patients each i.e. Group A and Group B.

Group A was treated by Tension Free Hernia Repair by Lichtenstein technique.

Group B was treated by Laparoscopic technique of hernia repair.

Among group B patients 15 each were operated laparoscopically by TAPP and TEP. All adult male patients admitted in the Department of Surgery, MMIMSR, Mullana (Distt. Ambala) with the diagnosis of unilateral inguinal hernia and fit for surgery. Exclusion Criteria comprises of Paediatric patients, patients unfit for surgery, Obstructed hernia and strangulated hernia. Procedure of surgery in a similar fashion with no changes in open lichtenstein repair as well as laparoscopic surgery (including port placement) except the usage of suture for fixation of mesh sparing

INTRODUCTION

Inguinal hernia repair is the most common procedure that general surgeons undertake all over the world.¹ The primary goals of surgery include repairing the hernia, minimizing the chance of recurrence, early return to normal activities, and minimizing postsurgical discomfort. The various surgeries include a constellation of benefits and risks, which presents some clinical uncertainty in the choice between approaches. Surgical procedures for inguinal hernia repair generally fall into three categories: open repair without the use of a mesh implant (i.e., sutured), open repair with a mesh, and laparoscopic repair with a mesh.² The most commonly performed laparoscopic repair procedures are trans-abdominal preperitoneal repair (TAPP) and totally extra peritoneal repair (TEP). The increasing popularity of

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How to cite this article: Nitish Dhawan, Anand Thawait, Kirti Savyasacchi Goyal, Kritesh Goel. Comparative study of post-operative pain in open (lichtenstein) repair versus laparoscopic repair for unilateral inguinal hernia. International Journal of Contemporary Medical Research 2019;6(10):J6-J9.

DOI: <https://dx.doi.org/10.21276/ijcmr.2019.6.10.36>

tackers. Prior consent and ethical committee clearance was taken (IEC/MMIMSR/15/121). Thus the study focuses to compare the operative time, postoperative pain along with requirements of analgesics (using VAS scale). A Visual Analogue Scale (VAS) is a measurement instrument that tries to measure a characteristic or attitude that is believed to range across a continuum of values and cannot easily be directly measured. The amount of pain that a patient feels ranges across a continuum from none to an extreme amount of pain.

RESULTS

The present study was carried on 60 patients admitted with diagnosis of inguinal hernia in the Department of General Surgery, MMIMSR, Mullana. These patients were divided in two groups of 30 patients each i.e. Group A (Tension Free Hernia Repair by Lichtenstein technique) and Group B (Laparoscopic hernia repair) with the following results. All the 30 patients in group B underwent laparoscopic inguinal hernia repair.

The mean age of patients who underwent Lichtenstein inguinal hernia repair was 52.87 years and the mean age of

patients in laparoscopic inguinal hernia repair group was 51.1 years. There was no statistically significant age group difference between two groups (p value > 0.05) (table-1).

In the Lichtenstein tension free inguinal hernia repair group, out of 30 patients, 18 (60%) presented with right sided inguinal hernia and 12 (40%) presented with left sided inguinal hernia.

While in the Laparoscopic inguinal hernia repair group, out of 30 patients, 16 (40%) had right sided inguinal hernia and 14 (46.67%) patients presented with left sided inguinal hernia.

In the Lichenstein tension free inguinal hernia repair group, out of 30 patients, 12 (40%) patients presented with direct hernia and 18 (60%) with indirect hernia. In the Laparoscopic inguinal hernia repair group, out of 30 patients, 14 (46.67%) patients presented with direct hernia and 16 (53.33%) with indirect hernia. The mean operative time for laparoscopic repair was 132.67 minutes with a SD of 58.98. The mean operative time in open mesh repair was 85.00 minutes with a SD of 31.79. Laparoscopic repair was found to be significantly lengthier procedure than open mesh repair (p

	Group – A (n=30)		Group – B (n=30)		P-value
	No.	%age	No.	%age	
Mean Age(in yrs)	52.87±13.0		51.1±16.3		>0.10
Site of Hernia	Right	18	60.00	16	53.33
	Left	12	40.00	14	46.67
Type of Hernia	Direct	12	40	14	46.67
	Indirect	18	60	16	53.33
Mean Operative Time (minutes)	85±31.79		132.67±58.98		<0.01
Mean Post-Operative Hospital Stay(days)	2.93±1.76		2.80±0.99		0.725

