

Outcome of Different Types of Laparoscopic Hernioplasty: A Study in a Tertiary Care Hospital with Some Private Clinics

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Abstract

Original Research Article

Introduction: Though laparoscopic surgery become popular by laparoscopic cholecystectomy, Laparoscopy hernioplasty also has achieved a well-known popularity throughout the world. Some centre of the world, laparoscopic hernioplasty is considered as gold standard. **Material & Methods:** This was a prospective study conducted from January, 2016 to October, 2019 in the department of surgery, Rajshahi Medical College Hospital, (RMCH), Rajshahi, Bangladesh including several nearest private hospitals. Total number of cases was 107 in number. In total 65 inguinal hernioplasty were performed by TAPP technique except one which is carried out by TEP technique. Polypropylene mesh is used in all groin hernias. Remaining 42 is ventral hernia. (25 incisional hernia, 7 paraumbilical hernia, 5 umbilical hernia, 3 laparoscopic port hernia, 2 epigastric hernia) IPOM (intraperitoneal onlay mesh) repair was considered for ventral hernia. Simple Polypropylene mesh or other composite mesh is used. Regarding anchoring of mesh, suture or tacker fixation is carried out. **Results:** Age distribution of the series was 28 to 70 years. All groin hernia was in male & ventral hernia was in female. Out of 65 Inguinal hernias 2 developed mesh infection for which mesh was removed. One (01) develop chronic discharging sinus managed by Anti TB drugs & one patient developed chronic pain under Follow up. Out of 42 Ventral (incisional, umbilical, paraumbilical, port hernia & epigastric hernia) 2 patient developed seroma improve by conservative management. One patient developed recurrence within 3 months due to technical error. **Conclusion:** Laparoscopic hernia repair by mesh is safe, achievable for all kind of abdominal hernia. So it may be considered gold standard technique.

Key words: Laparoscopic, Hernioplasty, Paraumbilical, Epigastric Harnia.

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INTRODUCTION

It was a prospective study, conducted during the period from January, 2016 to October, 2019 at Surgery unit-1 of surgery department in Rajshahi Medical College Hospital, (RMCH), Rajshahi, Bangladesh including several nearest private hospitals. The main objective of the study was to assess the outcome of different types of laparoscopic hernioplasty. Hernia is the abnormal exit of an organ or fatty tissue, such as the bowel, through the wall of the cavity in which it normally resides [1]. Repair of inguinal hernia is one of the common surgical procedures done worldwide. Irrespective of country, race or socioeconomic status hernia constitutes a major health-care drain. The definitive treatment of all

hernias, regardless of their origin or type, is surgical repair with approximately 20 million repairs done worldwide annually [2]. The lack of consensus in the literature as to the optimum repair technique or prosthetic mesh to insure a long term durable result is also surprising [3, 4]. The wide use of mesh in the groin hernia repair [5] has gained more popularity and has almost replaced the suture repairs such as shouldice or maloney repair [6, 7]. There is, however, a very large debate on relative merits of laparoscopic mesh placement by using two to three small abdominal incisions compared with placement of mesh by using an open approach through a standard groin incision. Studies mentioned that laparoscopic hernia repair has got added benefits of lesser pain, reduced discomfort, short hospital stay and early resumption of normal daily

activities but still it is not being commonly performed due to need for general anaesthesia and long learning curve. In this context, the purpose of this study is to compare the most commonly practiced methods namely Lichtenstein's hernioplasty and laparoscopic hernia repair in the hospital. Our study was performed with objectives to compare the effectiveness of laparoscopic hernia repair and Lichtenstein's hernioplasty, to assess the intra operative and post-operative complications, surgical requirements, skills, to know for any special pre-operative/ intraoperative requirements for surgery and to determine the long-term results of the procedure. It was a multi centered study because there some clinics were associated with this study with a medical college hospital of Bangladesh.

