

Original article:

A prospective study of patient with ventral hernia and its laproscopic management

¹Dr.Sumedh Rupchand Mahajan* , ² Dr Chetan Sawant

Department of Surgery, Indira Gandhi Government Medical College & Hospital, Nagpur

Corresponding author *



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License

Date of submission: 30 January 2023

Date of Final acceptance: 18 March 2023

Date of Publication: 30 March 2023

Source of support: Nil

Conflict of interest: Nil

Abstract:

Objective: The objective of this study was to evaluate the outcomes of laparoscopic management of ventral hernia in patients with defect size less than 12 cm diameter.

Methods: A total of 49 patients with clinically and radiologically diagnosed ventral hernia were prospectively evaluated from October 2020 to December 2022. All patients underwent laparoscopic intraperitoneal onlay mesh repair or intracorporeal fascial suturing based on the defect size. Operative time, postoperative ambulation, hospital stay, and postoperative complications were recorded and analyzed.

Results: The majority of patients (51.02%) were in the age group of 41-60 years, with a mean age of 49.45 years. Out of 49 patients, 65.3% were female and 34.6% were male. The most common presentation was swelling or bulge (65.3%). The operative time ranged from 30 to 180 minutes, with most patients (38.7%) taking 61-90 minutes. The majority of patients (85.7%) were able to ambulate on the first postoperative day, and the average hospital stay was 1-3 days. Postoperative complications included chronic pain (8.16%), seroma (4.08%), postoperative bulging (4.08%), port site infection (6.12%), mesh infection (2.04%), and recurrence (2.04%).

Conclusion: Laparoscopic management of ventral hernia is a safe and effective option for patients with defects less than 12 cm diameter. The majority of patients can be discharged within a few days and resume normal activities shortly after surgery. However, postoperative complications can occur and should be closely monitored.

Keywords: ventral hernia, laparoscopy, intraperitoneal onlay mesh repair, intracorporeal fascial suturing

Introduction:

Ventral hernia is a common abdominal wall defect that affects millions of people worldwide. It occurs when there is a protrusion of abdominal contents through a weakness or defect in the abdominal wall.¹ While ventral hernias can be asymptomatic, they can also cause discomfort, pain, and lead to serious complications, such as bowel obstruction and strangulation. Laparoscopic surgery has emerged as a safe and effective method for the

management of ventral hernia.^{2,3,4} Laparoscopic techniques have been shown to offer advantages over traditional open surgery, including decreased postoperative pain, reduced length of hospital stay, and faster recovery times.^{5,6} Despite the growing use of laparoscopic techniques for ventral hernia repair, there is still limited research exploring the outcomes of this approach. Therefore, this prospective study aims to evaluate the clinical outcomes of laparoscopic ventral hernia repair in a group of patients. The study will also compare the outcomes of laparoscopic repair with open repair, to determine if laparoscopic techniques offer superior outcomes.^{7,8} The findings of this study will have important implications for the management of ventral hernia and will contribute to the growing body of evidence supporting the use of laparoscopic techniques for this condition.

Material and Methodology:

A prospective observational study was conducted in the Department of Surgery at Indira Gandhi Govt. Medical College and Hospital, Nagpur, from October 2020 to December 2022. The study included patients with a clinical diagnosis of ventral hernia who presented at the outpatient department during the study period. Patients with defect size less than 12 cm in diameter were included, while those with complicated ventral hernia, Koch's abdomen, cirrhosis of liver with ascites, ASA grade equal or more than 4, post laparoscopic recurrent hernia, pregnant women, and patients who did not give consent were excluded from the study.

Data was collected using a pre-designed proforma, which included demographic information, medical history, clinical examination findings, radiological investigations, and details of the surgical procedure. All surgeries were performed by a team of experienced laparoscopic surgeons.

Laparoscopic ventral hernia repair was performed using a standard technique, with the placement of a mesh to reinforce the hernia defect. The type of mesh used and its placement were left to the discretion of the operating surgeon. The surgical outcomes were evaluated in terms of postoperative pain, length of hospital stay, and complications.

Data was entered into Microsoft Excel and analyzed using SPSS software version 25.0. Descriptive statistics were used to summarize the data, and statistical significance was determined using appropriate tests. Ethical clearance was obtained from the institutional ethics committee prior to the start of the study. Informed consent was obtained from all patients before enrollment in the study.

Results:

During the time period provided, a total of 49 individuals were assessed after being admitted with a ventral hernia diagnosis prospectively. All research participants were evaluated with relation to physical findings, pertinent investigations, operational findings, and postoperative complications. Important findings included the following.

In our study maximum no of patient 25(51.02%) are from age group 41 to 60.

The mean age of the patient is 49.45.

The youngest and oldest patients in the current investigation were males aged 22 and 70, respectively.

The average age was 49.45.

49 patient studied from which 65.3% (32) Female and 34.6 %(17) male

In our study, Out of 49 patient 32(65.3%) patient presented with swelling or bulge, 10 (20.4%) patient presented with swelling with pain And 7 patient (14.2%) presented with swelling with symptom of irreducibility.

In our study, Out of 49 patients, 46 (93.8%) had laparoscopic intraperitoneal onlay mesh repair performed on defects larger than 4cm, while 3 patient (6.12%) had laparoscopic intracorporeal fascial suturing performed on

defect upto 4cm.

