

Comparison of Open vs Laparoscopic Repair of Uncomplicated Ventral Hernia

Sandeep Patil*, Pramod**

*Assistant Professor, Dept. of General Surgery, JNMC, Belgaum. **Assistant Professor, Dept. of General Surgery, Gulberga Institute of Medical Sciences, Kalburgi.

Abstract

Introduction: Hernia may be either symptomatic or asymptomatic, and commonly cause pain or are aesthetically distressing. These problems, coupled with the risk of obstruction & incarceration, are the most common reasons for patients seeking surgical repair of hernias. Advances made in the basic and clinical sciences have allowed for the better understanding of pathophysiology of hernia formation. It is known that based on Pascal's principle of the hydrostatic forces and the law of LaPlace that a hernia will continue to enlarge over the time if not treated.

Methodology: Patients with age between 18 years and 60 years were included in the study. Patients with severe comorbid conditions (severe cardiopulmonary disease, uncontrolled ascites), with pre-existing skin infection at surgical site, with multiple post-op scars, and patients undergoing emergency surgery were excluded from the study.

Results: There were no post-operative deaths, no major cardiovascular, pulmonary complications. 3 patients in the laparoscopic group developed seroma compared to 9 patients among open repair group. 14 patients developed surgical site infection, 2 patients at laparoscopic port site and 12 who underwent open mesh repair. 17 patients had chronic pain at the operated site at the end of 2 months follow-up.

Conclusion: Open hernia repair which are riddled with higher incidence of complications is reiterated once again in our study too. Thus management of ventral hernia with open method can be narrowed down to only cases which are complicated with multiple adhesions or irreducible incarcerated, strangulated hernia.

Keywords: Ventral Hernia; Open Repair; Laparoscopic Repair.

Introduction

Hernia is a word derived from a Greek word *heron*, meaning a branch or protrusion. A hernia is a protrusion of a viscus or part of a viscus through an abnormal opening in the walls of its containing cavity [1].

Abdominal wall hernias are familiar surgical problem. Millions of patients are affected each year presenting with most commonly with primary ventral, incisional, and inguinal hernias. Hernia may be either symptomatic or asymptomatic, and commonly cause pain or are aesthetically distressing. These problems, coupled with the risk of obstruction & incarceration, are the most common reasons for patients seeking surgical repair of hernias [2].

Advances made in the basic and clinical sciences have allowed for the better understanding of pathophysiology of hernia formation. It is known that based on Pascal's principle of the hydrostatic forces and the law of LaPlace that a hernia will continue to enlarge over the time if not treated. Increased intra-abdominal pressure will exert its greatest pressure on the portion of the wall that is thinnest, the wall thins at this point, and the

Corresponding Author: Sandeep Patil, Assistant Professor, Department of General Surgery, Jawaharlal Nehru Medical College (JNMC), Belgaum - 590010, Karnataka.
E-mail: patilsandy11@gmail.com

Received on 06.01.2017, Accepted on 10.01.2017

diameter increases. This positive feedback loop virtually results in continued progression of hernia [3].

Furthermore review of natural history of hernias suggests that the incisional hernias do not develop in the immediate postoperative period. Depending on the surgical procedure & techniques used at the time of initial repair, recurrence rates as high as 50% have been documented for both ventral and incisional hernias. It has also been shown that the recurrences typically occur more rapidly than the initial hernia developed [4].

With no substantial co-morbid conditions, the presence of ventral hernia is an indication for the repair. Elective repair are undertaken to alleviate symptoms and to prevent hernia incarceration. Although the actual percentage is not known, it is estimated that of about 10% of all ventral hernias can result in complications like incarceration.

As the result of surgical innovation, the field of hernia has improved and evolved and has been benefited significantly from technologic improvements. The tension-free repair of hernia is one of the key concepts in revolutionizing the hernia surgery. The use of prosthetic mesh to repair the fascial defect has decreased in the recurrence rates of ventral and incisional hernias. Recently, the laparoscopic approaches for hernia have increased the options and approaches for repairing the defect [5].