OBJECTIVES

General Objective

To assess the outcome of different types of laparoscopic hernioplasty

Specific Objective

To know more about the effectiveness of laparoscopic hernioplasty in the treatment of hernia

METHODS & MATERIALS

It was a prospective study and was conducted from January, 2016 to October, 2019 at Surgery unit-1 of surgery department in RMCH, Rajshahi, Bangladesh *Bangladesh* including several nearest private hospitals. Total number of cases is 107. In total 65 inguinal hernioplasty were performed by TAPP technique except one which is carried out by TEP technique. Polypropylene mesh is used in all groin hernias. Remaining 42 is ventral hernia. (25 incisional hernia, 7 paraumbilical hernia, 5 umbilical hernia, 3 laparoscopic port hernia, 2 epigastric hernia) IPOM (intraperitoneal onlay mesh) repair is considered for ventral hernia. Simple Polypropylene mesh or other composite mesh is used. Regarding anchoring of mesh, suture or tacker fixation is carried out. Written consent was taken from all the cases. Clearance from ethical committee of the hospital was taken for laparoscopic hernia repairs. According to our inclusion criteria all patients of both sexes, who were 28-70 years' of age either bilateral or unilateral and were medically fit to undergo the procedure were included in the study. According to exclusion criteria patients with age less than 28 years of age, contraindication to general anaesthesia (for laparoscopic repair)/regional anaesthesia (for open repair), patients with complicated inguinal hernia like obstruction, strangulation or gangrene and patients who have undergone previous lower abdominal surgeries were excluded. Data were collected using a pre designed questionnaire. Preoperative evaluation of

patient for laparoscopic repair includes: cardiac evaluation such as 2D ECHO if required. Pulmonary function test (PFT) for assessment of pulmonary function in some patients, and ultrasonography to rule out prostate enlargement. If the patient was not fit for general anaesthesia, laparoscopic repair was not included. Operative steps and per operative complications were noted in detail and tabulated. Post-operative assessment with respect to post-operative pain, hospital stay, and other complications were included as per protocol. Patients were followed up for a period of minimum six months after surgery. That was one week after surgery, once in a month for 3 months, and once in three months thereafter. Qualitative data were expressed as percentages and proportions. Quantitative data were expressed as mean and standard deviation. All the statistical tests were performed in SPSS version 15 software.

RESULT

The main objective of the study was to assess the outcome of different types of laparoscopic hernioplasty. It was a prospective study and the total participants were 107 in number. Among the total participants 99 (92.52%) were male and 8 (7.48%) were female. It has been displayed in Figure I. According to these data males are the dominating the number here. Among total 107 cases 65 (60.75%) were inguinal hernia and the rest 42 (39.25%) were ventral hernia. The ratio of those types of patients showed in Figure II. There the number of inguinal hernia is greater. Noted that, all, 8 female were the patients with ventral hernia and the male were with groin hernia. Among total patients 41 (38.32%), 29 (27.10%), 26 (24.30%), 11 (10.28%) were from 28-40, 41-50, 51-60 and 61-70 years' age groups respectively. The age distribution has been displayed in Figure III. According to this Figure possibility of getting and suffering from hernia is higher in the 28-40 age group members which is similar to other some international studies In total 65 inguinal hernioplasty were performed by TAPP technique except one (01) which is carried out by TEP technique. On the other hand, IPOM (intraperitoneal onlay mesh) repair procedure was considered for ventral hernia. In this procedure the total patients were 42 in number. Among 42 patients with ventral hernia 25 (59.52%), 7 (16.67%), 5 (11.90%), 3 (7.14%), and 2 (4.76%) were with incisional hernia, paraumbilical hernia, umbilical hernia, laparoscopic port hernia and epigastric hernia respectively. So the possibility of incisional hernia is very alarming here. Out of 65 Inguinal hernias 2 developed mesh infection for which mesh was removed. In this study only one patient had developed recurrence within 3 months due to technical error. We followed up the treatment of that patient during additional 3 months.

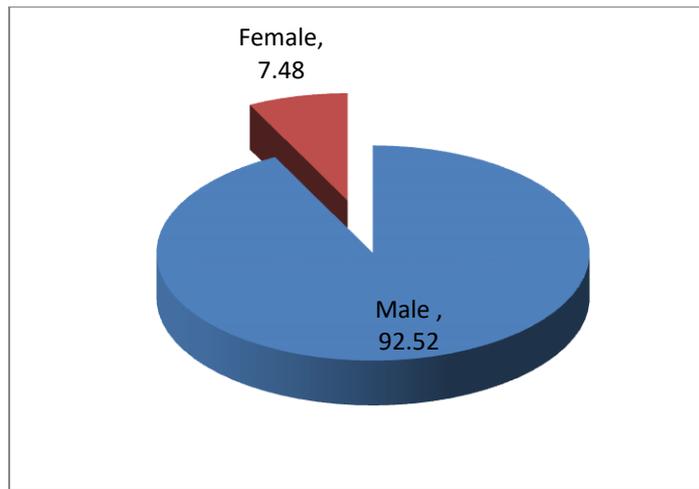


Fig-I: Male-female ratio in percentages of respondents (n=107)

