

A comparative study of laparoscopic inguinal hernia repair and open inguinal hernia repair in adults

Poonam Gupta¹, Anil Kumar Keshari², Rajesh Kumar³, Shesh Kumar^{4*}

¹Associate professor, Department of general surgery, Uttar Pradesh University of Medical Sciences, Saifai, Etawah, U.P., India

²Associate professor, Department of general surgery, Autonomous State Medical College, Shahjahanpur, U.P.

³ Associate professor, Department of general surgery, Uttar Pradesh University of Medical Sciences, Saifai, Etawah, U.P

⁴Assistant professor, Department of general surgery, Uttar Pradesh University of Medical Sciences, Saifai, Etawah, U.P, India

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Abstract

Background: Hernia repair is a common surgical procedure, and postoperative recovery is uncomplicated in most patients. The present study was conducted to compare open versus laparoscopic inguinal hernia repair. **Materials & Methods:** 42 patients with inguinal hernia of both genders were randomly divided into 2 groups. Each group had 21 patients. Group I were treated with open procedure and group II with laparoscopic repair. Parameters such as hospital stay, pain (VAS) and complications were compared. **Results:** Group I had 20 males and 1 females and group II had 21 males and no females. The mean operative time was 37.5 minutes in group I and 92.4 minutes in group II, length of hospital stay was 7.2 days in group I and 3.1 days in group II and return to work was 15.2 days in group I and 7.4 days in group II. Common complications were seroma 2 in group I and 1 in group II, urinary retention 4 in group I and hematoma 3 in group I and 1 in group II. The difference was significant ($P < 0.05$). **Conclusion:** Authors found that laparoscopic inguinal hernia repair was associated with less pain, the incidence of seromas, urinary retention and hematomas was less with laparoscopic method as compared to open hernia repair techniques along with earlier return to normal activities and less hospital stay. Hence, laparoscopic repair of inguinal hernia found to be better as compared to open repair.

Keywords: Open repair, Laparoscopic repair, Inguinal hernia

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Introduction

Hernia repair is a common surgical procedure, and postoperative recovery is uncomplicated in most patients[1]. However, some patients continue to experience chronic pain and discomfort for months or even years after hernia repair, a complication that is becoming increasingly recognized as an important cause of morbidity after hernia surgery[2]. Inguinal hernia repair is one of the most common procedure performed all over the world in adults. The lifetime risk of developing an inguinal hernia has been estimated at 27% for men and 3% for women.³ In general, due to easy recognition as a palpable mass in the groin region patients seek for doctor's consultation. Usually, it is not a life-threatening condition that may be successfully treated with the surgical manipulation[4] the emergency operation is necessary in cases of strangulation due to the possible complications such as intestinal necrosis, diffuse peritonitis and septic shock. The "wait and watch" strategy may be applied when it refers to minimally symptomatic or totally asymptomatic patients[5]. The knowledge of the antero-inferior abdominal wall anatomy is essential for proper understanding of inguinal hernia and its repair. The abdominal wall in groin region is composed of peritoneum, transversalis fascia, transverse abdominis muscle, internal and external oblique muscles, subcutaneous tissue and skin.

Among the structures involved in hernias formation the anatomical area known as myopectineal orifice is considered to have a crucial role[6]. Myopectineal orifice (MPO) is a well- defined weak area in the lower anterior abdomen. Awareness and recognition of MPO is of paramount importance during laparoscopic hernia surgery. The entire MPO needs to be covered by a prosthetic mesh to accomplish a recurrence free hernioplasty. Nowadays laparoscopic repair of hernia is getting popular. A laparoscope is used to perform laparoscopic inguinal hernia surgery. The laparoscope (a thin telescope with a light on the end) and surgical equipment are inserted into the abdomen through two to four small incisions in the abdominal wall. With the advent of this laparoscopic hernia repair, which is presently the preferred technique, delineation of MPO has become even more important. Laparoscopic hernia repair provides the advantage of visualization and dissection of the whole MPO.⁷ It has been found that complications are more in the open hernia repair in comparison to laproscopic hernia repair because laproscopic hernia repair is carried out in general anaesthesia while the open hernia repair is usually carried out in spinal anaesthesia. The present study was conducted to compare open versus laparoscopic inguinal hernia repair.

