

A study on prophylactic mesh placement in midline laparotomy for prevention of incisional hernia in high risk patient

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ABSTRACT

Background: Midline abdominal laparotomy is common and associated with incisional hernia, especially if associated with high-risk patients. The aim of this study was to evaluate the effectiveness of incisional hernia prevention with prophylactic mesh repair in midline elective laparotomy patients. The present study included 25 adult patients undergoing elective, midline open laparotomy with risk factors to open surgery. Result was a decrease in incidence of incisional hernia to 4%. Postoperative complications involved incisional hernia, seroma, hematoma and chronic wound pain. It was concluded that prophylactic mesh placement in midline incision laparotomy is effective and safe for high risk patients and patients with comorbidities.

Keywords: Incisional hernia, prophylactic mesh placement, laparotomy, Turmeric and Fenugreek-Herbal Agents to Alleviate Scikle Cell Disease

HOW TO CITE THIS ARTICLE: Chirayu Thakkar*, A study on prophylactic mesh placement in midline laparotomy for prevention of incisional hernia in high risk patient, J Res Med Dent Sci, 2021, 9(12): 371-373.

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Received: 01/12/2021
Accepted: 15/12/2021

In this prospective study, we have analyzed the use of prophylactic mesh placement in midline laparotomy patients to prevent incisional hernia in high risk patients.

INTRODUCTION

Incisional hernia (IH) is the most frequently seen long term complication in laparotomy surgery causing much morbidity and even mortality in patients [1]. Various methods of suture closure and mesh reinforcement have been used to treat IH and restore abdominal wall integrity. Despite advances in IH repair, recurrence rates remain unacceptable (12–54%), and those who experience recurrence are susceptible to a vicious cycle of morbidity, because each subsequent repair presents greater technical challenges and an increased risk for recurrence and morbidity. Patient-related risk factors for incisional hernia after a laparotomy, like obesity, steroid use, malnutrition, smoking and connective tissue disorders are known. Despite this knowledge a sufficient method for their prevention has not been developed yet. Most research in the field of incisional hernia surgery has been performed to prevent recurrence after repair. The closure technique of midline incisions has grossly remained unchanged since many decades and primarily consists of suturing the linea alba. Interest in prevention of incisional hernias with the aid of synthetic mesh is growing and small, yet promising studies have now been published [2].

AIMS AND OBJECTIVES

The objective of this study was to evaluate the effectiveness of incisional hernia prevention in patients after laparotomy in high risk patients. The present study compared the commonly used technique of running suture to closure with the aid of a prosthetic mesh. The primary outcome measure was incisional hernia occurrence 1 year postoperatively. Secondary outcome measures covered relevant postoperative complications, post-operative pain and quality of life.

METHODOLOGY

In this study we analyzed 25 consecutive patients who underwent clean midline laparotomy and who had high risk for developing incisional hernia according to inclusion and exclusion criteria. Informed consent was taken. Onlay or Sublay meshplasty was done on random basis. Patients were followed up for 1 year (at interval of 3 months, 6 months and 1 year) for development of features of seroma, hematoma, wound dehiscence or incisional hernia. Results were compared with the patients undergoing conventional primary suture closure [3].

Inclusion Criteria

Midline laparotomy for patients having risk factors for incisional hernia such as obesity, steroid use, malnutrition, DM, COPD, TB, smoking and connective tissue disorders. Patients who were willing to give signed informed consent.

Exclusion Criteria

- Age <18 Years.
- Immune suppression therapy within 2 weeks before surgery.
- Peritonitis and hollow viscous perforation.
- Previously operated patients of hernia surgery. Type of Study: Prospective Study
- Need for Consent: An Informed Consent was taken from every patient included in this study.
- Sample Size: 25. Onlay meshplasty was done in 12 cases and sublay meshplasty was done in 13 cases on random basis.

RESULTS AND DISCUSSION

Prophylactic mesh placement (PMP) is associated with a

postoperative incisional hernia risk reduction when compared to Primary Suture Closure in high risk patients undergoing elective, midline laparotomy closure. The majority of seroma were managed conservatively or with percutaneous drainage. The incidence of incisional hernia was significantly reduced to 1/25 (4%), while it was 24% in the study. As regards seroma, it was 28% and chronic wound pain was 32% in present study, while it was 20% in the study (Table-1). A critique of the onlay mesh technique is the high incidence of seroma, which could lead to surgical site infection (SSI). However, in general, seroma is considered a low-morbidity surgical site occurrence, with no relevant clinical repercussions [4]. Other disadvantage of using prophylactic mesh is the increased operative time. In this study, the operative time was an average of 45.6 minutes longer in the prophylactic meshplasty, compared to suture closure (Table 2). The prophylactic mesh was effective in preventing Fascial Dehiscence, with a decrease in the Fascial Dehiscence incidence rate from 13.5% to 0% compared with running sutures alone. Despite the increase in some specific SSIs in the prophylactic meshplasty, >90% of them resolved spontaneously or with bedside interventions [5].

Table 1: Shows the complication rates in prophylactic onlay meshplasty patients

Complications	POD-1	POD-3	POD-7	POD-15	POD-30	POD-90	POD-180	POD-365
Seroma	0	2	2	1	1	0	0	0
Hematoma	0	1	0	0	0	0	0	0
Chronic Pain	0	0	3	2	1	0	0	0
Wound Dehiscence/ Incisional Hernia	0	0	0	0	0	0	1	0

Table 2: Shows the complication rates in prophylactic sublay meshplasty patients.

Complications	POD-1	POD-3	POD-7	POD-15	POD-30	POD-90	POD-180	POD-365
Seroma	0	1	0	0	0	0	0	0
Hematoma	1	2	1	0	0	0	0	0
Chronic Pain	0	0	1	1	0	0	0	0
Wound Dehiscence/ Incisional Hernia	0	0	0	0	0	0	0	0

CONCLUSIONS

On the basis of this study, it can be concluded that prophylactic mesh placement in midline incision laparotomy is effective and safe for high risk patients and patients with co-morbidities. Prophylactic mesh placement shows significant reduction in incidence of incisional hernia with minimal possible complications.

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