

Study of post - operative pain following lichtenstein mesh repair and Bassini's repair for primary inguinal hernia

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Abstract

Introduction: The history of hernia is as old as the history of surgery. Inguinal hernias are the commonest of all hernias, surgery is the definitive treatment and hernia repair is the most commonly performed general surgical procedure in clinical practice. Despite high frequency of this procedure, very few have ideal results **Aims and Objectives:** To study Post - Operative Pain Following Lichtenstein Mesh Repair and Bassinis Repair for Primary Inguinal Hernia. **Methodology:** This was a Prospective, observational study carried out with approval of Institutional Ethical Committee. This is a comparative study. Two hundred and fifty four patients were included in the study from December 2013 to November 2015. Statistical analysis done by Chi square test has been applied for testing the significance of difference between two proportions. **Result:** On post- operative day-1, operative site pain present in 18 patients (14.17%) underwent Bassini's repair, while, 14 patients (11.02%) in Lichtenstein mesh repair group, p-value is >0.05, thus suggesting no significant difference. On post-operative day-7, 13 patients undergone Bassini's repair have operative site pain, while, 4 patients in Lichtenstein mesh repair group have pain. The p-value is <0.05, suggesting that post-operative surgical site pain is significantly low with mesh repair compared to Bassini's repair Persistent operative site pain after 90days of surgery is found in 7 patients(5.51%) in Bassini's repair group, while 1 patient (0.79%) in Lichtenstein mesh repair group. The p-value is <0.05, suggesting that incidence of persistent operative site pain is significantly low in mesh repair group than Bassini's repair group. **Conclusion:** Incidence of post operative pain at day-7 and day-90 is significantly less with Lichtenstein Mesh Repair, than Bassini's non- mesh Repair so as far the pain perception is concerned the Lichtenstein Mesh Repair is superior to Bassini's non- mesh Repair.

Keywords: Lichtenstein Mesh Repair, Bassinis Repair, Post - Operative Pain.

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INTRODUCTION

The history of hernia is as old as the history of surgery. Inguinal hernias are the commonest of all hernias, surgery is the definitive treatment and hernia repair is the most commonly performed general surgical procedure in clinical practice. Despite high frequency of this procedure, very few have ideal results. ¹Herniology flourished mainly due to many anatomical discoveries. In spite of many important discoveries from 18th to 19th

century the treatment results were still unsatisfactory. Hernia repair is a commonly performed procedure in the world. Several methods have been developed over the years to improve on the traditional methods of hernia repair, the most important being the Lichtenstein mesh repair ¹⁰⁻¹³ and laparoscopic mesh repair. ^{12,13} Traditional tissue based techniques (e.g. Bassini, McVay, Shouldice) characterized the armamentarium of the inguinal hernia surgeon during the 1970s and early 1980s. With the need to reduce the rate of hernia recurrence, as well as postoperative pain and convalescence, the treatment of inguinal hernias underwent a dramatic evolution over the past 15 years. The major advances included the introduction of the concept of tension-free hernia surgery, the use of prosthetic materials, and the development of laparoscopic techniques. The recognition that excessive suture-line tension was primarily responsible for high recurrence rates and significant postoperative pain following tissue based repairs led to the introduction of the concept of tension-free hernia surgery. The development of prosthetic materials ushered in the current

era of hernia surgery, allowing a tension-free repair to be performed even for the largest defects and the most difficult procedures. Tension free mesh based repairs (e.g. Lichtenstein, plug and patch) began to increase in number in the late 1980s. The presence of a strangulated inguinal hernia cannot be considered a contraindication for the use of a prosthetic mesh. Lichtenstein hernioplasty can be successfully used not only as an elective operation but also as an emergency operation for incarcerated inguinal hernia with a good outcome and an acceptably low rate of postoperative complications, and the risk of the local infectious complications is low.¹⁴⁻¹⁶ However, the outcomes of emergency Lichtenstein hernioplasty were inferior to the outcomes of elective Lichtenstein hernioplasty.¹⁷ More recently, with the advent of laparoscopy for general surgery, various laparoscopic techniques have been developed for inguinal hernia repair, including the transabdominal preperitoneal repair, the intraperitoneal only mesh repair, and the totally extraperitoneal repair¹

MATERIAL AND METHODS

This was a Prospective, observational study carried out with approval of Institutional Ethical Committee. This is a comparative study. Two hundred and fifty four patients were included in the study from December 2013 to November 2015. Congenital inguinal hernias, Bilateral inguinal hernias, Complicated inguinal hernia, Recurrent inguinal hernias, Femoral hernia, umbilical and incisional hernias excluded from the study while All patients with inguinal hernia with age >16years who give informed consent for participation in study were included in the study. Sampling was done by consecutive sampling method. Consecutively operated first 127 patients had undergone Bassini's Repair group and 127 patients who had undergone Lichtenstein Mesh Repair group who fulfilled the inclusion criteria were included in the study. Patients underwent history taking, clinical systemic and local examination, and routine preoperative investigations. Information was given to the patients as regards the anaesthetic procedures. All the patients signed a written informed consent. Patient were kept nil by mouth for at least 6hours before procedure. Post-Operative Pain Scoring: The pain score used is, Numeric Rating Scale is a 10–point scale for patient self-reporting of pain. It is for adults and children 10 years old or older. (67)Rating Pain Level :0 -No Pain, 1 – 3 Mild Pain (nagging, annoying, interfering little with ADLs), 4 – 6 Moderate Pain (interferes significantly with ADLs)7 – 10 Severe Pain (disabling; unable to perform ADLs) Statistical analysis done by Chi square test has been applied for testing the significance of difference between two proportions.