To achieve outcomes in comparison with the open repair, laparoscopic repair of hernia demands for significant expertise. Placement of mesh in a sublay position has found to be effective and to have a low recurrences in ventral and incisional hernias, although randomized trials are limited.

Methodology

Patients with age between 18 years and 60 years were included in the study. Patients with severe comorbid conditions (severe cardiopulmonary disease, uncontrolled ascites), with pre-existing skin infection at surgical site, with multiple post-op scars, and patients undergoing emergency surgery were excluded from the study.

The cases are studied as per proforma attached and master chart is made for the cases studied to make the report brief. All cases were clinically diagnosed and all patients included in the study underwent surgery following preoperative investigation in the form of Hb%, BT, CT, FBS, PPBS,

Blood urea, serum creatinine, urine for albumin, sugar and microscopy, ECG, chest X-ray. No other special investigations were required for any of the patients except patients who underwent ultrasound examination of the abdomen for ascites.

All patients underwent surgical procedure after following preoperative preparation.

- Informed written consent was obtained after explaining the surgical procedure and its results.
- Nil by mouth after 10:00 pm on the previous night of surgery.
- IM Injection tetanus toxoid 0.5ml
- Injection xylocaine test dose.
- Preparation of the parts by shaving

All patients received one dose of preoperative antibiotic, 1gm of 3rd generation cephalosporins during immediately after induction of anesthesia. Patients were operated either under spinal anesthesia or general anesthesia. On operative table betadine scrub given to anterior abdominal wall.

Patients underwent polypropylene mesh repair either Inlay repair or Onlay repair by open method. Laparoscopically mesh (dual layer mesh) was placed intra-peritoneal after reduction of hernia.

Both the group patients were followed up for

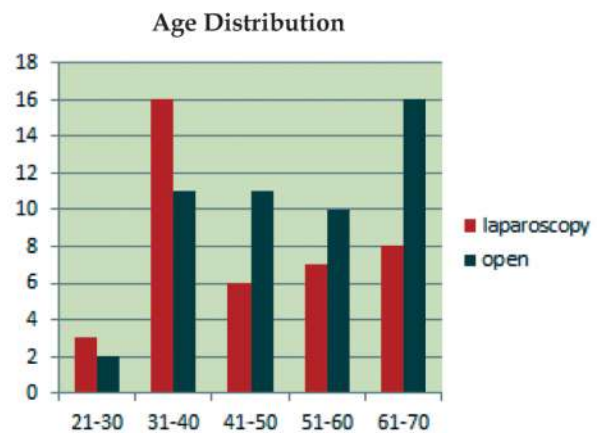


Chart 1: Age distribution

2 months. SF-8 scoring card was filled by the patient during follow-up at 1st month and 2nd month.

Results

This figure shows that majority of the patients are in the age group of 30-50 years accounting to

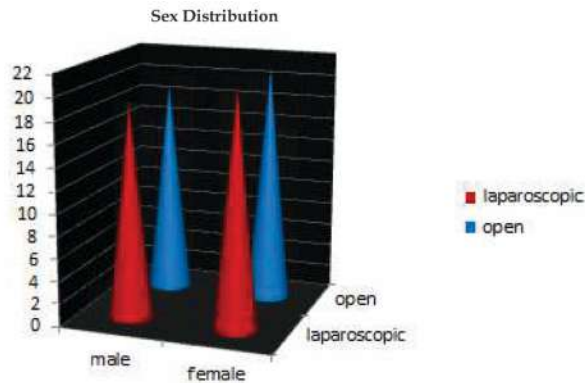


Chart 2: Sex distribution

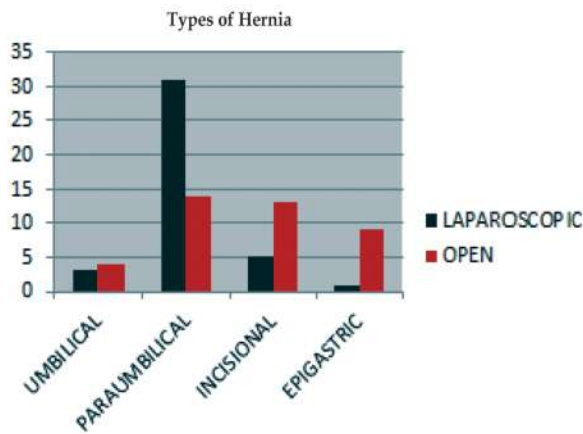


Chart 3: Types of Hernia

55% of total cases. Youngest patient in the study was 20 years old and eldest patient was 70 year old.

