

ORIGINAL RESEARCH

Evaluation of effectiveness of preperitoneal meshplasty in incisional hernia cases

¹Dr. Sandeep Shrivastava

¹Assistant professor, Department of General Surgery, Government Medical College Datia, Madhya Pradesh

Corresponding author

Dr. Sandeep Shrivastava

Assistant professor, Department of General Surgery, Government Medical College Datia, Madhya Pradesh

Received: 12 March, 2023

Accepted: 18 April, 2023

ABSTRACT

Background: Incisional hernia is defined as a diffuse extrusion of peritoneum and abdominal contents through a weak scar after an operation or accidental wound. The present study evaluated effectiveness of preperitoneal meshplasty in incisional hernia cases.

Materials & Methods: 80 patients of incisional hernia of both genders underwent preperitoneal meshplasty. Parameters such as mode of presentation, type, type of incision used, time of onset after the previous surgeries and complications were recorded.

Results: Out of 80 patients, males were 46 and females were 34. Swelling was reducible in 35 and irreducible swelling in 45 cases. Mode of presentation was abdominal swelling in 38 and abdominal swelling & pain in 42. Type of incision used was upper midline in 28, lower midline in 30, paramedian in 10 and umbilical port site in 12 patients. Time of onset after the previous surgeries was 0-6 months in 34, 6 months- 1 year in 16, 1-3 years in 15 and >3 years in 25 cases. The difference was significant ($P < 0.05$). Common risks factors were diabetes mellitus in 10, anemia in 4, obesity in 2, post-operative cough in 2 and wound infection/dehiscence in 3 cases. The difference was significant ($P < 0.05$).

Conclusion: Preperitoneal meshplasty has been demonstrated to be a successful procedure for repairing incisional hernias with fewer post-operative problems. Preperitoneal mesh repair is convincingly and ideal surgical technique for management of incisional hernias.

Key words: Incisional hernia, Preperitoneal meshplasty, dehiscence

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution- Non Commercial- Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Introduction

Incisional hernia is defined as a diffuse extrusion of peritoneum and abdominal contents through a weak scar after an operation or accidental wound.¹ Although the precise incidence of incisional hernias has not been clearly characterized, several papers in the literature opine that it is most likely between 10% and 20%.² According to research, roughly two thirds manifest during the first five years, and at least another third does so between five and ten years following the procedure. More women, obese people, and older age groups are affected by it.³

Preperitoneal meshplasty, also known as preperitoneal mesh repair, is a surgical technique used to repair incisional hernias.⁴ The preperitoneal meshplasty technique involves placing a synthetic mesh in the preperitoneal space, which is the area between the peritoneum (the inner lining of the abdominal cavity) and the abdominal wall muscles. The purpose of the mesh is to reinforce and strengthen the weakened abdominal wall, preventing the hernia from recurring

and providing support to the area.⁵ Due to the graft's location in the preperitoneal plane between the posterior rectus sheath and the peritoneum, which prevents adhesions, bowel obstruction, enterocutaneous fistula, and mesh erosion, preperitoneal mesh repair has fewer side effects and a shorter hospital stay than other methods.⁶ The present study evaluated effectiveness of preperitoneal meshplasty in incisional hernia cases.

Materials & Methods

The present study comprised of 80 adult patients of incisional hernia of both genders. All agreed to participate in the study with their written consent. Data such as name, age, gender etc. was recorded. All patients underwent preperitoneal meshplasty. Parameters such as mode of presentation, type, type of incision used, time of onset after the previous surgeries and complications were recorded. Data thus obtained were statistically analysed. P value less than 0.05 was considered significant.

Results

Table I: Distribution of patients

Total- 80		
Gender	Males	Females
Number	46	34

Table I shows that out of 80 patients, males were 46 and females were 34.

