MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.36478/makrjms.2024.12.923.930

Comparative Study of Onlay Hernioplasy and Sublay Hernioplasty of Ventral Hernia

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OPEN ACCESS

Key Words
Hernioplasty, Ventral hernia

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Received: 28th October 2024
Accepted: 18th November 2024
Published: 30th December 2024

Citation: Dr. V.B. Gowtham Srinivas, Dr. K.L. Harish, Dr. Channanna Chidamber Rao and Dr. R. Bharathi, 2024. Comparative Study of Onlay Hernioplasy and Sublay Hernioplasty of Ventral Hernia. Res. J. Med. Sci., 18: 923-930, doi: 10.36478/makrjms. 2024.12.923.930

Abstract
Ventral hernias provide a considerable clinical challenge, involving a range of abdominal wall abnormalities characterised by the protrusion of intra-abdominal contents through a compromised or disrupted fascial layer. These hernias encompass primary midline abnormalities, including umbilical and epigastric hernias, along with incisional hernias that occur as postoperative complications subsequent to abdominal surgery. Incisional hernias occur in 2–20% of laparotomy cases, underscoring the therapeutic significance of ventral hernia treatment in surgical practice. This was a prospective observational study carried out in the Department of General Surgery at PES Institute of Medical Sciences and Research (PESIMSR), Kuppam, Andhra Pradesh. The research was conducted over an 18-month duration. The research encompassed patients hospitalised in the General Surgery unit with a clinical diagnosis of ventral hernia. All chosen individuals met the specified inclusion and exclusion criteria detailed below. Patients were chosen using selective selection. A minimum sample size of 30 was established based on prevalence statistics from a prior study conducted at Fayoum University. Inclusion criteria are patients aged 18 to 70 years, clinically diagnosed with a ventral hernia, and admitted for surgical intervention. Seroma development occurred more frequently in Group A (26.67%) than in Group B (6.67%), with a statistically significant difference ($p = 0.0376$). Chronic pain was reported more frequently in Group A (20.00%) compared to Group B (3.33%), with statistical significance ($p = 0.0443$). Infection was observed in 6.67% of patients in Group A, but Group B exhibited no infections; yet, this disparity was not statistically significant ($p = 0.3132$). Group A had a greater incidence of problems than Group B. The sublay approach yielded superior overall outcomes. Patients who received sublay repair exhibited a reduction in comorbidities, including fluid accumulation and pain, demonstrated expedited recovery, and encountered a lower likelihood of hernia recurrence. According to these findings, sublay mesh repair seems to be the most efficacious and safer alternative for ventral hernia repair.

INTRODUCTION

Ventral hernias represent a significant clinical burden, encompassing a spectrum of abdominal wall defects where intra-abdominal contents protrude through a weakened or disrupted fascial layer[1]. These hernias include primary midline defects such as umbilical and epigastric hernias, as well as incisional hernias, which arise as postoperative complications following abdominal surgery[2]. Incisional hernias alone occur in 2-20% of laparotomy cases, highlighting the clinical relevance of ventral hernia repair in surgical practice[3].

The evolution of ventral hernia repair has undergone significant transformation, progressing from simple suture techniques to mesh-based repairs, which have demonstrably reduced recurrence rates[4]. Among the various mesh placement techniques, the onlay and sublay (retrorectus) methods have emerged as the most widely utilized in open surgical approaches. The onlay technique involves placing the mesh over the anterior rectus sheath, whereas the sublay technique positions the mesh in the retromuscular space, between the posterior rectus sheath and the rectus muscle[5-6].

The choice of mesh placement plane significantly influences surgical outcomes, including postoperative complications such as seroma, surgical site infection (SSI), recurrence rates, and chronic pain[7]. The sublay approach, originally described by Rives and Stoppa, has been increasingly favored due to its biomechanical advantages[8]. By positioning the mesh in a well-vascularized and pressure-neutral anatomical plane, sublay repair offers superior integration and lower tension on suture lines, potentially minimizing recurrence and infection[9].

