

“A COMPARATIVE STUDY BETWEEN ONLAY AND SUBLAY MESH REPAIR IN THE TREATMENT OF VENTRAL HERNIAS”

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INTRODUCTION

More than 1 million ventral hernia surgeries are done annually in india . Suture repair techniques have dominated ventral and incisional hernia repair over a century. The most popular of these techniques was the Mayo duplication. In larger hernias, suture repair requires the application of tension to the fascia in order to close the orifice. Therefore, many suture repairs failed mechanically, and recurrence rates were found to be as high a 54%. The advantages of mesh **implantation** have first been confirmed by an influential trial by Luijendijk et al. [1]

The choice of a type of open operative repair is controversial; the technique of **hernia** repair is often based on tradition rather than evidence [1]. According to databases [2] and reviews there is a good evidence that open mesh repair is superior to suture repair in terms of recurrences and an insufficient evidence as to which type of mesh or which mesh position (on- or sublay) should be used.

The main goal of this study is to compare the outcome of mesh repair in sublay and onlay position of mesh reconstruction in care of small and large hernias.

Ventral hernia repair is among the most common surgical operations performed worldwide ,and the two operative techniques most frequently used in case of ventral hernia are the onlay and sublay repair. However, it remains unclear which technique is superior.

Many studies demonstrate an increased risk for wound complications with mesh placement including surgical site infections, seroma and flap necrosis . The risks of these complications are affected by where the mesh is placed. For example, mesh exposed to intra-abdominal contents potentially increases the risks of adhesions, bowel obstruction, and fistula formation . This study aims to compare the outcome of the onlay versus sublay mesh repair for treatment of ventral hernia.

AIM OF STUDY

This study aims to compare the duration of surgery and postoperative complications of sublay and onlay meshplasty in the treatment of ventral hernias.

METHODOLOGY

Written informed consent will be obtained from all study subjects before enrolment in the study.

All subjects undergoing onlay and sublay mesh repair for ventral hernias will be evaluated intraoperatively for duration of surgery and postoperatively for complications like surgical site infections, seroma formation, flap necrosis and duration of hospital stay.

DISCUSSION:

When considering the best location for placement of mesh, a number of features are to be considered.

Firstly, techniques that avoid the devascularisation of flaps will prevent wound complications like infections, flap necrosis and surgical site infections.

Secondly, technical ease and duration of surgery may affect the surgeon's choice .

Sublay repair allows tissue integration from two load-bearing tissues from both sides: posterior rectus sheath and the anterior myo-fascial complex. In addition, sublay mesh placement protects the mesh from exposure from superficial wound complications, intra-abdominal adhesions, and contamination. Creation of devascularizing skin flaps is avoided.

Onlay allows for tissue in growth from two directions, the skin flaps are not load bearing. Mesh placed in the onlay location is vulnerable forcing the surgeon to create devascularizing skin flaps and leaving the mesh susceptible to superficial wound complications.

1) DURATION OF SURGERY

Mean duration of surgery in our study, in cases that underwent onlay mesh plasty is 95min and in pre-peritoneal Mesh repair it took more time and the average duration of surgery was 102 mins ($P < 0.0001$). The difference could be accounted to more time required for dissection for creating pre-peritoneal space.

Ease of operation was largely subjective and depends on surgeons' experience, exposure, quality of assistance, and conducive facilities. Godara et al., reported a mean duration of 49.35 min for onlay and a mean duration of 63.15 min for pre-peritoneal mesh repair ($P < 0.0001$), while in Gleysteen²³ series the mean duration for onlay and pre-peritoneal mesh repair were 42 and 70.5 min, respectively.

2) SEROMA:

The most common complication observed was seroma in 5 patients .

Out of patients , 1 (4%) were in preperitoneal and 5 (20%) in onlay mesh repair group. This complication was managed with seroma drainage. Onlay technique had more seroma formation, due to the fact that onlay technique requires significant subcutaneous dissection to place the mesh, which can lead to devitalized tissue . Liaqat ali zia et.al ina study of 100 patients reported 14 percent in onlay group and 4% in sublay group [40]. Julie L. Holihan reported 18 and 4 percentage in onlay sublay group respectively, which is similar with our study

3) SURGICAL SITE INFECTIONS:

The superficial location of the mesh also puts it in danger of becoming infected if there is a superficial wound infection. Wound infection was found in 5 cases .

Out of these, 1 (4%) were in a pre-peritoneal group and 4 (16%) were in onlay group. Bantu Rajsiddharth et al. in a study of 60 patients found surgical site infection in 6 cases (10%). Out of these, 2 (6.66%) were in a pre-peritoneal group and 4 (13.33%).This is similar to our study.

These patients were treated with appropriate antibiotics and regular dressing. No patient required removal of mesh because the infection was superficial and responded well to antibiotics.

4) FLAP NECROSIS:

It was seen totally in 4(16%) patients. All 4(16%) were seen in onlay group with a nil occurrence in sublay group. This is similar to a study conducted by Julie L. Holihan¹ • Duyen H. Nguy in a group of 100 patients, 8(16%) developed discolouration of skin in onlay meshplasty with nil occurrence in sublay group. All the patients were treated conservatively for flap necrosis.

5) HOSPITAL STAY:

The duration of post-operative hospital stay is an indirect indication of the degree of morbidity in terms of postoperative complications. Average post-operative hospital stay period for onlay mesh repair was 5 days, as compared to 4 days for pre-peritoneal mesh repair ($P < 0.0002$), which were comparable to series published by de Vries Reilingh et al. 24 and Gleysteen²³.

CONCLUSION

Sublay mesh repair is a good alternative to onlay mesh repair that may be applicable to all forms of ventral hernia as the mesh related overall complication rate like seroma ,surgical site infections, flap necrosis and hospital stay are less compared to onlay meshplasty . Although time taken for surgery in sublay mesh repair is significantly higher compared to onlay mesh repair, complications and morbidity associated with it are significantly lower than onlay repair . Hence , sublay mesh repair can be used as the preferred method of choice for the treatment of ventral hernias.

KEYWORDS: Sublay, Onlay ,Meshplasty, Comparative study