Materials & Methods

The present study was conducted in a period from March 2018 to March 2019, among 42 patients with inguinal hernia of both genders. All were enrolled after obtaining their written consent. The exclusion criteria were patients in whom general anaesthesia could not be administered due to any comorbid illness; patients with recurrent, obstructed or strangulated inguinal hernia; patients with chronic pain

*Correspondence

Dr. Shesh Kumar

Assistant professor, Department of general surgery, Uttar Pradesh University of Medical Sciences, Saifai, Etawah, U.P, India

Email- id: Drsheshkrverma@gmail.com

disease other than hernia; patients taking opioids, tranquillizers, steroids or immunosuppressants, and those patients with psychiatric disorders. The aim of the study was to compare open versus laparoscopic inguinal hernia repair. Patients' information such as name, age, gender etc. was recorded. Patients were randomly divided into 2 groups. Each group had 21 patients. Group I were treated with open procedure and group II with laparoscopic repair. Laparoscopic Results

hernia repair included both TEP and TAPP methods by a standard port technique and open hernioplasty included the tension free lichtenstein's hernioplasty. Parameters such as complication rate, time taken during procedure, postoperative pain, post-operative hospital stay and time to return to work post-surgery in both groups were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Table 1: Distribution of patients

Groups	Group I	Group II
Method	Open method	laparoscopic method
M:F	20:1	21

Table 1 shows that group I had 20 males and 1 females and group II had 21males.

Table 2: Comparison of parameters

Parameters	Group I	Group II	P value	
Operative time (mins)	37.5	92.4	0.02	
Length of hospital stay (Days)	7.2	3.1	0.04	
Return to work (Days)	15.2	7.4	0.01	
VAS	Mild	6	10	0.03
	Moderate	7	7	
	Severe	8	4	
Complication	Seroma	2	1	0.01
	Urinary retention	4	0	
	Hematoma	3	1	

Table 2, Fig 1 shows that mean operative time was 37.5 minutes in group I and 92.4 minutes in group II, length of hospital stay was 7.2 days in group I and 3.1 days in group II and return to work was 15.2 days in group I and 7.4 days in group II. Pain found to be mild in 6 in group I and 10 in group II, moderate in 7 in both groups and severe in 8 in group I and 4 in group II. Common complications were seroma in 2 in group I and 1 in group I, urinary retention 4 in group I and hematoma 3 in group I and 1 in group II. The difference was significant (P< 0.05).