In contrast, the onlay technique is technically simpler and less time-consuming, making it appealing in resource-limited settings or in patients with challenging anatomy. However, the subcutaneous location of the mesh in this method has been associated with higher rates of seroma formation and infection[5-11]. Recent comparative studies have yielded mixed findings. For example, a systematic review by Pereira C *et al*. (2023) reported no significant difference in recurrence between onlay and sublay repairs but observed a statistically significant increase in seroma formation in the onlay group[5].

The advent of newer mesh designs, including self-gripping and lightweight meshes, has also influenced the outcomes of these techniques. Schembari E *et al*. (2020) demonstrated that sublay repair using self-gripping mesh resulted in low complication and recurrence rates, suggesting that mesh type may be as critical as placement technique[12].

Demographic factors such as age, obesity, comorbidities (e.g., diabetes), and lifestyle factors (e.g., smoking) further complicate the decision-making process for optimal mesh placement. Surgical technique, anatomical site, and extent of the defect also guide the surgeon's choice[13-14].

Despite the long-standing use of both techniques, there remains a lack of consensus on the superior approach. Some studies favor sublay due to its lower recurrence and infection rates, while others uphold onlay as a viable and efficient option, particularly in primary ventral hernias and in cases where posterior dissection may be technically difficult or contraindicated[5-11].

The growing body of literature underscores the necessity for rigorous, context-specific comparative studies to inform surgical practice. There remains a critical need to evaluate outcomes in terms of operative time, postoperative pain, hospital stay, complications, and long-term recurrence.

This study aims to comparatively evaluate the clinical outcomes of onlay versus sublay hernioplasty in patients undergoing ventral hernia repair. By systematically analyzing postoperative complications, recurrence rates, operative duration, and hospital stay, this research seeks to provide evidence-based guidance for optimal surgical technique selection in ventral hernia management.

Aims and Objectives: To compare between onlay and sublay mesh hernioplasty in ventral hernias

MATERIALS AND METHODS

This was a prospective observational study conducted in the Department of General Surgery at PES Institute of Medical Sciences and Research (PESIMSR), Kuppam, Andhra Pradesh.The study was carried out over a period of 18 months.The study included patients admitted to the General Surgery ward with a clinical diagnosis of ventral hernia. All selected participants fulfilled the inclusion and exclusion criteria outlined below.Patients were selected using purposive sampling. A minimum sample size of 30 was determined based on prevalence data from a previous study conducted at Fayoum University.Inclusion criteria are Patients aged between 18 and 70 years,Diagnosed clinically with ventral hernia and admitted for surgical management.

Exclusion criteria are Patients presenting with peritonitis, strangulated, or obstructed hernias, Patients who had previously undergone mesh repair for ventral hernia.

Written informed consent was obtained from all participants. Detailed history, demographic data, and clinical findings were recorded through interviews and physical examination. Basic laboratory investigations and ultrasonography of the abdomen and pelvis were performed preoperatively. All patients underwent either onlay or sublay mesh hernioplasty under general

anesthesia. Prophylactic antibiotics (1g of third-generation cephalosporin) were administered at induction and continued for two postoperative days. The mesh was placed over the anterior rectus sheath after closure of the fascial defect. The hernia sac was dissected, its contents reduced, and the mesh was secured with non-absorbable sutures.

The mesh was placed in the retro-rectus space deep to the rectus muscles and posterior rectus sheath/peritoneum. The defect was closed primarily, and the mesh was fixed in place extending at least 5 cm beyond the margins of the defect.

In both groups, Romovac suction drains were used and removed once the output was less than 20 mL over 24 hours. Drain duration, operative time, and complications were recorded.Patients were followed up at 0, 1, and 3 months postoperatively. The primary outcomes evaluated included: Operative time (from skin incision to dressing), Postoperative complications (seroma, mesh infection, surgical site infection) and Duration of drain placement.

