

Original article:

Comparative Evolution of Efficacy of Onlay and Preperitoneal Sublay Mesh Repair Technique in Hernia Patients

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ABSTRACT

Background: Ventral abdominal hernias are common in surgical practice. So, we planned the present study to compare the results of onlay and preperitoneal sublay mesh repair technique.

Materials & Methods: Patients with umbilical and para-umbilical hernia were included and broadly divided into two study groups with 10 patients in each group. One group consisted of patients treated with Onlay mesh repair while other group consisted of patients treated with Sublay mesh repair.

Results: Mean operative time for the subjects of the Onlay group was 56.12 minutes and was significantly lower than subjects of the Sublay group, which was found to be 80.85 minutes (P- value < 0.05). Seroma formation occurred in 20 percent of the patients of the Sublay group, and occurred in 40 percent of the patients of the Onlay group. Significant results were obtained while comparing the incidence of Seroma formation among the subjects of the Onlay group and Sublay group.

Conclusion: Sub lay mesh repair is associated with less chances of seroma formation and therefore, is comparatively safer.

Key words: Onlay, Repair, Sublay.

INTRODUCTION

Incisional hernia, a failure of the abdominal wall fascia to heal properly after surgery, is a common complication that affects over 10 per cent of patients undergoing a laparotomy. Incisional hernia is associated with complications such as pain, incarceration and obstruction of the intestinal lumen, and strangulation and ischaemia of the hernia contents. Hernia repair has improved over the past 20 years, but it is still associated with significant morbidity and recurrence. Tissue repair involving reapproximation of fascial edges under tension is associated with a hernia recurrence rate as high as 63 per cent after 10 years of followup.¹⁻⁴ The use of a prosthetic mesh, typically polypropylene or expanded polytetrafluoroethylene, interposed between fascial edges for a tension-free repair, is reported to produce lower recurrence rates, although they are still as high as 32 per cent over the same follow-up period. The introduction of a foreign body such as mesh, while reducing hernia recurrence, predisposes to new complications.⁵⁻⁷ So, we planned the present study to compare the results of onlay and preperitoneal sublay mesh repair technique.

MATERIALS & METHODS

The present study was conducted in the Department of Surgery, Saveetha Medical College & Hospital, Saveetha Nagar, Thandalam, Chennai, Tamil Nadu (India) and it included comparison of results of onlay and preperitoneal sublay mesh repair technique. 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. 20 patients with umbilical and para-umbilical hernia were included in the present study.

Inclusion Criteria

1. Umbilical hernia
2. Para-umbilical hernia
3. Size of umbilical and para-umbilical hernia defect more than 2 cm in length and width.

Exclusion Criteria

1. Groin hernia
2. Divarication of recti
3. Patient medically unfit for surgery
4. Complicated hernia (incarcerated, strangulated)

A case record form was filled for each patient documenting age, sex, address and clinical information, including chief complaints, duration of symptoms, predisposing factors and any previous history of treatment. Other medical history like traumas, HTN, and TB etc. were also noted. In 10 patients, Onlay mesh repair was carried out, while in the remaining 10 patient, sublay mesh repair was carried out. Patients were seen at 2 weeks, 1 months and 6 month postoperatively and at other times if needed. All the results were summarized in Microsoft excel sheet and were analyzed by SPSS software version 17.0. Chi- square test and Mann Whitney U test were used for assessment of level of significance.

Table 1: Mean age of the patients of the two study groups

Group	Mean age (years)	SD
Onlay	42.46	13.46
Sublay	41.25	12.52

Table 2: Mean operative time among the subjects of both the study groups

Group	Mean operative time (minutes)	P- value
Onlay	56.12	0.00
Sublay	80.85	

Table 3: Incidence of Seroma formation among subjects of both the study groups

Seroma formation	Sublay		Onlay		P- value
	Frequency	%	Frequency	%	
Present	2	20	4	40	0.020
Absent	8	80	6	60	
Total	10	100	35	100	

RESULTS

Mean age of the patients of the Onlay and Sublay group was 42.46 and 41.25 years respectively. Mean operative time for the subjects of the Onlay group was 56.12 minutes and was significantly lower than subjects of the Sublay group, which was found to be 80.85 minutes (P- value < 0.05). Seroma formation occurred in 20 percent of the patients of the Sublay group, and occurred in 40 percent of the patients of the Onlay group. Significant results were obtained while comparing the incidence of Seroma formation among the subjects of the Onlay group and Sublay group.

DISCUSSION

In the present study, a total of 20 patients were analyzed. Mean age of the patients of the Onlay and Sublay group was 42.46 and 41.25 years respectively. In a study by R Godara et al (2005) onlay placement of mesh was found effective, quick and easy technique as compared to sub lay placement. 100 cases of ventral hernia with defect size ≤ 4 inches were alternatively placed in onlay and inlay group. They observed the duration and ease of operation, wound complications, hospital stay, activity and recurrence. Results found that the mean total time for surgery in sublay group was 63.15 minutes compared to 49.35 minutes in onlay group ($p < 0.001$). The mean hospital stay in sublay was 6.8 days whereas it was 4.6 days in onlay group ($P < 0.001$). There was no recurrence in either group after two years follow up.⁸

In the present study, Mean operative time for the subjects of the Onlay group was 56.12 minutes and was significantly lower than subjects of the Sublay group, which was found to be 80.85 minutes (P- value < 0.05). M Kurzer et al (2007) conducted a prospective follow up study and concluded that the Open repair of incisional hernias with mesh in the sub-fascial plane is highly effective with acceptable complication rates. Total 125 patients treated with open sublay technique with retro muscular mesh placement. Their primary outcome was recurrence rate and secondary outcomes were complications and long-term discomfort. There were no early (within 30 days) wound infections but the mesh subsequently became infected in two patients and had to be removed. Seromas developed in 12 patients and 6 patients had abdominal wall discomfort. There was 4% recurrence. At a second follow-up a mean of 8 years after operation was done and there were no further recurrences.⁹

In the present study, seroma formation occurred in 20 percent of the patients of the Sublay group, and occurred in 40 percent of the patients of the Onlay group. Significant results were obtained while comparing the incidence of Seroma formation among the subjects of the Onlay group and Sublay group. A study conducted by Kurzer et

al (2008); showed that there were no early (within 30 days) wound infections; the mesh subsequently became infected in two patients and had to be removed. Seromas developed in 12 patients. In 2002, a total of 106 questionnaires were returned; 3 patients had died of unrelated causes, and 16 were untraceable despite repeated attempts. There were 5 (4%) recurrences. Altogether, 6 patients had abdominal wall discomfort, and 49 patients spontaneously wrote that they were pleased or very pleased with the long-term result. At a second follow-up a mean of 8 years after operation (95 months; range 46-168 months) patients were assessed by an independent observer, and there were no further recurrences.¹⁰ A study conducted by Forbes et al (2009); showed that there was no difference between groups in hernia recurrence rates (relative risk 1.02 (95 per cent confidence interval (c.i.) 0.41 to 2.54)). Duration of surgery varied. Mean length of hospital stay was shorter after laparoscopic repair in six of the included studies; the longest mean stay was 5.7 days for laparoscopic and 10 days for open surgery. Laparoscopic hernia repair was associated with fewer wound infections (relative risk 0.22 (95 per cent c.i. 0.09 to 0.54)), and a trend toward fewer haemorrhagic complications and infections requiring mesh removal.¹¹

CONCLUSION

Under the light of above obtained data, the authors conclude that Sub lay mesh repair is associated with less chances of seroma formation and therefore, is comparatively safer.

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