

ORIGINAL RESEARCH

A Prospective Study of complications while repairing the Incisional Hernia by Preperitoneal Mesh plasty

¹Dr. Rajesh kumar Badal, ²Dr. Brajendra Swaroop, ³Dr Manoj Kumar Sharma

¹Assistant Professor, Department Of General Surgery, G.M.C. Datia M.P

²Assistant Professor, Department Of General Surgery, Government Medical College, Datia P

³Assistant Professor Govt. Medical College Datia (M.P)

Corresponding author

Dr Manoj Kumar Sharma

Assistant Professor Govt. Medical College Datia (M.P)

Received: 19 June, 2023

Accepted: 18 July, 2023

ABSTRACT

Background: The present prospective study was undertaken for assessing the complications while repairing the Incisional Hernia by Preperitoneal Meshplasty.

Materials & methods: A total of 100 patients of inguinal hernia were enrolled. Detailed medical and family history of all the subjects was recorded. Exclusion criteria for present study included subjects with history of any other systemic illness, subjects with any known drug allergy. 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. All the results were recorded in Microsoft excel sheet followed by statistical analysis using SPSS software.

Results: Mean VAS at day one, day two, day four and day seven was 5.2, 4.1, 2.8 and 1.1 respectively. Postoperative cough, wound infection, bleeding and peritoneal breach was seen in 6 percent, 2 percent, 3 percent and 1 percent of the patients respectively.

Conclusion: Preperitoneal mesh repair had excellent long-term results with minimal morbidity. The preperitoneal mesh repair is the gold standard treatment for incisional hernia repair as compared to other types of mesh repair techniques.

Key words: Hernia, Meshplasty, Preperitoneal

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 refers to abdominal wall hernia at the site of a previous surgical incision. It is a type of ventral hernia. Midline incisional hernias are more common than other sites. It can be a definite hernia with all the hernia components of the defect, sac, and content. Or, it can be a weakness of the wall with shallow sac and occasional bulge of content. It is a common surgical problem. Surgeons are often asked to evaluate patients with incisional hernias as they can often be symptomatic to patients. The classical presentation is a bulge with a positive cough impulse at the site of the incision.¹⁻³ In a meta-analysis on abdominal wall closure including 56 randomized controlled trials (RCTs) with altogether 14 618 patients of an international patient population, the incidence of incisional hernia occurring within 2 years after index surgery was calculated to be 12.8%.⁴ Since the surgical technique used for abdominal wall closure can significantly influence the incidence of incisional hernia, these data are to be interpreted on a relative basis.⁴⁻⁶ Langer and colleagues, in a comparative,

retrospective study of over 400 incisional hernia operations over a 25-year period, estimated that the most important prognostic factor is the surgeon's experience. For a surgical team to offer a complete service for abdominal wall reconstruction, the following techniques should be mastered: prosthetic materials, abdominal components' separation, tissue expansion, vacuum-assisted closure devices, local and distant muscle flaps, and free tissue transfer.⁷ Hence; under the light of above-mentioned data, the present prospective study was undertaken for assessing the complications while repairing the Incisional Hernia by Preperitoneal Meshplasty.

Materials & methods

The present prospective study was undertaken for assessing the complications while repairing the Incisional Hernia by Preperitoneal Mesh plasty. A total of 100 patients of inguinal hernia were enrolled. Detailed medical and family history of all the subjects was recorded. Exclusion criteria for present study included subjects with history of any other systemic

illness, subjects with any known drug allergy. After meeting the study criteria, complete demographic and clinical details of all the patients was recorded. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. All patients underwent preperitoneal mesh plasty. Parameters such as mode of presentation, type, type of incision used, time of onset after the previous surgeries and complications were recorded. All the results were recorded in Microsoft excel sheet followed by statistical analysis using SPSS software.

