ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 02 | February - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY ON LAPAROSCOPIC VERSUS OPEN VENTRAL HERNIA REPAIR IN A TERTIARY CARE CENTRE IN MADHYA PRADESH

General Surgery

Dr Chirag Hirani* Post Graduate Student, MS(General Surgery), Department of Surgery, G.R. Medical College & JAH, Gwalior (M.P.). *Corresponding Author

Dr Madan Mohan Mudgal MS(General Surgery), Associate Professor, Department of Surgery, G.R. Medical College & JAH, Gwalior (M.P.).

Dr Ashish Kumar Gupta MS(General Surgery), Associate Professor, Department of Surgery, G.R. Medical College & JAH, Gwalior (M.P.).

ABSTRACT

Ventral hernia is the second most common hernia presenting in the surgical world. Patient usually presents with a complain of abdominal lump. Various surgical techniques are available for ventral hernia repair but which is superior is still unclear. This study was conducted to compare open and laparoscopic techniques of ventral hernia repair in a tertiary care centre. Various factors including intraoperative duration, postoperative complications and postoperative recovery and hospital stay were studied.

KEYWORDS

INTRODUCTION

Hernia is defined as a protrusion of whole or a part of viscus through the wall that contains it. The various types of hernia seen are inguinal, femoral, ventral etc. [1]

Ventral hernias occur as a result of weakness in the musculofascial layer of the anterior abdominal wall. It's the second most common hernia presenting in the surgical world. The patient can come with complaints of lump, pain over the lump, constipation, frequency of micturition, or symptoms of obstruction.[1]

While a lot has occurred in the world of herniology in last century, a number of new techniques are being developed for ventral hernia repair each much more sophisticated than the predecessor and targeted to serve more advantages and lesser disadvantages in the due course. But which technique is superior is still unclear. The operative techniques are broadly classified into Open and Laparoscopic techniques in which open techniques include procedures like High ligation, Bassini's, Halstead, Shouldice, Lichenstein etc. Laparoscopic procedures available are Totally extraperitoneal (TEP) repair, Extended view totally extraperitoneal (eTEP) repair, Transabdominal preperitoneal (TAPP), intra-peritoneal onlay mesh (IPOM), and reduction of the sac with or without closure of the ring. [2]

The major advantage seen with endoscopic extraperitoneal approach is that it does not involve entry in the abdominal cavity, hence allaying the risk of intestinal and vascular injuries as well as herniation at the trocar sites. This approach may even allow hernia repair under local anaesthesia with intravenous sedation or under regional anaesthesia and provides a great view of the local structures. [3]

Even though classical TEP technique is the laparoscopic technique considered closest to ideal for hernia repair, it has several drawbacks such as restricted port placement, a low tolerance of accidental pneumoperitoneum, limited space for dissection and mesh placement, difficulty in teaching and learning the technique. Some of these drawbacks are overcome by eTEP. The presumption that extraperitoneal/preperitoneal space can be reached from almost anywhere in the anterior abdominal wall is the basis for eTEP. It is also very easy to operate. [4]

Outcomes of different technique can be assessed in form of various complications (infections, seroma, hematoma and recurrence), intraoperative duration, post-operative recovery and duration of hospital stay etc.

AIMS AND OBJECTIVES

Comparison of the following factors between laparoscopic and open techniques of ventral hernia repair:-

- Intraoperative duration
- Post operative recovery & hospital stay
- Complication:- Hematoma, Seroma, Infection, Recurrence

MATERIAL AND METHODS

This study was conducted on 50 consecutive patients admitted in Department of General Surgery J.A. group of hospital and G.R.Medical College, Gwalior during the period of January 2019 – March 2020. Out of 50 patients, 42 underwent ventral hernia repair by open technique and 8 by laparoscopic(eTEP) technique.

Study Design: Prospective observational study

Inclusion Criteria

- Patients of ventral hernia with age ≥12 years and ≤ 70 years
- Informed consent duly signed by the patient and their guardians

Exclusion Criteria

- Patients having age ≤12 years and ≥70 years.
- Debilitated elderly patients with severe COPD& major cardiac disease.