Statistical analysis was done using the statistical package for social sciences (SPSS). Different statistical methods were used as appropriate. Mean ± SD was determined for quantitative data and frequency for categorical variables. The independent t- test was performed on all continuous variables. The normal distribution data was checked before any t-test. The Chi-Square test was used to analyze group difference for categorical variables A p- value < 0.05 was considered significant.

RESULTS AND DISCUSSIONS

The majority of patients in both groups belonged to the 31-50 years age range, with 60% in Group A and 56.67% in Group B. The 41-50 years age group had the highest frequency in both groups. A relatively smaller proportion of patients were observed in the 21–30 years and 61–70 years age groups. The distribution of age between the two groups was comparable, with no statistically significant difference (p = 0.8191).

In both groups, males constituted the majority, accounting for 63.33% in Group A and 60.00% in Group B. Females comprised 36.67% and 40.00% in Group A and Group B, respectively. The gender distribution was similar between the two groups, with no statistically significant difference observed (p = 0.7906).

The mean BMI was slightly higher in Group A (21.65 ± 1.19) compared to Group B (21.25 ± 1.17). However, this difference was not statistically significant, as indicated by a p-value of 0.1922, suggesting comparable BMI distributions between the two groups.

In Group A, umbilical hernia was the most common diagnosis (36.67%), followed by incisional hernia (33.33%). Similarly, incisional hernia was equally prevalent in Group B (33.33%), while paraumbilical hernia was slightly more common (26.67%) compared to Group A. Epigastric hernia was the least frequent diagnosis in both groups. Overall, the distribution of hernia types was comparable between the two groups, with no statistically significant difference observed (p=0.6386).

The most common presentation in both groups was swelling alone, observed in 76.67% of patients in Group A and 73.33% in Group B. A combination of swelling and pain was reported in 23.33% of Group A and 26.67% of Group B. The distribution of clinical presentations was similar between the groups, with no statistically significant difference (p = 0.7655).

The average operative time was significantly shorter in Group A (42.13 ± 8.39 minutes) compared to Group B (54.33 ± 10.16 minutes). This difference was statistically highly significant, as indicated by a p-value of < 0.0001, suggesting that the Onlay technique required less operative time than the Sublay technique.

Seroma formation was more frequent in Group A (26.67%) compared to Group B (6.67%), with a statistically significant difference (p = 0.0376). Chronic pain was also reported more commonly in Group A (20.00%) than in Group B (3.33%), which was statistically significant (p = 0.0443). Infection occurred in 6.67% of patients in Group A, while no infections were noted in Group B; however, this difference was not statistically significant (p = 0.3132). Overall, Group A showed a higher rate of complications compared to Group B.

Patients in Group A had a longer average hospital stay (7.13 ± 1.01 days) compared to those in Group B (6.47 ± 1.04 days). This difference was statistically significant, with a p-value of 0.0145, indicating that the Sublay technique was associated with a shorter postoperative hospital stay.

Recurrence was observed in 10.00% of patients in Group A and 3.33% in Group B. Although the recurrence rate was higher in the Onlay group, the difference was not statistically significant (p = 0.3006), suggesting comparable long-term outcomes in terms of recurrence between the two techniques.

The average duration was slightly shorter in Group A (3.70 ± 1.09 days) compared to Group B (4.00 ± 1.36 days). However, this difference was not statistically significant (p = 0.3503), indicating that the type of surgical technique had no significant impact on the duration of drain use.

The mean defect size was slightly larger in Group A (9.17 ± 3.16 cm^2) compared to Group B (8.77 ± 2.30 cm^2). However, the difference was not statistically significant (p = 0.5775), indicating that both groups had comparable hernia defect sizes preoperatively.

