

Compare the Outcomes of Onlay versus Sublay Mesh Procedure in Patients with Ventral Hernia Repair

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ABSTRACT

Objective: To compare the outcomes of Onlay mesh technique versus Sublay mesh technique in patients undergoing ventral hernia repair.

Study Design: Randomized controlled trial

Place & Duration: Study conducted in the department of surgery Khairpur Medical College (KMC) Hospital, Khairpur Mirs for six months during 1st July 2019 to 30th December 2019.

Methods: A total of 140 patients with both genders having ages 18 to 70 years whom were undergoing ventral hernia repair were included. Patients demographic including age, gender were recorded after informed consent. Patients were equally divided into two groups Group A and Group B. Group A patients received onlay mesh technique and Group B received sublay technique. Outcomes such as post-operative pain, wound infection, seroma formation and hospital stay were recorded and compare the results between both groups.

Results: There were 39 (55.71%) and 37 (52.86%) patients were females in Group A and B. Paraumbilical was the commonest type of hernia between both groups. There was significant difference in term of post-operative pain 5.23 ± 1.54 vs 3.01 ± 1.01 (P-value <0.05), wound infection found in 11 (15.71%) vs 5 (7.14%) patients in both groups. 6 (8.57%) patients in Group A and 2 (2.86%) patients in Group B found to had seroma (p=<0.05). Mean Hospital stay in days was high in Group A patients compared to Group B 4.01 ± 1.95 vs 2.01 ± 0.65 (p=<0.05).

Conclusion: We concluded that sublay mesh technique for ventral hernia repair was safe and effective with very low rate of complications as compared to onlay mesh procedure.

Keywords: Ventral Hernia Repair, Onlay Mesh Technique, Sublay Mesh Technique, Outcomes.

INTRODUCTION

Ventral hernia repair is one of the routine surgical procedures. These may be congenital, can occur during or after pregnancy, or as a result of weakening of abdominal muscles such as after abdominal incision¹. Incidence rate ranges from 10-20% after abdominal incision^{2,3}. Mesh reinforcement has been proved to improve surgical outcomes as compared to the suture technique alone. There are still some post-operative complications after hernia repair and advancements are being made in reducing the frequency of these complications. Sublay and onlay mesh repair are two most frequently performed techniques of ventral hernia repair. In onlay technique mesh is secured on exposed anterior fascia while in sublay technique mesh is secured between the rectus sheath and peritoneum^{4,5}.

Wound infections, reoccurrence, mesh infections, seroma or fistula formation are common reported complications after ventral hernia repair^{6,7}. Sublay technique has been shown to provide some benefits as compared to the onlay technique, it has lower rate of reoccurrence and wound complications as compared to onlay repair. However, sublay technique requires more skilled hands, longer surgery time and sometimes it is associated with chronic abdominal pain⁸⁻¹⁰. Many of studies had been conducted to examine the outcomes of onlay and sublay mesh repair technique for ventral hernia repair but still there is controversy for the choice of technique. We conducted present study with aimed to examine the

outcome of onlay and sublay mesh technique and compare the finding between both techniques.

METHODS

This retrospective/observational study was conducted at Department of Surgery Khairpur Medical College (KMC) Hospital, Khairpur Mirs for six month during 1st July 2019 to 30th December 2019. A total of 140 patients with both genders having ages 18 to 70 years whom were undergoing ventral hernia repair were included. Patients demographic including age, gender were recorded after informed written consent. Patients less than 18 years, those not signed the consent, patients with ascites and patients with liver cancer were excluded.

Patients were equally divided into two groups Group A and Group B. Group A contains 70 patients and received onlay mesh technique under general anesthesia and Group B consist of 70 patients and received sublay technique under general anesthesia. Outcomes such as post-operative pain, wound infection, seroma formation and hospital stay were recorded and compare the results between both groups.

Data was analyzed by SPSS 20.0. Student t-test and Chi-square test was applied. P-value less than 0.05 was set as significant difference.