36 male patients were included in our study corresponding to 45% of cases and 44 female patients

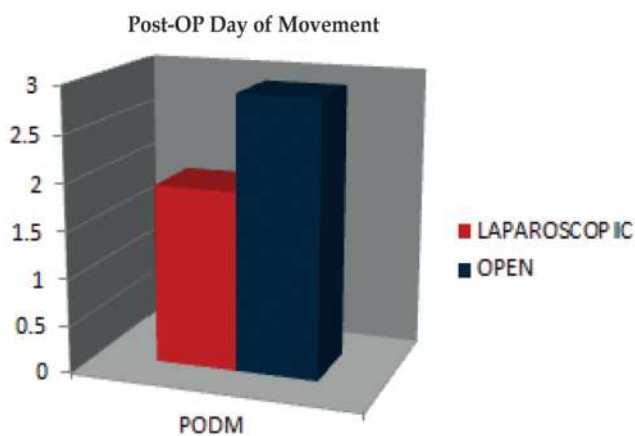


Chart 4: Post Op day Movement

participated in the study accounting to 55%.

Among the patients in the study, 45 (56.25%) patients had paraumbilical hernia, 18(22.5%) had

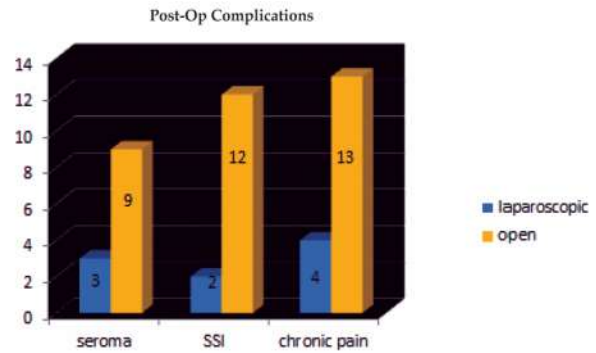


Chart 5: Post op complications

incisional hernia, 10(12.5%) had epigastric hernia and 7(8.75%) patients had umbilical hernia.

Mean post-operative day of movement in laparoscopic group was 1.9 days and in open repair group was 2.9 days.

There were no post-operative deaths, no major cardiovascular, pulmonary complications. 3 patients in the laparoscopic group developed seroma

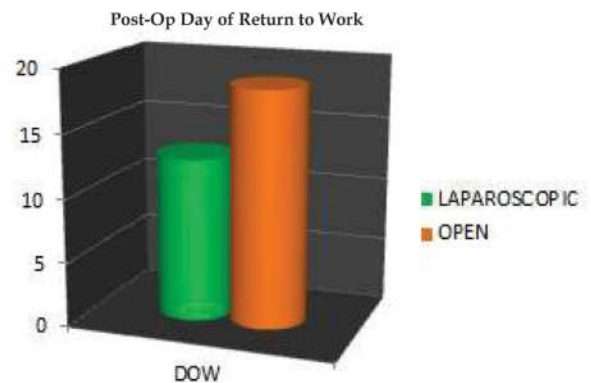


Chart 6: Return to work

compared to 9 patients among open repair group. 14 patients developed surgical site infection, 2 patients at laparoscopic port site and 12 who underwent open

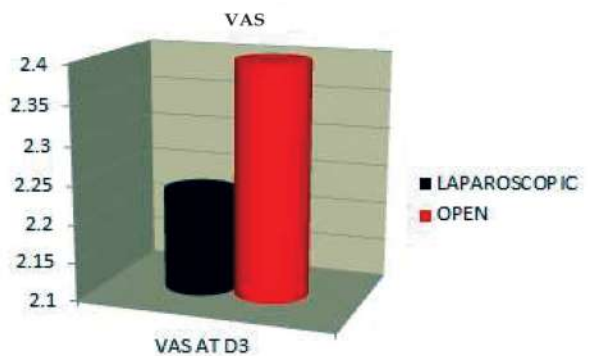


Chart 7: VAS

mesh repair. 17 patients had chronic pain at the operated site at the end of 2 months follow-up.