Table-1: Charateristics of patients, operative time and hospital stay

Time Interval	Group – A		Group – B		t-value	p-value
	Mean	SD	Mean	SD		
12 hr	3.80	1.86	2.87	1.78	1.99	0.0526
24 hr	2.73	1.87	2.13	1.78	1.27	0.2
48 hr	1.6	1.43	1.67	1.81	0.17	0.868
7 days	0.87	0.97	0.6	0.97	1.06	0.29

Table-2: Comparison Of Post-Operative Pain Score (Vas)

Parenteral analgesic	Group A		Group B	
	1 st 24 hours	Next 24 hours	1 st 24 hours	Next 24 hours
Analgesic given	30	16	30	20

Table-3: Post Operative Parenteral Analgesics

No. of Tablets	Group – A		Group – B	
	No.	%age	No.	%age
0	0	0.00	4	13.33
1-2	2	6.67	4	13.33
3-4	6	20.00	12	40.00
5-6	18	60.00	10	33.33
7-8	2	6.67	0	0.00
9-10	2	6.67	0	0.00
Mean+/-SD	5.27±1.72		3.53±1.93	

Table-4: Distribution Of Subjects According To The Number Of Analgesics Tablets Received

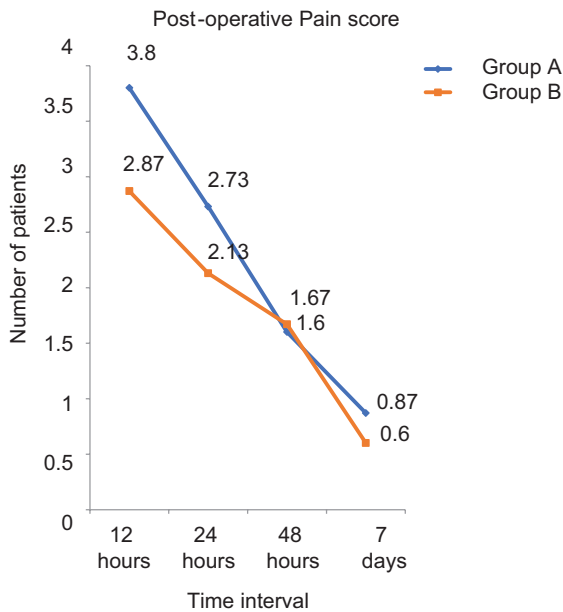


Figure-1: Line diagram showing comparison of post-operative pain score (VAS).

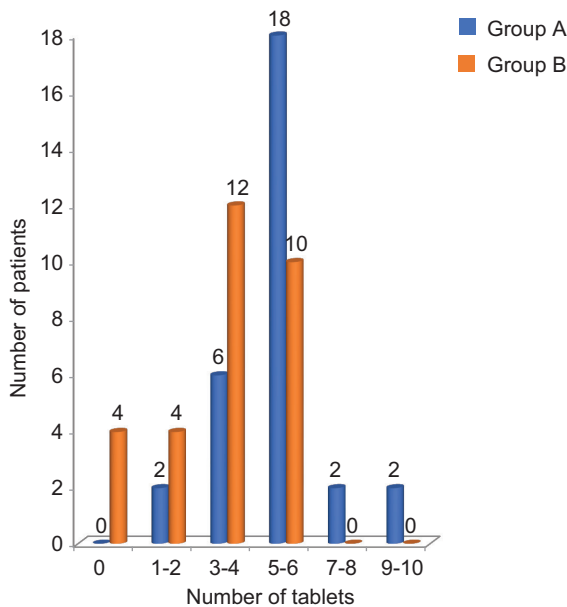


Figure-2: Bar diagram showing distribution of patients according to the number of analgesic tablets received.

value < 0.05).

In the Lichtenstein tension free inguinal hernia repair group, the minimum number of days of hospital stay post-operatively was 1 and maximum was 8 days. Whereas in the laparoscopic hernia repair group, the minimum number of post-operative hospital stay days was 1 and maximum was 4 days. The mean post-operative hospital stay for group A was 2.93 ± 1.76 and for group B was 2.80 ± 0.99 days. There was no statistically significant difference between the two groups in terms of post op hospital stay (p value > 0.05).