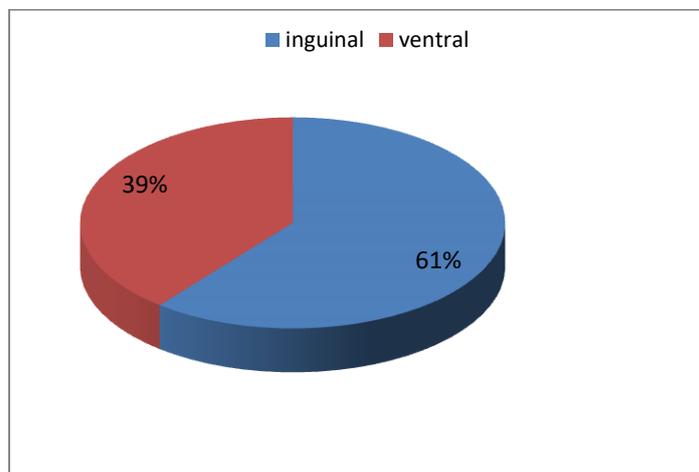


Fig-II: Ratio of inguinal and ventral hernia (n=107)

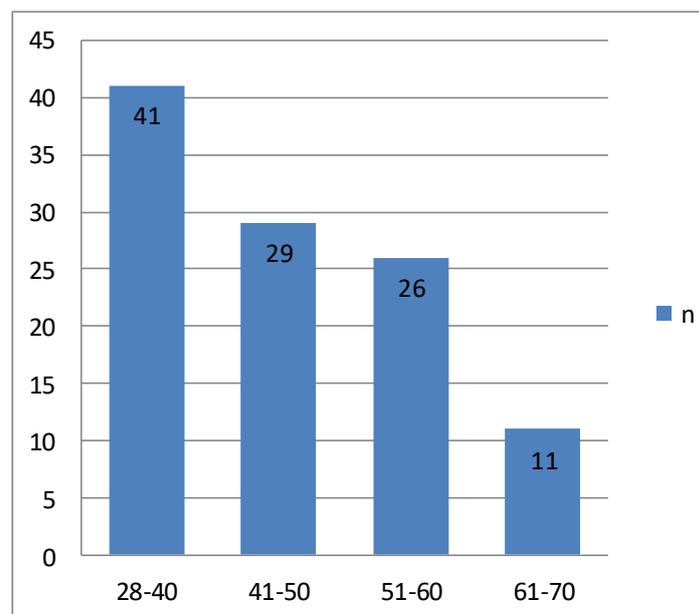


Fig-III: Age distribution in number of respondents (n=107)
Age range: 20-70 years

Table-I: Treatment procedure of respondents (n=107)

Type	Total	Treatment Procedure	
Inguinal	65	64	TAPP
		1	TEP
Ventral	42	42	IPOM

Table-II: Types of ventral hernia (n=42)

Type of ventral hernia	n	%
Incisional hernia	25	59.52
Paraumbilical hernia	7	16.67
Umbilical hernia	5	11.90
laparoscopic port	3	7.14
Epigastric hernia	2	4.76
Total	42	100.00