RESULTS

There were 39 (55.71%) patients were females and 31 (44.29%) patients were males in Group A and 37 (52.86%)

patients were females and 33 (47.14%) were males in Group B. Mean age of patients in Group A was 46.85±8.42 years and in Group B it was 47.95±9.75 years. (Table 1)

Table No 1. Age and gender wise distribution

Chatacteristics	Group A	Group B	P-value
Mean Age	46.85±8.42	47.95±9.75	N/S
Gender			
Male	31 (44.29%)	33 (47.14%)	>0.05
Female	39 (55.71%)	37 (52.86%)	>0.05

Para-umbilical was most common type found in 34 (48.57%) patients in Group A and 36 (51.43%) patients in Group B followed by incisional in 15 (21.43%) and 14 (20%) in Group A and B, epigastric in 12 (17.14%) and 13 (18.57%) in both groups and umbilical in 9 (12.86%) and 7 (10%) in both groups respectively. (Table 2)

Table No 2. Type of ventral hernia repair among both groups

Types	Group A	Group B	P-value
Paraumbilical	34 (48.57%)	36 (51.43%)	N/S
Incisional	15 (21.43%)	14 (20%)	>0.05
Epigastric	12 (17.14%)	13 (18.57%)	>0.05
Umbilical	9 (12.86%)	7 (10%)	>0.05

There was significant difference in term of post-operative pain 5.23±1.54 vs 3.01±1.01 (P-value <0.05). Wound infection rate was high in Group A patients than Group B 11 (15.71%) vs 5 (7.14%). 6 (8.57%) patients in Group A and 2 (2.86%) patients in Group B found to had seroma (p=<0.32). Mean Hospital stay in days was high in Group A patients compared to Group B 5.01±1.95 vs 3.01±1.65 (p=<0.05). (Table 3)

Table No 3. Postoperative outcomes between both groups

Outcomes	Group A	Group B	P-value
Post-op pain	5.23±1.54	3.01±1.01	0.002
Wound Infection	11 (15.71%)	5 (7.14%)	0.05
Seroma	6 (8.57%)	2 (2.86%)	0.32
Mean Hospital Stay (days)	5.01±1.95	3.01±1.65	0.024

DISCUSSION

Surgical treatment of ventral hernia repair is one of the post performing surgical procedure in all over the world [11]. Ventral hernia repair with lesser complications is always a challenging for surgeons and many of advancement have been made to avoide the complication in hernia repair [12-13]. Mesh technique is considered as effective and safe with very low rate of complications. Sublay and onlay are two most commonly used techniques of mesh replacement during hernia repair. Some studies have concluded that sublay technique should be declared as gold standard because there is a less risk of mesh infections and stoma formation [14-15]. Present study was conducted to examine the outcomes of both techniques. In this study total 140 patients were underwent ventral hernia repair. We equally divided patients in two groups. There were 39 (55.71%) patients were females and 31 (44.29%) patients were males in Group A and 37 (52.86%) patients were females and 33 (47.14%) were males in Group B. Mean age of patients in Group A was 46.85±8.42 years and in Group B it was 47.95±9.75 years. A study conducted by H Ahsan et

al [16] reported female patients population was high in number as compared to males 64% in onlay group and 60% in sublay groups with mean age 51.4±9.8 years and 52.3±10.1 years. Another study demonstrated female patients population was high as compared to males and most of patients were ages 30 to 50 years [17].

In present study para-umbilical was most common type found in 34 (48.57%) patients in Group A and 36 (51.43%) patients in Group B followed by incisional in 15 (21.43%) and 14 (20%) in Group A and B. These results were similar to many other studies in which paraumbilical was the most common type of ventral hernia repair 50 to 60% followed by incisional and umbilical [18-19].

In our study we found that there was significant difference in term of post-operative pain 5.23±1.54 vs 3.01±1.01 (P-value <0.05). Wound infection rate was high in Group A patients than Group B 11 (15.71%) vs 5 (7.14%). 6 (8.57%) patients in Group A and 2 (2.86%) patients in Group B found to had seroma (p=<0.32). Mean Hospital stay in days was high in Group A patients compared to Group B 5.01±1.95 vs 3.01±1.65 (p=<0.05). These results were similar to many other studies regarding ventral hernia repair in which sublay mesh technique demonstrated as effective and safe procedure in term of postoperative pain, wound infection and seroma formation as compared to onlay mesh procedure [20-22].

CONCLUSION

Mesh placement for ventral hernia repair considered as a procedure for choice for reducing the postoperative complications. We concluded that sublay mesh technique for ventral hernia repair was safe and effective in term of postoperative pain, wound infection and seroma formation with less hospital stay as compared to onlay mesh procedure.

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