Original Article

Techniques of Hernial Repair

Ventral Hernia Repair: Compare the Outcomes of Onlay Versus Sublay Mesh Procedure

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ABSTRACT

Objective: To examine the outcomes of onlay mesh technique and sublay mesh technique in patients undergoing ventral hernia repair and compare the findings between both procedures.
Study Design: Randomized control study.
Place and Duration of Study: This study was conducted at the Department of General Surgery, CMH Lahore from August 2017 to July 2018.
Methods: One hundred and forty patients of both genders having ages 18 to 70 years who were undergoing ventral hernia repair were included. 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 the results compared between both groups.
Results: There were 39 (55.71%) and 37 (52.86%) female patients in Group A and B respectively. Paraumbilical hernia was the commonest type between both groups. There was significant difference in terms 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 had seroma formation (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: Sublay mesh technique for ventral hernia repair was safe and effective with very low rate of complications as compared to onlay mesh procedure.
Key Words: Ventral Hernia Repair, Onlay Mesh Technique, Sublay Mesh Technique, Outcomes

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INTRODUCTION

Repair of ventral hernia is one of the most commonly performed surgical procedure. These may be congenital or acquired i.e. can occur during or after pregnancy, or as a result of weakening of abdominal muscles following abdominal incision.[1] Incidence ranges from 10-20% after abdominal surgery.[2,3]Mesh repair has improved surgical outcomes as compared to primary repair. However post-operative complications after hernia repair still exist and advancements are being made to reduce their frequency.

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Sublay and onlay mesh repair are two most popular techniques of ventral hernia repair. In onlay technique mesh is secured on exposed anterior rectus sheath while in sublay technique mesh is secured between the rectus sheath and peritoneum.[4,5]
Commonly reported complications after ventral hernia repair are wound infections, recurrence, mesh infections, seroma and fistula frmation.[6,]
Sublay technique is more beneficial as compared to the onlay technique as it has a lower rate of recurrence and wound complications. However, sublay technique requires more expertise, longer operative time and sometimes it is associated with chronic abdominal pain.[8,9,10] Many studies have 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. The present study was conducted to examine the outcome of onlay and sublay mesh technique and compare the findings between both techniques..

MATERIALS AND METHODS

This study was conducted at Department of General Surgery, CMH, Lahore from 1-08-2017 to 31-07-2018. One hundred and forty patients of both genders between 18 to 70 years of age who were undergoing ventral hernia repair were included after informed consent.

Patients less than 18 years, those not signed the consent and patients with chronic liver disease were excluded. Patients were randomly allocated into two groups Group A and Group B. Group A had 70 patients who underwent onlay mesh technique whereas Group B also had 70 patients who received sublay technique. Surgery was performed under general anaesthesia and Prolene mesh was used. All patients received a 2nd generation Cephalosporin at the time of induction of anaesthesia and for two post-operative days. Outcomes such as post-operative pain, wound infection, seroma formation and hospital stay were recorded and the results compared between both groups.Data was analyzed by SPSS 20. Student t-test and Chi-square test was applied. P-value <0.05 was set as significant difference.

RESULTS

There were 39 (55.71%)females and 31 (44.29%) male patients in Group A and 37 (52.86%) females and 33 (47.14%) 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).

Para-umbilical hernia 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.1: Age and gender wise distribution

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

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

Types	Group A	Group B	P-value
Paraumbilical	34 (48.57%)	36 (51.43%)	>0.05
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

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

There was significant difference in terms 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 developed 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).

DISCUSSION

Surgical treatment of ventral hernia is one of the most performed surgical procedure all over the world.[11] Ventral hernia repair with lesser complications is challenging for surgeons and many advancements have been made to avoid complications.[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 placement during hernia repair. According to some studies sublay technique should be declared as gold standard because there is less risk of mesh infections and seroma formation.[14,15] Present study was conducted to examine the outcomes of both techniques. In this study total 140 patients underwent ventral hernia repair. We randomly allocated patients in two groups. There were 39 (55.71%) females and 31 (44.29%) males in Group A and 37 (52.86%) females and 33 (47.14%) 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 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. Some other studies 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 hernia was most common type in both groups followed by incisional, epigastric and umbilical hernia. These results were similar to many other studies in which para-umbilical was the most common type of ventral hernia repaired 50 to 60% followed by incisional and umbilical.[18,19]

In our study we found that there was significant difference in terms 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 developed 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 comparable to many other studies regarding ventral hernia repair in which sublay mesh technique was demonstrated as effective and safe procedure in terms of postoperative pain, wound infection and seroma formation as compared to onlay mesh procedure.[20-22]

CONCLUSION

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..

Author's Contribution:

Concept & Design of Study:	Amna Shahab
Drafting:	Muhammad Aqil Raazaq
Data Analysis:	Muhammad Tanvir Iqbal
Revisiting Critically:	Amna Shahab Muhammad Aqil Razzaq
Final Approval of version:	Amna Shahab

Conflict of Interest: The study has no conflict of interest to declare by any author.

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