The goal of this prospective comparative study was to look at and compare the clinical outcomes of the onlay (Group A) and sublay (Group B) mesh repair

Table 1: Distribution of Age

Age	Group A (Onlay technique)		Group B (Sublay technique)	
	Frequency	Percentage	Frequency	Percentage
21-30 years	3	10.00%	1	3.33%
31-40 years	9	30.00%	8	26.67%
41-50 years	9	30.00%	9	30.00%
51-60 years	6	20.00%	6	20.00%
61-70 years	3	10.00%	5	16.67%
Total	30	100.00%	30	100.00%
p-value	0.8191			

Table 2: Distribution of Gender

Gender	Group A (Onlay technique)		Group B (Sublay technique)	
	Frequency	Percentage	Frequency	Percentage
Male	19	63.33%	18	60.00%
Female	11	36.67%	12	40.00%
p-value	0.7906			

Table 3: Comparison of Body Mass Index (BMI) Between Groups

BMI	Group A (Onlay technique)	Group B (Sublay technique)
Mean	21.65	21.25
SD	1.19	1.17
p-value	0.1922	

Table 4: Distribution of Diagnosis

Diagnosis	Group A (Onlay technique)		Group B (Sublay technique)	
	Frequency	Percentage	Frequency	Percentage
Umbilical Hernia	11	36.67%	7	23.33%
Incisional hernia	10	33.33%	10	33.33%
Paraumbilical Hernia	5	16.67%	8	26.67%
Epigastric Hernia	4	13.33%	5	16.67%
p-value	0.6386			

Table 5: Clinical Presentation of Patients

Presentation	Group A (Onlay technique)		Group B (Sublay technique)	
	Frequency	Percentage	Frequency	Percentage
Swelling	23	76.67%	22	73.33%
Swelling + Pain	7	23.33%	8	26.67%
p-value	0.7655			

Table 6: Comparison of Duration of Surgery

Duration of Surgery (mins)	Group A (Onlay technique)	Group B (Sublay technique)
Mean	42.13	54.33
SD	8.39	10.16
p-value	< 0.0001	

Table 7: Postoperative Complications

Complications	Group A (Onlay technique)		Group B (Sublay technique)		p-value
	Frequency	Percentage	Frequency	Percentage	
Seroma	8	26.67%	2	6.67%	0.0376
Chronic pain	6	20.00%	1	3.33%	0.0443
Infection	2	6.67%	0	0.00%	0.3132

Table 8: Comparison of Duration of Hospital Stay

Duration of Hospital stay (days)	Group A (Onlay technique)	Group B (Sublay technique)
Mean	7.13	6.47
SD	1.01	1.04
p-value	0.0145	

Table 9: Comparison of Hernia Recurrence

Recurrence	Group A (Onlay technique)		Group B (Sublay technique)	
	Frequency	Percentage	Frequency	Percentage
Yes	3	10.00%	1	3.33%
No	27	90.00%	29	96.67%
p-value	0.3006			

Table 10: Comparison of Duration of Drain Placement

Duration of drain (days)	Group A (Onlay technique)	Group B (Sublay technique)
Mean	3.70	4.00
SD	1.09	1.36
p-value	0.3503	

Table 11: Comparison of Hernia Defect Size

Defect size(cm^2)	Group A (Onlay technique)	Group B (Sublay technique)
Mean	9.17	8.77
SD	3.16	2.30
p-value	0.5775	

methods for ventral hernia surgery. There were 60 cases in total, and they were split evenly into two groups of 30. The demographics of both groups were very similar, which allowed for a fair comparison. Most of the patients in both groups were between the ages of 31 and 50, and there was no statistically significant difference in the age distribution (p = 0.8191).

In both groups, men made up the majority (63.33% in Group A vs. 60% in Group B), and the gender split was about the same (p = 0.7906).

People in the onlay group had a slightly higher mean Body Mass Index (BMI) than people in the sublay group (21.25 kg/m²), but this difference wasn't statistically significant (p = 0.1922). The most common types of hernia in both groups were umbilical and incisional. Most patients came in with swelling alone (76.67% in Group A and 73.33% in Group B), then swelling with pain. There was no significant difference between the groups in terms of the type of hernia or how it showed up (p = 0.6386 for diagnosis; p = 0.7655 for appearance).