RESULT

Table 1: Post - Operative Pain Day-0

	Pain			p-value
	Present	Absent	Total	
BR	31 (24.41%)	96 (75.59%)	127	0.286
LMR	24 (18.90%)	103 (81.10%)	127	

On the day of surgery, 31 patients (24.41%) out of 127 patients undergone. Bassini's repair developed operative site pain, while 24 patient out of 127. patient(18.90%) underwent Lichtenstein mesh repair developed pain on day-0 of surgery. The p-value is >0.05 suggesting no significant difference

Table 2: Post - Operative Pain Day 1

	Pain		Total	p-value
	Present	Absent		
BR	18 (14.17%)	109 (85.83%)	127	0.449
LMR	14 (11.02%)	113 (89.98%)	127	

On post operative day-1, operative site pain present in 18 patients (14.17%) underwent Bassini's repair, while, 14 patients (11.02%) in Lichtenstein mesh repair group, p-value is >0.05, thus suggesting no significant difference.

Table 3: Post - Operative Pain Day -7

	Pain			p-value
	Present	Absent	Total	
BR	13 (10.24%)	114 (89.76%)	127	0.024
LMR	4 (3.15%)	123 (96.85%)	127	

On post operative day-7, 13 patients undergone Bassini's repair have operative site pain, while, 4 patients in Lichtenstein mesh repair group have pain. The p-value is <0.05, suggesting that post operative surgical site pain is significantly low with mesh repair compared to Bassini's repair.

Table 4: Post - Operative Pain Day- 90

	Pain			p-value
	Present	Absent	Total	
BR	7 (5.51%)	120 (94.49%)	127	0.031
LMR	1(0.79%)	126 (99.21%)	27	

Persistent operative site pain after 90days of surgery is found in 7 patients (5.51%) in Bassini's repair group, while 1 patient (0.79%) in Lichtenstein mesh repair group. The p-value is <0.05, suggesting that incidence of persistent operative site pain is significantly low in mesh repair group than Bassini's repair group.

DISCUSSION

In present study, out of total 127 patients who had undergone Bassini's repair 24.4% (31 patients) developed pain on the day of surgery, 14.2% (18 patients) had pain at operative site on day 1 of surgery, 10.2% (13 patients) had pain after 7days, while 5.5% (7 patients) had persistent operative site pain after 3 months of surgery. Out of 127 patients undergone Lichtenstein mesh repair, 18.9% (24 patients) had pain at operative site on the day of surgery, 11% (14 patients) had pain on day1, 3.1% (4

patients) had pain on day 7 after surgery, while 0.8% (1 patient) had persistent pain after 3 months of surgery. Thus, in our study no significant difference in rate of pain on day 0 and day 1 of surgery was found in either procedure. However, occurrence of pain was found to be significantly high after Bassini's repair, on 7 days and 3 months after surgery. In Sinha SP et al study, 37.5% (6 out of 16 patients) who underwent Bassini's repair, while 12.5% (2 out of 16 patients) who underwent Lichtenstein mesh repair had persistent pain as late complication of the two procedures. 3 In Malik AM et al study, postoperative pain were significantly low in Lichtenstein mesh repair compared to open non-mesh repair by modified Bassini's technique ($p < 0.001$). 4 In Al-Obaidi SM et al study, out of 100 patients in the study, 50 patients underwent Lichtenstein mesh repair and 50 underwent non mesh repair, after 5-8 days post operative 40% (20 patients) with mesh repair had pain, comparison to 80% (40 patients) who underwent non-mesh repair. 10% (5 patients) with mesh repair compared to 60% (30 patients) with non-mesh repair had persistent pain at 8-14 days from time of operation. These remaining 10% (5 patients) with mesh repair and 60% (30 patients) with non-mesh repair relieved from pain in 15-30 days after operation. 7 Thus result in Sinha SP 3, Malik AM 4 and Al-Obaidi SM 7 et al studies were consistent with present study where chronic persistent operative site pain was found to be significantly less in Lichtenstein Mesh Repair than with Bassini's repair. Thus in Aroori S 5 et al and Shishegar A 6 et al studies chronic operative site pain found to be significantly high in patients who had undergone Lichtenstein mesh repair compared to Bassini's repair which is contrary to present study. The reason to this could be as follows; the mesh is sutured at the internal oblique muscle. Since the nerve passes in between the internal and external oblique muscles, suturing the mesh at the internal oblique for the hernia repair makes the nerve vulnerable to damage. If this occurs, the patient may experience hyperesthesia or hypoesthesia of the innervated area. 8 In Shi Y et al study, the rate of postoperative discomfort and pain within the first three months was present in 25.7% patients in the Bassini group compared to 18.5% patients in tension free repair group. However, there was no significant difference after three months in the rate of postoperative discomfort and pain between the two groups. 9

CONCLUSION

Incidence of post-operative pain at day-7 and day-90 is significantly less with Lichtenstein Mesh Repair, than Bassini's non-mesh Repair so as far the pain perception

is concerned the Lichtenstein Mesh Repair is superior to Bassini's non-mesh Repair.

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