DISCUSSION

It was a prospective study and was conducted from January, 2016 to October, 2019 at Surgery unit-1 of surgery department in RMCH, Rajshahi, Bangladesh and some nearest private hospitals. Total number of cases was 107 in number. Successful hernia treatment should offer high patient satisfaction, low cost, low recurrence rate, and rapid return to work [8]. Laparoscopic and open hernia repairs fulfill this criterion [9]. However, the question about the most appropriate technique still confuses the community of surgeons. Several studies have compared the laparoscopic and open techniques for inguinal hernia repair. The advantages of laparoscopic hernia repair over traditional open repair in terms of limited post-operative pain, shorter hospitalisation, early resumption of activity and improved cosmetic have been readily apparent and accepted. Despite excellent long-term outcome after TAPP repair, the use of laparoscopy in hernia repair is still limited [10]. In our study in total 65 inguinal hernioplasty were performed by TAPP technique except one which is carried out by TEP technique. Polypropylene mesh is used in all groin hernias. Remaining 42 is ventral hernia. (25 incisional hernia, 7 paraumbilical hernia, 5 umbilical hernia, 3 laparoscopic port hernia, 2 epigastric hernia) IPOM (intraperitoneal onlay mesh) repair was considered for ventral hernia. Simple Polypropylene mesh or other composite mesh is used. Regarding anchoring of mesh, suture or tacker fixation is carried out. In this study the mean operative time was 95.60 minutes for laparoscopic hernia repair. On the other hand, for open lichtenstein's hernia repair it 45-50 minutes, which was extremely significant. The overall mean operative time was significantly more in laparoscopic hernia repair than open repair. But success rate and post-operative care duration is less in laparoscopic hernia repair. This technical issue is less important to the patient than a successful operation; the time taken to perform the surgery can have cost implications [11]. National Institute for clinical excellence stated that the laparoscopic surgery was associated with a statistically significant increase in operation time compared with open methods of hernia repair [12]. Meta-analysis of 16

randomized control trials of Tran's abdominal pre-peritoneal repair demonstrated on overall increase of 13.33 minutes compared with open repair. Meta-analysis of eight randomized control trial of totally extra peritoneal (TEP) repair demonstrated an overall increase of 7.89 minutes compared with open repair. Open repair procedure is the main alternative procedure of laparoscopic hernioplasty. So that is the main considerable for alternative thinking for the treatment of hernia. The operative time to perform unilateral primary inguinal repair has frequently been reported as longer for laparoscopic compared to open repair, however the mean difference in 36 of 37 randomized trials is 14.81 minutes. The average time taken for TAPP/TEP (65.7 min) was significantly longer than that for the Lichtenstein repair (55.5 min) in a meta-analysis published by Schmidt et al involving 34 trials [13]. Post-operative pain scores were obtained using Visual Analogue Scale (VAS)[14]. In this study post-operative pain is significantly less in compare other treatment procedure. Another considerable major thing is pain in this procedure. Another meta-analysis study from the EU Hernia Trialists Collaboration reported decreased post-operative pain with the employment of laparoscopic methods [15]. Therefore, there is ample evidence that laparoscopic hernia repair produces less postoperative pain and is associated with similar or less risk of persisting pain than open mesh repair. The overall incidence of morbidity after laparoscopic groin hernia repair has been quite variable. It is quite possible that complications do occur in any surgical procedure as in the case with laparoscopic hernioplasty, but it is possible to reduce their incidence. Serious complications specific to the laparoscopic technique, although reduced in parallel with training and experience, seen especially in the early stages of hernia surgery and mostly associated with TAPP, have been reported. Complication rates vary from 3% to 25% [16, 17]. Incidences of complications after laparoscopic inguinal hernia repair are higher compared with open repair. In MRC hernia trial group, all serious complications occurred in the laparoscopic group [18]. In our study among 42 patients with ventral hernia 25 (59.52%), 7 (16.67%), 5 (11.90%), 3 (7.14%), and 2 (4.76%) were with incisional hernia, paraumbilical

hernia, umbilical hernia, laparoscopic port hernia and epigastric hernia respectively. So we should engage more concentration in the treatment of incisional hernia. On the other hand, among the total 107 respondents 65 (60.75%) were with inguinal hernia which number was most alarming. So we should apply more concentration on inguinal hernia also.

Limitations of the study

This was a clinical study in a selective small area with a small sample size. So, the study results may not reflect the scenarios of the whole community.

CONCLUSION AND RECOMMENDATIONS

Laparoscopic hernia repair by mesh is safe, achievable for all kind of abdominal hernia. So it may be considered gold standard technique. Considering safety, efficacy, compliance, and treatment costing laparoscopic hernia repair procedure may acquire more popularity from the patient front. So we would like to recommend for more study on this treatment procedure in several places in several times.

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