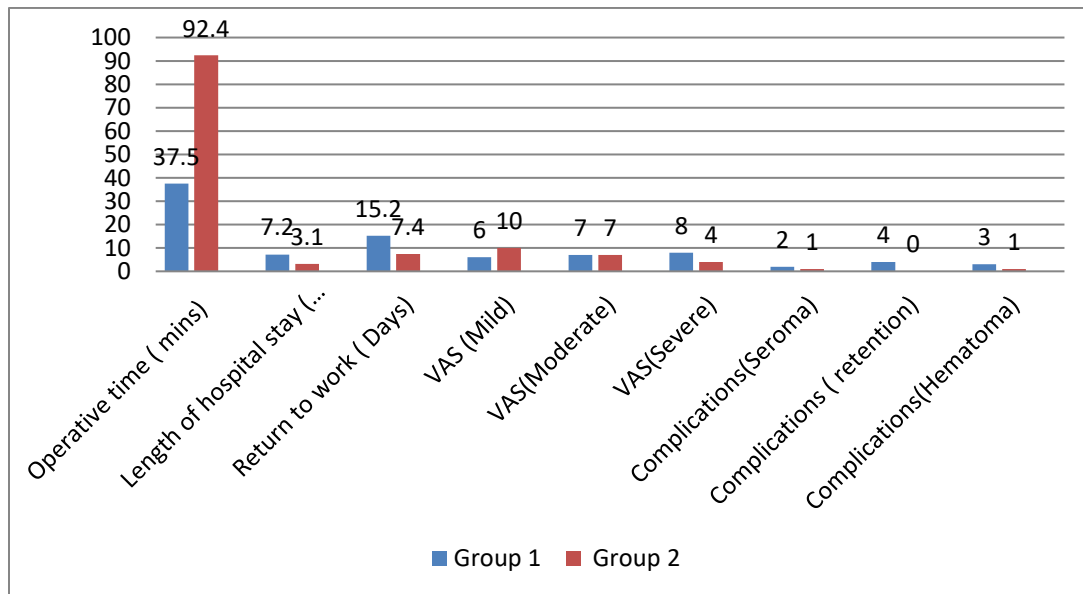


Fig 1: Comparison of parameters

Discussion

The aim of hernia repair is to reduce clinical symptoms, improve quality of life and prevent from adverse complications. Strangulated hernias are indications for an emergency surgery. What is more, all symptomatic hernias should be operated electively[8].European Hernia Society guidelines for hernia treatment accept watchful waiting for men with minimally symptomatic or asymptomatic inguinal hernia. The open techniques are based on either pure tissues approximation or tension free mesh repair. The first effective inguinal hernia repair technique was described in 1887 by Edoardo Bassini[9]. In this method, conjoint ligament and aponeurosis of the

transverse abdominal muscle are sutured by single stitches to theinguinal ligament. The spermatic cord is placed above the reconstructed posterior wall of inguinal canal. Due to the fact, that the Bassini method had high recurrence rate, it was the basis for the creation of Shouldice method[10].The present study was conducted to compare open versus laparoscopic inguinal hernia repair.In present study, group I had 20 males and 1 females and group II had 21males and no females. Eker et al[11]compared laparoscopic vs open ventral incisional hernia repair with regard to postoperative pain and nausea, operative results, perioperative and postoperative complications, hospital admission, and recurrence rate. Two hundred six patients

from 10 hospitals were randomized equally to laparoscopic or open mesh repair. Median blood loss during the operation was significantly less (10 mL vs 50 mL; P-.05) as well as the number of patients receiving a wound drain (3% vs 45%; P.001) in the laparoscopic group. Operative time for the laparoscopic group was longer (100 minutes vs 76 minutes; P-.001). Perioperative complications were significantly higher after laparoscopy (9% vs 2%). Visual analog scale scores for pain and nausea, completed before surgery and 3 days and 1 and 4 weeks postoperatively, showed no significant differences between the 2 groups. At a mean follow-up period of 35 months, a recurrence rate of 14% was reported in the open group and 18%, in the laparoscopic group (P-.30). The size of the defect was found to be an independent predictor for recurrence (P<.001). We found that mean operative time was 78.2 minutes in group I and 92.4 minutes in group II, length of hospital stay was 7.2 days in group I and 3.1 days in group II and return to work was 15.2 days in group I and 7.4 days in group II. Common complications were seroma in 2 in group I and 1 in group I, urinary retention 1 in group I and hematoma 3 in group I and 1 in group II. Sudarshan et al¹² found that out of the 60 patients, 30 patients underwent open inguinal hernia repair and another 30 patients underwent Laparoscopic inguinal hernia repair. The mean age group was 46.73 in open surgery group and 42.10 in laparoscopic group. 23.3% of the patients in open hernioplasty developed seroma, hematoma in the post-operative period whereas 10% had seroma collection in laparoscopic group. No incidence of recurrence in both the groups. No significant difference in pain score between both the groups during immediate post-operative period on POD 0, however there was significant difference in pain score on POD 3 (mean pain in open group 4.13 and lap group 2.87) and POD 7 (mean pain in open group 2.90 and lap group 1.23). Mean duration of stay in hospital for open hernioplasty was 7.8 days and for Laparoscopic hernioplasty was 3.07 days. Mean duration of return to work in open hernioplasty was 14.37 days and in laparoscopy group was 9.13 days. Dey et al¹³ compared the incidence and severity of chronic groin pain in patients undergoing totally extraperitoneal (TEP) repair and open tension-free hernioplasty for inguinal hernia. Group I (n=50) included patients undergoing endoscopic TEP repair and Group II (n=50) included patients undergoing open meshplasty. In each group, patients were reviewed for chronic groin pain at 3 months postoperatively and secondary factors including seroma, haematoma formation and return to normal activities. Results: In the open hernia repair group, 13 patients (26%) had chronic groin pain that persisted for more than 3 months. While in the TEP repair group, 5 patients (10%) suffered from chronic groin pain after 3 months, which was statistically different (p=0.03).

Conclusion

Authors found that laparoscopic inguinal hernia repair was associated with less pain, the incidence of seromas, urinary retention and hematomas was less with laparoscopic method as compared to open

hernia repair techniques along with earlier return to normal activities and less hospital stay. Hence, laparoscopic repair of inguinal hernia found to be better as compared to open repair.

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