Post-operatively patients of laparoscopic group

returned back to the work early (mean 12.8 days) compared to open group (mean 18.5 days).

Pain measured using visual analogue score on 3rd post-operative day showed decreased pain score in laparoscopic group (mean 2.23) compared to open group (mean 6.23).

Discussion

The majority of the patients in the study were in the age group of 30-50 years accounting to 55% of total cases. Youngest patient in the study was 20 years old and eldest patient was 70 year old.

Sex incidence in the study was matched between the two groups. 36 male patients were included in our study corresponding to 45% of cases (23 male patients in each group) and 44 female patients participated in the study accounting to 55% (22 female patients in each group).

Paraumbilical hernia was the most common presentation in the patients, others being incisional hernia, epigastric hernia, umbilical hernia.

Mean post-operative day of movement in laparoscopic group was 1.9 days and in open repair group was 2.9 days.

There were no post-operative deaths, no major cardiovascular, pulmonary complications. The main complication encountered were seroma, surgical site infection and chronic pain. 3 patients in the laparoscopic group developed seroma compared to 9 patients among open repair group. These patients had larger hernial sacs which required greater dissection in subcutaneous plane and leading to seroma. 14 patients developed surgical site infection, 2 patients at laparoscopic port site and 12 who underwent open mesh repair. 17 patients had chronic pain at the operated site at the end of 2 months follow-up. In comparison with the study conducted by Goodney et al and Park et al which showed complications as in the table, complications were similar [6,7,8].

Post-operatively patients of laparoscopic group returned back to the work early (mean 12.8 days) compared to open group (mean 18.5 days). Raftopoulos et al study showed mean day of return of work 25.95 vs 47.8 days which was higher

compared to Kamal Itani et al study which showed mean of 23 vs 28.5 days [7,8].

Pain measured using visual analogue score on 3rd post-operative day showed decreased pain score in laparoscopic group (mean 2.23) compared to open group (mean 6.23) [8].

Conclusion

Laparoscopic ventral hernia repair provides lesser post-operative pain, lesser complications, shorter hospital stay and lesser economic impact as they returned to work early. Thus patients have less morbidity and improved quality of life.

References

1. Bennet HD, Kingsnorth NA, Giorgobiani G. Bailey & Love's Short practice of surgery. 25th ed. London: Arnold publishers; 2008. p.968-90. (Hernia, Umbilicus And Abdominal Wall; v ol 57)
2. Flum DR, Horvath K, Koepsell T. "Have outcomes of incisional hernia repair improved with time?" A population-based analysis. *Ann Surg* 2003;237 (1):129-35.
3. Read RC. The Development of Surgical herniography; *Surgical clinics of North America* 1984; 64:185-196.
4. Jennings WK, Anson BJ, Wright RR. A new method of repair for indirect Inguinal Hernia Considered in reference to parietal anatomy. *Surgery. Gynecology Obstetrics* 1942; 74: 697.
5. Nyhus and Condon's et al. *Hernia* 5th ed, Lippincott Williams and Wilkins 2002; 389.
6. Goodney PP, Birkmeyer CM et al, "Short-term outcomes of laparoscopic and open ventral hernia repair: a meta-analysis"; *Arch Surg*. 2002 Oct; 137(10): 1161-5.
7. Ioannis Raftopoulos, Daniel Vanuno et al. "Comparison of Open and Laparoscopic Prosthetic Repair of Large Ventral Hernias"; *JLS* 2003; 7: 227-232.
8. Itani KM, Hur K, Kim LT, Antony T, Berger DH, Reda D et al. Comparison Of Laparoscopic And Open Repair With Mesh For Treatment Of Ventral Incisional Hernia. *Arch Surg* 2010 Apr; 145(4):322-328.