Table II: Assessment of parameters

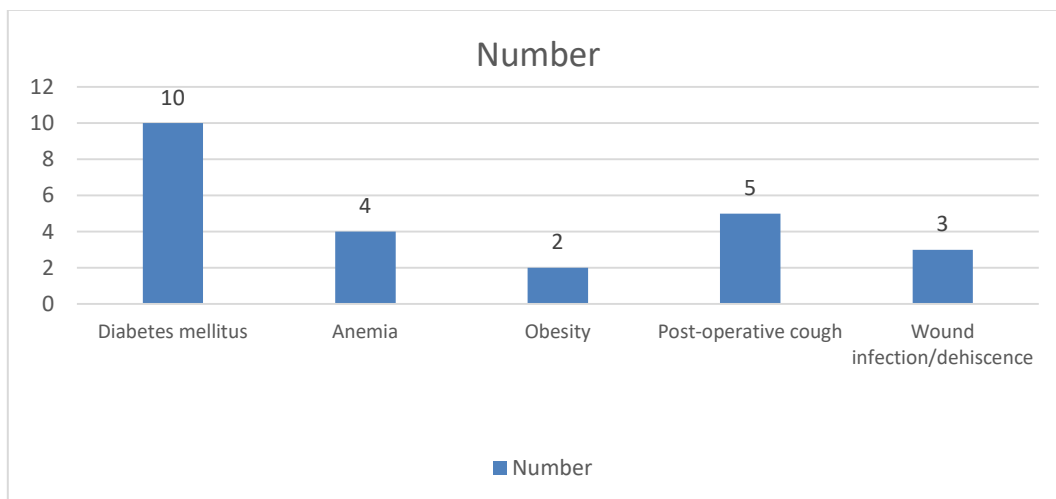
Parameters	Variables	Number	P value
Type of swelling	Reducible swelling	35	0.05
	Irreducible swelling	45	
Mode of presentation	Abdominal swelling	38	0.91
	Abdominal swelling & pain	42	
Incision type	Upper midline	28	0.57
	Lower midline	30	
	paramedian	10	
	Umbilical port site	12	
Time of onset after the previous surgeries	0-6 months	34	0.05
	6 months- 1 year	16	
	1-3 years	15	
	>3 years	25	

Table II shows that swelling was reducible in 35 and irreducible swelling in 45 cases. Mode of presentation was abdominal swelling in 38 and abdominal swelling & pain in 42. Type of incision used was upper midline in 28, lower midline in 30, paramedian in 10 and umbilical port site in 12 patients. Time of onset after the previous surgeries was 0-6 months in 34, 6 months- 1 year in 16, 1-3 years in 15 and >3 years in 25 cases. The difference was significant ($P < 0.05$).

Table III: Risk factors and complications

Risk factors and complications	Number	P value
Diabetes mellitus	10	0.05
Anemia	4	
Obesity	2	
Post-operative cough	5	
Wound infection/dehiscence	3	

Table III, graph I shows that common risks factors were diabetes mellitus in 10, anemia in 4, obesity in 2, post-operative cough in 2 and wound infection/dehiscence in 3 cases. The difference was significant ($P < 0.05$).



Graph 1

Discussion

Several surgical procedures, including open tissue repair, double breasting, darnings, open, and laparoscopic meshplasty, have been used to treat incisional hernias.^{7,8} Although ventral hernia repairs are often carried out, the best repair method is still up for debate. The most frequent laparotomy complication requiring reoperation is an incisional hernia.⁹ According to recent data, the overall incidence is close to 10%.^{10,11} Hernia formation for stoma site hernias may occur up to 30% of the time, and the frequency is thought to double for surgical site infections. Incisional hernia repair procedures are extremely expensive.^{12,13} The present study evaluated effectiveness of preperitoneal meshplasty in incisional hernia cases. We found that out of 80 patients, males were 46 and females were 34. In the study by Patel et al¹⁴, 77 cases of ventral hernia were collected from the On-lay and pre-peritoneal groups. Pre-peritoneal meshplasty is in group (B) while on-lay meshplasty is in group (A). The On-lay group's average age is 47.96 years. The average age in the pre-peritoneal group is 48.66 years. Results indicate that from the sixth day following surgery, discomfort does not differ between the two procedures. The average length of the hospital stay was 3.51 days for On-lay patients and 3.9 days for pre-peritoneal patients. It demonstrated that the pre-peritoneal approach took longer than the On-lay method. In this study, seroma occurs in 6/33 patients using the on-lay method and in 1/44 individuals using the preperitoneal procedure in the postoperative phase. We observed that swelling was reducible in 35 and irreducible swelling in 45 cases. Mode of presentation was abdominal swelling in 38 and abdominal swelling & pain in 42. Type of incision used was upper midline in 28, lower midline in 30, paramedian in 10 and umbilical port site in 12 patients. 40 patients with incisional hernias underwent open preperitoneal polypropylene mesh surgery as part of Dhanasekaran et al's study.¹⁵ Out of 40 patients, 10 had defects less than 2 cm, 28 had defects between 2.1-4 cm, 1 had a defect between 4.1-6 cm, and 1 had a defect between 6.1-8 cm. There were 32 patients with an infraumbilical hernia and 8 individuals with a supraumbilical hernia, depending on the type. Three patients had seroma as a post-operative complication, one patient had edge necrosis, one patient had post-operative ileus, and one patient had chronic pain. According to follow-up, 4 patients had followed up after 6 months, 10 after 9 months, and 26 after a full year. We found that time of onset after the previous surgeries was 0-6 months in 34, 6 months- 1 year in 16, 1-3 years in 15 and >3 years in 25 cases. Common risks factors were diabetes mellitus in 10, anemia in 4, obesity in 2, post-operative cough in 2 and wound infection/dehiscence in 3 cases. The outcomes of 272 incisional hernia surgeries were assessed by Schumpelick VC et al.¹⁶ In 69.9 and 30.1% of cases, conventional methods and alloplastic repairs were carried out, respectively.