There was a big difference in the length of the surgeries: Group A (onlay) took 42.13 ± 8.39 minutes, while Group B (sublay) took 54.33 ± 10.16 minutes (p < 0.0001). This shows that the onlay technique is technically faster, probably because the mesh placement in the anterior plane is easier with the onlay technique. The average hernia defect size was the same in both groups (Group A: 9.17 cm²; Group B: 8.77 cm²), but there was no statistical significance (p = 0.5775), showing that both techniques were used for hernias of the same size.

Results after surgery is to be There was a statistically significant difference between the groups: more seromas formed in the onlay group (26.67%) than in the sublay group (6.67%).

20% of patients in Group A reported chronic pain, but only 3.33 % of patients in Group B did (p = 0.0443). This suggests that the sublay method was more comfortable after surgery.

One in 6.67% of people in Group A got an illness at the surgical site, but none of the people in Group B did. This difference was not statistically significant, though (p = 0.3132).

The onlay group had a longer hospital stay (7.13 ± 1.01 days) than the sublay group (6.47 ± 1.04 days), and this difference was statistically significant (p = 0.0145). Group B had a slightly longer drain placement time (4.00 ± 1.36 days vs. 3.70 ± 1.09 days in Group A), but this difference was not significant (p = 0.3503).

A recurrence of the hernia was seen in 10% of onlay patients and in 3.33% of sublay patients. This suggests that the sublay technique has a smaller recurrence trend, but the difference was not statistically significant (p = 0.3006). This trend fits with other research that shows better biomechanical support in sublay fixes.

The current study shows that the sublay technique has better postoperative outcomes, even though the onlay technique has a much faster operative time, which can be helpful in high-risk or time-sensitive cases. Patients in the sublay group had a lot fewer problems, like seroma and constant pain, and were in the hospital for shorter periods of time. They also had a lower tendency for problems to happen again. It's important to note that both groups had similar traits at the start, which makes these comparisons even more reliable.

How well healthcare resources are used, how quickly patients recover, and how efficiently the procedure is run all depend on how long the patient stays in the hospital after surgery. Most of the time, shorter hospital stays are better because they lower healthcare costs, lower the risk of nosocomial infections, and make patients happier. That's a big difference between the two groups: the onlay group's average hospital stay was 7.13 ± 1.01 days, while the sublay group's average was 6.47 ± 1.04 days. This shows that patients who have sublay repair tend to get better faster and can go home earlier than those who have onlay repair.

This result is very similar to what Raghuveer MN et al. (2018)[16] found. They said that the sublay group had a much shorter hospital stay after surgery (4.8 ± 1.51 days) than the onlay group (6.68 ± 1.46 days). Their results support the idea that placing sublay mesh deeper in the body, where it is more vascularised and there are more blood vessels, leads to fewer wound-related complications and faster mobilisation and release.

Another study by Soni DK *et al*. (2024)[15] found that the average length of stay in the hospital was 7.85 ± 2.41 days for the onlay group and 5.40 ± 1.29 days for the preperitoneal (sublay equivalent) group. This difference was statistically significant (p < 0.05). These results are similar to the current study's data in both direction and clinical importance. This shows that the sublay approach may be helpful for faster recovery after surgery.

Some studies, like Deherkar JA *et al*. (2022)[17], found that the average day after surgery for the sublay

group was 5.40 ± 1.729 days, compared to 6.35 ± 2.641 days for the onlay group. However, this difference was not statistically significant in their study (p = 0.19). Still, the trend stays the same as seen in this study: fixing the sublay tends to make discharge go faster.