Results

Mean age of the patients was 56.8 years. 63 percent of the patients were males. While assessing the type of hernia, it was seen that primary and recurrent type of hernia was seen in 55 percent and 45 percent of the patients respectively. Mean VAS at day one, day two, day four and day seven was 5.2, 4.1, 2.8 and 1.1 respectively. Postoperative cough, wound infection, bleeding and peritoneal breach was seen in 6 percent, 2 percent, 3 percent and 1 percent of the patients respectively.

Table: 1 Demographic and clinical data

Variable	Number	Percentage
Age group (years)	Less than 45	12
	More than or equal to 45	88
Mean age (years)	56.8	
Gender	Males	63
	Females	37
Type of hernia	Primary	55
	Recurrent	45

Table: 2 Comparison of mean VAS at different postoperative time intervals

Time interval	Mean	SD
Day one	5.2	2.3
Day two	4.1	2.1
Day four	2.8	1.8
Day seven	1.1	0.4
p- value	0.001 (Significant)	

Table : 3 Complications

Complications	Number	Percentage
Postoperative cough	6	6
Wound infection	2	2
Bleeding	3	3
Peritoneal breach	1	1

Discussion

Incisional hernia is defined as a defect occurring through the operative scar. It is one of the most common conditions requiring major surgery despite advances in surgical techniques and suture material. The incidence of incisional hernia in literature is 2-11% following all laparotomies and it is a source of morbidity and requires high health care costs. It is seen more in females, obese and older age group. As a result of high recurrence rate in the repair of incisional hernia, various types of repairs have been used both anatomical and prosthetic.⁸⁻¹⁰ Mesh migration into bowel/bladder can occur rarely after laparoscopic mesh plasty. There have been 12 cases of mesh migration into bladder. All cases reported have been post inguinal meshplasty.^{9,10} Hence; under the light of above-mentioned data, the present prospective study was undertaken for assessing the complications while repairing the Incisional Hernia by Preperitoneal Meshplasty. Mean age of the patients was 56.8 years.

63 percent of the patients were males. While assessing the type of hernia, it was seen that primary and recurrent type of hernia was seen in 55 percent and 45 percent of the patients respectively. Our results were in concordance with the results obtained by previous authors who also reported similar findings. In a previous study conducted by Schumpelick V et al, the group consisted of 58% male and 42% female patients with a mean age of 61.1 years and 111 primary and 161 recurrent incisional hernias. Conventional techniques (simple closure, Mayo) and alloplastic repairs were performed in 69.9 and 30.1%, respectively.¹⁰ In the present study, mean VAS at day one, day two, day four and day seven was 5.2, 4.1, 2.8 and 1.1 respectively. Postoperative cough, wound infection, bleeding and peritoneal breach was seen in 6 percent, 2 percent, 3 percent and 1 percent of the patients respectively. In a previous study conducted by Schumpelick V et al, authors evaluated the 272 incisional hernia repairs. During the last 4 years we

predominantly used the preperitoneal mesh repair with polypropylene mesh (Marlex). The results of 87% of our group of patients were evaluated by questionnaire and information from the family physicians (mean follow-up period 64 months). The patients who underwent preperitoneal mesh repair were examined clinically and with ultrasound. In comparison to the results of conventional hernia repair, early complications (seroma, hematoma) were higher. The recurrence rate, however, was significantly lower in this group with mesh repair (6.8%) than in patients without alloplastic augmentation (32.6%).¹⁰ The reported incidence of mesh-related infection following hernia repair has been 1%–8% in different series, and this incidence is influenced by underlying co-morbidities, the type of mesh, the surgical technique and the strategy used to prevent infections. An approach that combines medical and surgical management is necessary for cases of mesh infection. The antimicrobial treatment regimen chosen initially should include coverage of *Staphylococcus* spp. and, particularly, *Staphylococcus aureus*.¹¹⁻¹³ The outcome of retro-muscular repair over other methods of ventral hernia repair was compared in another previous study conducted by Darshan J et al. 90 diagnosed cases of ventral hernias were randomly split into two groups A (retro-muscular meshplasty) and B (onlay, inlay & underlay mesh plasty).: No difference was found between the groups regarding age, gender, type and classification of hernia. Operation length was 110 min in retro-muscular repair and 90min in onlay and 114 min underlay method. Statistically difference was seen between these groups. Among complications recurrence, seroma, mesh infection and wound complications were seen in group B. Postoperative pain and well being score were better in retro-muscular group. Retro-muscular mesh plasty have more advantage compare to other open methods in ventral hernia repair. Retro-muscular mesh plasty is still most appropriate method in open ventral hernia repair.¹⁴