Early complications (seroma, hematoma) were more common than with traditional hernia repair. However, the recurrence incidence in this group following mesh repair was much lower (6.8%) than in individuals without alloplastic augmentation (32.6%). While preperitoneal mesh repair is unquestionably the best surgical approach, alloplastic material optimization by lowering the amount of foreign material and increasing elasticity and biocompatibility is required.

Conclusion

Preperitoneal meshplasty has been demonstrated to be a successful procedure for repairing incisional hernias with fewer post-operative problems. Preperitoneal mesh repair is convincingly and ideal surgical technique for management of incisional hernias.

References

1. Ellis H, Gajraj H, George CD. Incisional hernias- when do they occur? *Br J Surg.* 1983;70:290.
2. Ponka JL. *Hernias of the abdominal wall.* Philadelphia, PA:WB Saunders, 1981.
3. Bose SM, Lal Roshan, Kalra Manju, Wig JD, Khanna SK. Ventral hernia – A review of 175 cases. *Indian Journal of Surgery* 1999;61(3):180-84.
4. Antoine Hamy, Patrick Pessaux, Tephane S et al. Surgical treatment of large incisional hernia by an intraperitoneal Dacron mesh and an aponeurotic graft. *J Am Coll Surg* 2003;19 6(4):531-534.
5. Bhatia WT, Chandra SS, Srinivasan K, Ananthakrishna N. Factors predisposing to incisional hernia after laparotomy and influencing recurrences rate after different methods of repair: A prospective study of 220 patients. *IJS* 1993;55(11):535-543.
6. Manohar CS, Ramdev K. Management of Incisional Hernia by Peritoneal Mesh Repair. *International Journal of Basic Medical Sciences*;2010;3(10):3.
7. Houch JP, Rypins EB, Saffeb IJ et al. Repair of incisional hernia. *SurgGynaecolObstet*1989;167:397-399.
8. Michael Zinner, Seymour I. Schwartz, Harold Ellis. *Maingot's: Abdominal operations.* 10th ed, Vol. 1, 423-425 and 548-572.
9. Sudhir DnyandeoBhamre, Nitin Devidas Pingale. A Clinical Study of Incisional Hernia, *MVP Journal of Medical Sciences*, 2016;3(1):2348-2648
10. Shahi et al. A Prospective Study of complications, risks and causes while repairing the Incisional Hernia by Preperitoneal Meshplasty. *International Journal of Health and Clinical Research*, 2021;4(18):390-399.
11. Shah JB. Incisional hernia- A study of 50 cases. *Indian Journal of Surgery.* 1977;39:353-56.
12. Rajesh Godara, Pardeep Garg, Hans Raj, Sham L Singla. Comparative evaluation of "Sublay" versus "Onlay" meshplasty in ventral hernias. *Indian Journal of Gastroenterology*, 2006; 25: 222-3.
13. Akruwala SD, Sharma VM. Study of incisional hernia repair by preperitoneal meshplasty. *Nat J Med Res.* 2013;3(4):328-1.
14. Patel P, Patel P, Parmar H. Pre-peritoneal versus on-lay meshplasty in incisional hernia repair. *IAIM*, 2015; 2(11): 52-56.
15. Dhanasekaran U, Arumugam R. Preperitoneal mesh repair in incisional hernia: A prospective study.

International Surgery Journal. 2020 Nov
27;7(12):3994-7.

16. Schumpelick VC, Conze J, Klinge U. Preperitoneal meshplasty in incisional hernia repair. A comparative retrospective study of 272 operated incisional hernias. *Der Chirurg; Zeitschrift für Alle Gebiete der OperativenMedizen.* 1996 Oct 1;67(10):1028-35.