The found trend may be partly due to the fact that the sublay group had lower rates of complications like seroma, infection, and pain after surgery, as shown by both this study and others that were similar. The onlay method requires more extensive cutting of the subcutaneous tissue in order to place the mesh. This creates a larger dead space and makes patients more likely to have problems like seroma formation and wound infection, which can both slow recovery and keep them in the hospital longer. For example, Kumari DC *et al*. (2022)[18] found that seroma rates were 20% and wound infection rates were 10% in the onlay group, but only 3.33% and 1.66%, respectively, in the sublay group. This directly affects why onlay patients have to stay in the hospital longer.

The study by Martins EF *et al*.(2022)[19] was interesting because it didn't give exact numbers for how long people had to stay in the hospital. However, they did find that surgical site occurrences and seromas happened more often in the sublay group (48% vs. 42%) and less often in the onlay group (21% vs. 42%). Even so, their results are more typical of cases with a lot of complications. They may not necessarily go against the general trend, especially when different surgical techniques, patient choices, and the complexity of the hernia are taken into account.

For clinical and logistical reasons, even a small drop of one day in hospital stay, like the one seen in this study (6.47 vs. 7.13 days), can have big effects on hospital throughput, cost control, and patient turnover, especially in surgical centres with a lot of patients. Early release also lowers the risk of hospital-acquired infections, boosts patient morale, and makes the best use of available beds. Hernia return is one of the most important long-term outcomes of ventral hernia surgery. It shows not only how durable the surgery method is, but also how well the mesh was placed, how well the tissue healed, and other factors that are unique to each patient. Hernias came back in 10% of patients (3 out of 30) in the onlay group (Group A), but only in 3.33% of patients (1 out of 30) in the sublay group (Group B). This difference wasn't statistically significant (p = 0.3006), but the trend points to a lower rate of return with the sublay method.

This finding fits with what a number of studies have already found. For example, Kumari DC et al. (2022)[18] found that there was no recurrence in the sublay group, but 6.66% in the onlay group. This shows that placing the mesh under the sublay is better for preventing hernias from happening again. The fact that sublay patients in their group didn't have any recurrences may be due to the structural benefits of putting the mesh in the retromuscular space, where it is well supported by surrounding tissues and less likely to move or get infected.

In the same way, Raghuveer MN *et al*. (2018)[16] saw return in 8.51 percent of onlay cases and 4.35 percent of sublay cases. This difference wasn't statistically significant (p > 0.05), but the trend was the same as in this study. This means that sublay repairs tend to offer better structural reinforcement, which lowers the chance of recurrence.

In comparison, Martins EF *et al*. (2022)[19] found that the recurrence rate was the same (4%) in both the onlay and sublay groups, and there was no statistically significant difference between the two groups (p = 0.986). But it's important to look at this result in the context of their larger data, which showed that the sublay group had higher total complication rates. This could be because the patients were more complicated or because the surgeons used different techniques.

In the study by Soni DK *et al*. (2024)[15], there was a bigger difference: 9.30% of patients in the onlay group had a return, but none of the patients in the sublay group did. This difference was statistically significant. This proves that the sublay method is better at long-term supporting the body and stopping problems from happening again. The lower rate of recurrence seen in sublay repairs is mostly due to the biomechanical benefit of putting the mesh in the retromuscular plane. This is because it has better blood flow, less mobility, and is held in place by two strong fascial layers. On the other hand, onlay mesh placement is simpler and faster, but it depends on the stability of the soft tissue above it. It is also more likely to cause seromas, infections, and mechanical displacement, all of which are known to lead to hernias happening again.

The current study did not find a statistically significant difference in the rates of return. This could be because the sample size was small and the follow-up period was not very long. Hernia recurrences usually happen over a longer period of time, and studies with small samples might not be able to find small but clinically important differences.

From a therapeutic point of view, even a drop in recurrence of 3.33%, as seen in this study, is a big win for patients because it means they don't have to have surgery again, their quality of life improves, and healthcare costs go down. Even though it wasn't statistically significant, the trend towards lower recurrence in sublay repair is aligned with what has been written and should affect surgical decisions, especially for younger patients or those who have a high risk of recurrence. When a ventral hernia is repaired, where the surgical drains go and how long they stay in place are important things to think about right after the surgery. Especially in mesh-based fixes, drains are often put in to stop seroma, haematoma,

and early infection. Longer drain times, on the other hand, can make the patient more uncomfortable, slow down their ability to move, and possibly even increase the risk of a backward infection. As a result, maximising the length of time the drain is in place is essential for improving healing.