Operative Technique

All the patients of Ventral Hernia admitted in our hospital were prior explained about all the procedures available and their benefits and complications and also about treatment available in our hospital. Patients were operated with different technique with mutual decision of patient and surgeon.

All open hernia repair were carried out using onlay mesh hernioplasty and all laparoscopic repair were carried out using eTEP.

Statistical Analysis

The data of both the groups in terms of age, sex, types of hernia, duration of operation, duration of hospital stay, complications were compared and analysed with help of microsoft excel. The p-value was determined by unpaired "t" test. The p-value < 0.05 was considered as significant.

RESULTS

Following observations were made-

Table 1: Baseline Characteristics

Type of hernia	Incisional	24/50 (48%)
	Umblical	10/50 (20%)
	Epigastric	09/50 (18%)
	Paraumblical	07/50 (14%)
Mean Age	46.98 years	
Gender Male Female	 24/50 (48%) 26/50 (52%)	
Predisposing Factor Obesity Chronic Smoker Previous Surgery	 14/50 (28%) 17/50 (34%) 19/50 (38%)	

Table 2: Type Of Surgery For Ventral Hernia Repair

Surgery	No. of cases	%
OPEN	42	84
LAPROSCOPIC	08	16
Total	**50**	**100**

Table 3: Duration Of Surgery

TYPE OF SURGERY	DURATION (mins)	p value
OPEN	101.01	0.0005
LAPAROSCOPIC	121.28	

Table 4: Post-operative Complications

	OPEN	LAPROSCOPIC	p value
SEROMA	16/42 (38.09%)	2/8 (25%)	0.48
HEMATOMA	06/42 (14.28%)	00	0.25
WOUND INFECTION	07/42 (16.66%)	00	0.21
RECURRENCE AT 6 MONTH	05/42 (11.9%)	00	0.30

Table 5: Defect Size(cm^2) In Patients Of Ventral Hernia

TYPE OF SURGERY	Defect size (cm^2)	P value
OPEN	31.03	0.0001
LAPAROSCOPIC	16.98	

Table 6: Time To Ambulate After Surgery (mean)

TYPE OF SURGERY	Time (hours)	P value
OPEN	14.57	< 0.0001
LAPAROSCOPIC	7.78	

Table 7: Duration Of Post-operative Stay

TYPE OF SURGERY	Time (days)	P value
OPEN	5.71	< 0.0001
LAPAROSCOPIC	2	

DISCUSSION

In our study, Incidence of incisional hernia, umbilical hernia, epigastric hernia, paraumbilical hernia, supraumblical and infraumblical hernia was 48%,20%, 18%, 6%, 4% and 4 % respectively. So incisional hernia were the most common ventral hernia. Similarly, in the studies by Mehta[5] et al and Bharath [6] et al incisional hernia was the most common ventral hernia.

In our study, Male and Female ratio was 1:1.3, ventral hernia were more common in females(58%). Our findings were similar to studies by Jaykar[7] et al and Rulaniya[8] et al, both showed female predominance.

Among the predisposing factors, 38% had history of previous surgery, 34% were chronic smokers and 28% were obese.

Among 50 patients, 42 underwent open repair and 8 underwent laparoscopic repair.

Mean duration of surgery in our study in open procedure was 101.01mins and in laparoscopic procedure was 121.28 mins. The difference was statistically significant. So, laparoscopic procedure took longer time in our study. In a study by Asenico[9] et al, mean duration of surgery in open and laparoscopic repair was 70 mins and 101.88 mins respectively. Similarly, in study by Barbos[10]et al, laparoscopic procedure took more time. So, our study was comparable to other studies that patients operated with laparoscopic procedures have lesser hospital stay.

In our study, rate of post-operative complications such as seroma, hematoma, wound infection and recurrence at 1 year in open repair was 38.09%, 14.28%, 16.66% and 11.9% respectively. In laparoscopic repair rate of seroma formation was 25% and other complications such as hematoma, wound infection and recurrence were not noted. However, the difference was not statistically significant (p value >0.05). In studies by Rulaniya[8] and Barbos[10] et al, higher rate of postoperative complications was seen in open repair technique and the difference was statistically significant. Our study did not show any significant difference, this could be because of lesser number of patients who underwent laparoscopic repair.