Conclusion

Pre peritoneal mesh repair had excellent long-term results with minimal morbidity. The pre peritoneal mesh repair is the gold standard treatment for incisional hernia repair as compared to other types of mesh repair techniques.

References

1. Yagnik VD, Joshipura V. Non-incisional traumatic lateral abdominal wall hernia. *ANZ J Surg.* 2017 Nov;87(11):952-953.
2. Berrevoet F. Prevention of Incisional Hernias after Open Abdomen Treatment. *Front Surg.* 2018;5:11.
3. Kaneko T, Funahashi K, Ushigome M, Kagami S, Goto M, Koda T, Nagashima Y, Shio kawa H, Koike J. Incidence of and risk factors for incisional hernia after closure of temporary ileos to my for colorectal malignancy. *Hernia.* 2019 Aug;23(4):743-748.

4. Bosanquet DC, Ansell J, Abdelrahman T, et al. Systematic review and meta-regression of factors affecting midline incisional hernia rates: analysis of 14,618 Patients. *PLoS ONE* 10(9): e0138745.
5. Millbourn D, Cengiz Y, Israelsson LA. Effect of stitch length on wound complications after closure of midline incisions: a randomized controlled trial. *Arch Surg.* 2009;144:1056–1059.
6. Deerenberg EB, Harlaar JJ, Steyerberg EW, et al. Small bites versus large bites for closure of abdominal midline incisions (STITCH): a double-blind, multicentre, randomised controlled trial. *Lancet.* 2015;386:1254–1260.
7. Langer C, Schaper A, Liersch T, Kulle B, Flosman M, Füzesi L, et al. Prognosis factors in incisional hernia surgery: 25 years' of experience. *Hernia.* 2005;9:16–21.
8. 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.
9. Sudhir Dnyandeo Bhamre, Nitin Devidas Pingale. A Clinical Study of Incisional Hernia, MVP. *Journal of Medical Sciences,* 2016;3(1):23482648.
10. Schumpelick V, Conze J, Klinge U. Die präperitoneale Netzplastik in der Reparation der Narbenhernie. Eine vergleichende retrospektive Studie an 272 operierten Narbenhernien [Preperitoneal mesh-plasty in incisional hernia repair. A comparative retrospective study of 272 operated incisional hernias]. *Chirurg.* 1996 Oct;67(10):1028-35.
11. VJ Hesselink, RW Luijendijk, JH De Wilt, R Heide, J Jeekel. An evaluation of risk factors in incisional hernia recurrence. *Surg Gynecol Obstet,* 176 (1993), pp. 228-234
12. RW Luijendijk, WC Hop, MP Van Den Tol, et al. A comparison of suture repair with mesh repair for incisional hernia. *N Engl J Med,* 343 (2000), pp. 392-398
13. V Schumpelick, J Conze, U Klinge. Preperitoneal mesh-plasty in incisional hernia repair. A comparative retrospective study of 272 operated incisional hernias. *Der Chirurg,* 67 (1996), pp. 1028-1035
14. Darshan J., Nema A., Sheth J., Gohil J.A. A study on comparison of retro-muscular pre-fascial placement of mesh versus other methods of mesh repair of ventral hernias. *Surgical Update: Int J surg Orthopedics.* 2018;4(4):177- 182. doi:10.17511/ijoso.2018.i4.08.