One group (Group A) had drains put in for an average of 3.70 ± 1.09 days, while Group B had drains put in for an average of 4.00 ± 1.36 days. The average length was a little longer in the sublay group, but the difference wasn't statistically important (p = 0.3503). Based on these results, it looks like both methods need about the same amount of drainage time right after surgery. Several other studies, not this one, have found that the onlay group had longer drain times, often by a large amount. For example, Kumari DC *et al*. (2022) [18] found that the drain took 7±3 days longer on average in the onlay group than in the sublay group (5±2 days), showing that the sublay method is clearly better. The longer recovery time in the onlay group is usually because more subcutaneous tissue is cut and more dead space is formed when the mesh is placed over the anterior rectus sheath. This makes it more likely that fluid will build up and requires longer drainage.

A similar trend was seen by Soni DK *et al*. (2024)[15]. In their study, the average drain time was 7.02±3.24 days for the onlay group and 5.80±2.63 days for the sublay group. This difference was big enough to be statistically significant (p = 0.05). These results support the idea that positioning the mesh deeper in the sublay method leads to better tissue adhesion and less fluid collection after surgery.

Deherkar JA *et al*. (2022)[17] also found that the draining time was significantly shorter in the sublay group (5.80 ± 2.61 days) than in the onlay group (7.85 ± 3.10 days, p = 0.03). This supports the growing consensus that because sublay repairs are better for the body, they are linked to lower postoperative serous fluid output. In line with these findings, Raghuveer MN *et al*. (2018)[16] found that the average drain time was 5.97 days in the onlay group and 4.22 days in the sublay group. This shows again that placing the mesh deeper is linked to better fluid dynamics after surgery.

Unlike some other research, this study didn't find a statistically significant difference between the Onlay and Sublay groups in the length of time drains were installed. The average length of time was a little longer in the Sublay group (4 days) than in the Onlay group (3.70 days). This small difference may seem strange because complications are less common with the sublay method. Several things in the environment, on the other hand, could explain this difference. First, the current study may not have had enough statistical power to find a real difference because the sample size was too small. Second, it's up to each surgeon to decide when to remove the drains, which could lead to differences. Surgeons' choices are often based on their own opinion of the drainage output or their clinical judgement. In some Sublay cases, the longer drain use may have been necessary because the case was complicated or there were small amounts of fluid collections after surgery that were not serious enough to be called problems. Lastly, the difference might have been caused by institution-specific rules about postoperative care, such as standard criteria for drain removal and planning for release.

Even with these differences, the shorter overall drain durations in both groups (less than 5 days) in this study are likely due to better surgical techniques, better haemostasis during surgery, and earlier mobilisation procedures. In this study, there was no statistically significant difference (p = 0.5775) between the onlay (9.17 ± 3.16 cm^2) and sublay (8.77 ± 2.30 cm^2) groups in the size of the hernia faults. This similarity makes sure that outcomes like complications and recurrence are caused by the surgery method and not differences in the anatomy at the start. When defect sizes are similar between groups, comparisons between groups are more likely to be true.

CONCLUSION

The present study compared two common techniques for ventral hernia repair: onlay and sublay mesh placement. Both techniques were used for similar types of hernias and patient profiles. The onlay technique was quicker to perform, making it a convenient option in certain clinical situations. However, the sublay technique resulted in better overall outcomes. Patients who underwent sublay repair experienced fewer complications such as fluid buildup and pain, recovered faster, and had fewer chances of the hernia returning. Based on these findings, sublay mesh repair appears to be the more effective and safer option for ventral hernia repair.

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