Table 1) Time taken by operative procedure

Serial no.	Operative time	No of patient	Percentage
1	30 to 60 min	7	14.2%
2	61 to 90 min	19	38.7%
3	91 to 120 min	13	26.5%
4	121 to 150 min	8	16.3%
5	151 to 180 min	1	2.04%
6	More than 180 min	1	2.04%
7	Total	49	100%

Table 2) Post operative ambulation

Serial no.	Post operative ambulation In days	No of patient	Percentage
1	Day 1	42	85.7%
2	Day 2	4	8.16%
3	Day 3	3	6.12%
4	Total	49	100%

Table 4) Duration of Hospital stay

Duration of hospital stay	No.of patient	Percentage
1 TO 3 DAYS	42	85.7%
4 TO 6 DAYS	4	8.16%
7 TO 10 DAYS	3	6.12%
MORE THAN 10 DAYS	0	0

Table 5) Post operative complication

	No. of patient	Percentage
chronic pain	4	8.16
Seroma	2	4.08%
Post operative bulging	2	4.08%
Port site infection	3	6.12%
Mesh infection	1	2.04%
Recurrence	1	2.04%

Discussion:

The present study evaluated the clinical features and management outcomes of patients with ventral hernia who underwent laparoscopic repair at Indira Gandhi Govt. Medical College and hospital, Nagpur from October 2020 to December 2022. The study included 49 patients, with a mean age of 49.45 years. The majority of patients (51.02%) were between the age group of 41-60 years. The study also showed that ventral hernia was more common in females (65.3%) than males (34.6%).

In terms of clinical presentation, the most common symptom observed was swelling or bulge (65.3%) followed by swelling with pain (20.4%) and swelling with symptom of irreducibility (14.2%). Laparoscopic intraperitoneal onlay mesh repair was performed on 46 patients (93.8%) with defects larger than 4cm, while laparoscopic intracorporeal fascial suturing was performed on 3 patients (6.12%) with defects up to 4cm.

The operative time ranged from 30 to 180 minutes, with the majority of patients (38.7%) taking between 61 to 90 minutes. The postoperative ambulation showed that 85.7% of patients were able to ambulate on the first day, with only 6.12% requiring 3 days to ambulate. The duration of hospital stay was also relatively short, with 85.7% of patients discharged within 3 days of the procedure.

The most common postoperative complications observed were chronic pain (8.16%), seroma (4.08%), postoperative bulging (4.08%), and port site infection (6.12%). Mesh infection and recurrence were observed in only one patient each (2.04%). The recurrence rate in the current study is 2.04%, which is comparable to and well associated with the study conducted by A. Hussain et al. (2007).⁹

In our study, seroma was developed in 2 patient (4.08%) which is comparable with the study of Bedi et al¹⁰ which was 5.45 % Seroma development, mesh infection, port site infection, and chronic pain were not documented by Campbell et al.¹¹ none of their patients reported seroma development, mesh infection, port site infection, or chronic discomfort. However, in the current investigation, 2(4.08%) of the patients had seroma. Seroma developed as a result of the peritoneum in the hernial sac secreting fluid. In the majority of patients, seroma spontaneously regresses. Seroma that lasts longer than six weeks is treated with compression and sterile aspiration.

On the fifth post-operative day, port site infection was discovered in 3 (6.12%) of the patients and treated with local dressing and antibiotics and is comparable with Bedi et al 2007(5.45%) 4 (8.16%) patients showed post-operative pain, which may have been brought on by the use of tacks and was treated with oral analgesics which is comparable with A.Hussain et al 2007 (8.19%) and Cambell et al 2017(5%).⁹

Conclusion:

In conclusion, laparoscopic repair of ventral hernia is a safe and effective method of treatment. The study showed that most patients were able to ambulate and were discharged from the hospital within a short period of time, with a low rate of postoperative complications. The findings of this study support the use of laparoscopic repair in patients with ventral hernia. Further studies with larger sample sizes and longer follow-up periods are recommended to validate these results.

References:

1. K. Spoorthyl, , D. Nitesh Reddy 2, , M. Prudhvi3, , K. Rup Kumar. A STUDY ON MANAGMENT OF ADULT VENTRAL HERNIA. Int J Eng Sci Comput Febr 2019.

2. Williams NS, O'Connell PR, McCaskie AW, editors. Bailey & Love's short practice of surgery. 27th edition. Boca Raton, FL: CRC Press; 2017.
3. Zinner M, Ashley S. Maingot's Abdominal Operations. 12th edition. New York: McGraw Hill Education; 2012. 1328 p.
4. Mayo WJ. Mayo WJ (1901) An operation of the radical cure of ombilical hernia, *Ann Surg* 34:276–280
5. Townsend. Sabiston Textbook of Surgery International Edition. 21st edition. St. Louis: Elsevier; 2021
6. Nigro R, Crovella F. The Historical Evolution of the Treatment of Incisional Hernia. In: Incisional Hernia [Internet]. Milano: Springer Milan; 2008 [cited 2023 Feb 9]. p. 3–8.
7. Santora TA, Roslyn JJ. Incisional hernia. *Surg Clin North Am.* 1993 Jun;73(3):557–70.
8. Brunicardi FC, Andersen DK, Billiar TR, Dunn DL, Hunter JG, editors. Schwartz's principles of surgery. Tenth edition. New York: McGraw-Hill Education; 2014.
9. Hussain A, Mahmood H, Nicholls J, El-Hasani S. Laparoscopic ventral hernia repair. Our experience of 61 consecutive series: Prospective study. *Int J Surg.* 2008 Feb;6(1):15–9
10. Bedi APS, Bhatti T, Amin A, Zuberi J. Laparoscopic incisional and ventral hernia repair. *J Minimal Access Surg.* 2007 Jul;3(3):83–90.
11. Campbell AV , Canton SA, Pasquali C. Laparoscopic repair of ventral/incisional hernias with the “Slim-Mesh” technique without transabdominal fixation sutures: preliminary report on short/midterm results. *Updat Surg.* 2017 Dec;69(4):479–83.