The post-operative pain was recorded at 12 hrs, 24 hrs, 48 hrs and 7 days after operation by using visual analogue scale (VAS) pain scoring system. All the patients in both the groups felt pain of varying degree in 1st 12 hours. VAS score in the Lichtenstein inguinal hernia repair group ranged from 1 to 8

for which the mean was 3.80 ± 1.86 during the 1st 12 hours whereas VAS score in the laparoscopic repair group ranged from 1 to 7 whose mean was 2.87 ± 1.78 . This indicated that the patients in group A felt more pain as compared to the patients in group B during the 1st 12 hours. However the difference (p value > 0.05) was statistically insignificant (table-2, figure-1).

All patients of both the group were administered parenteral analgesics during first 24 hours and then according to the need during the 2nd post-operative day. 16 patients of the Lichtenstein inguinal hernia repair group required parenteral analgesics in next 24 hours as compared to 20 patients of the laparoscopic inguinal hernia repair group (table-3).

Analgesic tablet was given to the patients of both the group post-operative day 2 onwards as per requirement after 24 hours of operation. The mean analgesic tablet consumed was 5.27 ± 1.72 in Lichtenstein open mesh repair and 3.53 ± 1.93 in laparoscopic repair. It was statistically significant in the laparoscopic repair thus confirming the lesser post-operative pain in the laparoscopic group (p value < 0.05) (table-4, figure-2).

DISCUSSION

The present study was carried out on 60 patients admitted at MMIMSR, Mullana, with the clinical diagnosis of Inguinal hernia who underwent Lichtenstein inguinal hernia and laparoscopic inguinal hernia repair.

Postoperative pain is one of the major factors concerning the choice of a surgical technique for the repair of inguinal hernia. This study determined that patients subjected to the laparoscopic procedure presented significantly lower levels of postoperative pain compared to the open lichtenstein repair. A Visual Analogue Scale (VAS) is a measurement instrument that tries to measure a characteristic or attitude that is believed to range across a continuum of values and cannot easily be directly measured. The amount of pain that a patient feels ranges across a continuum from none to an extreme amount of pain.

Post-operative pain was low in laparoscopic repair group as compared to open mesh repair in the study conducted by Liem et al⁴, Champault et al⁵, Colak T et al⁶ whereas Schrenk et al⁷ did not find any difference. Zieren et al⁸ concluded that post-operative pain did not differ between laparoscopic and open tension free repair group. Heikkinen et al⁹ concluded that laparoscopic inguinal hernia repair offers lesser post-operative pain and in addition to the low recurrence rate, the Lichtenstein procedure may be performed in a shorter operating time.

There are, however, complications related to the open repair procedures, with postoperative pain regarded as one of the most important. Previous studies reported higher pain level for patients surgically treated with open techniques such as Lichtenstein repair.

In our study, all the patients in both the groups felt pain of varying degree in 1st 12 hours. VAS score in the Lichtenstein inguinal hernia repair group ranged from 1 to 8 for which the mean was 3.80 with SD of 1.86 during the 1st 12 hours whereas

VAS score in the laparoscopic repair group ranged from 1 to 7 whose mean was 2.87 with SD of 1.78. This indicated that the patients in group A felt more pain as compared to the patients in group B during the 1st 12 hours. However p value (more than 0.05) was statistically insignificant.

The mean VAS score of the Lichtenstein group and laparoscopic group at time interval of 24 hour, 48 hour, 7 days was 2.73, 1.6, 0.87 and 2.13, 1.67, 0.6 respectively for which p value was more than 0.05 which was statistically insignificant.

In the studies conducted by Champault et al⁵, and Colak T et al⁶ the mean post-operative analgesic consumption was less in laparoscopic group as compared to open group. All patients of both the group were administered parenteral analgesics during first 24 hours and then according to the need during the 2nd post-operative day. 16 patients of the Lichtenstein inguinal hernia repair group required parenteral analgesics in next 24 hours as compared to 20 patients of the laparoscopic inguinal hernia repair group.

Analgesic tablet was given to the patients of both the group post-operative day 2 onwards as per requirement after 24 hours of operation. The mean analgesic tablet consumed was 5.27±1.72 in Lichtenstein open mesh repair and 3.53±1.93 in laparoscopic repair. It was statistically less significant in the laparoscopic repair thus confirming the lesser post-operative pain in the laparoscopic group (p value < 0.05).

CONCLUSION

Laparoscopic procedure showed clear advantages such as less postoperative and chronic pain, lower incidence of use of pain medication. Therefore, the laparoscopic TAPP procedure should be considered as an appropriate approach for the surgical treatment of unilateral primary inguinal hernia.

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Source of Support: Nil; **Conflict of Interest:** None

Submitted: 09-09-2019; **Accepted:** 05-10-2019; **Published:** 26-10-2019