In out study mean time to ambulate by patients with open repair was 14.57 hours and patients with laparoscopic repair was 7.78 hours.

In our study, mean post operative duration of stay in patients with open repair was 4.92 days and 2 days in patients who underwent laparoscopic repair. In a study by Carbajo[11] et al, mean duration of post-operative stay in patients with open repair was 9.06 days and in patients with laparoscopic repair was 2.23 days. So our study was comparable to this study, patients with open repair have longer duration of post-operative stay.

CONCLUSION

Ventral Hernia is a common surgical problem. It has low mortality but high morbidity. A debate as to which is the most ideal procedure for ventral hernia repair has been going over now and this has led to discovering a myriad of different procedures in each category of open and laparoscopic techniques arsenal. Not only the procedures but also a variety of prosthetic materials with variety of pore sizes and mesh sizes have been discovered. And the quest still goes on.

In our study, time taken during laparoscopic procedure is more than open procedure. Also, laparoscopic procedures have a steep learning curve and need much more experience. However, the operative field achieved and rates of postoperative complications such as seroma, hematoma, pain and recurrence are much less with laparoscopic procedures as well as patients operated with laparoscopic procedures can be mobilized and discharged earlier compare to open procedures. Recurrence rate is also less with laparoscopic procedures. To conclude that laparoscopic techniques are much efficient, effective and safe won't be wrong as these show lesser blood loss as well as less need of wound drains. The need of experience, sophistication and costly instrumentation are some of the disadvantages of laparoscopic procedures face apart from the fact that these are new techniques and a long term follow up is highly necessary to make a certain comparison to an age old open procedures.

REFERENCES

1. Das, S. (2000). Examination of a case of hernia. A Manual On Clinical Surgery. Chapter 38.
2. Fischer's Mastery of Surgery,Ventral abdominal hernia, Guy Voeller, Chapter 178 and Laparoscopic Ventral Hernia Reapir, Bruce Ramshaw, Chapter 179, 7th edition.
3. Belyansky, I., Daes, J., Radu, V. G., Balasubramanian, R., Zahiri, H. R., Weltz, A. S., ... & Novitsky, Y. (2018). A novel approach using the enhanced-view totally extraperitoneal (eTEP) technique for laparoscopic retromuscular hernia repair. Surgical endoscopy, 32(3), 1525-1532.
4. Baig, S. J., & Priya, P. (2019). Extended totally extraperitoneal repair (eTEP) for ventral hernias: Short-term results from a single centre. Journal of minimal access surgery, 15(3), 198.
5. Mehta KD, Prajapati SM. A Study on Laparoscopic Versus Open Ventral Hernia Repair. International Journal of Research and Review. 2020;7(1):502-5.
6. Bharath, P. V., & Reddy, B. K. (2018). A clinical study on ventral hernia at a tertiary care hospital. International Surgery Journal, 5(2), 714-718.
7. Jaykar, R. D., Varudkar, A. S., & Akamanchi, A. K. (2017). A clinical study of ventral hernia. International Surgery Journal, 4(7), 2326-2329.
8. Rulaniya SK, Chandra S. A randomized analysis between laparoscopic and open ventral hernia repair. International Journal of Scientific Research. 2019 Aug 20;7(8).
9. Asencio, F., Aguiló, J., Peiró, S., Carbó, J., Ferri, R., Caro, F., & Ahmad, M. (2009). Open randomized clinical trial of laparoscopic versus open incisional hernia repair. Surgical endoscopy, 23(7), 1441-1448.
10. Barbaros, U., Asoglu, O., Seven, R., Erbil, Y., Dinccag, A., Deveci, U., ... & Mercan, S. (2007). The comparison of laparoscopic and open ventral hernia repairs: a prospective randomized study. Hernia, 11(1), 51-56.
11. Carbajo, M. A., Del Olmo, J. M., Blanco, J. I., De la Cuesta, C., Toledano, M., Martin, F., ... & Inglada, L. (1999). Laparoscopic treatment vs open surgery in the solution of major incisional and abdominal wall hernias with mesh. Surgical endoscopy, 13(3), 250-252.