

# **VENTRAL HERNIA LAPAROSCOPIC VERSUS OPEN REPAIR**

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## **ABSTRACT**

There is continued debate as to the role of laparoscopy in ventral hernia repair, although laparoscopic repair become increasingly popular, its outcomes need further evaluation. For this reason we performed this study comparing open and laparoscopic ventral hernia repair. The main out come measures were operating time, hospital stay, perioperative complication and recurrence rate

In this study twenty one literature were reviewed in which around 3480 patients underwent laparoscopic ventral hernia repair (LVHR) or open ventral hernia repair (OVHR)

The open and laparoscopic repair groups were comparable in patient age, sex, preoperative anesthesiologists score, and hernia size. Duration of hospitalization and number of perioperative complication was significantly greater in open group; operative time were significantly longer in laparoscopic group

Conclusions :in this review laparoscopic repair of ventral hernia took longer operative time to perform than open repair but was associated with fewer prrioperative complications(although more serious),shorter hospital stay and less recurrence rate

## **INRODUCTION**

Repair of incisional hernia by laparoscope was first reported in 1993[1].Approximatly 90 000 ventral hernias are repaired yearly in the United States including incisional, epigastric, and spigelian defects. Although open repair, preferably with mesh(primary repair without mesh reinforcement is almost abandoned because of high recurrence rates), has long been the standard approach, laparoscopic repair is becoming increasingly popular among surgeons and patients following the development of minimally invasive techniques. Several observational studies have raised the possibility that laparoscopic ventral hernia repair may be associated with fewer complications, decreased length of postoperative hospital stay, and lower recurrence rates. Although numerous studies have described outcomes of laparoscopic ventral hernia repair, there remains uncertainty about the relative outcomes of laparoscopic and open ventral hernia repair. Most studies have been case series, lacking control groups. Studies with control groups have been relatively small, single-center series.

## **MATERIALS AND METHODS**

In this study 21 literature were reviewed in which 3480 patients underwent LVHR or OVHR (11studies do LVHR vs. OVHR; 7 studies do only LVHR; 3 studies do only OVHR).Studies were selected from MIDLINE we search with medical subject terms ventral hernia, mesh Repair then with medical subject laparoscopy and open repair. We reviewed these 21 studies and extracted the information regarding sample size, patient's characteristics, hernia size, operating time, hospital stay, complications rate and recurrence rate. We calculated the mean operative time and length of hospital stay from each study, the recurrence rate and complications rate

weighted by number of patients in each study. The P values was then used to determine the significance

## **RESULT**

Patient characteristics, such as demographics, body mass index, co morbidities, and previous attempt at hernia repair, were abstracted when available. However, only information on patient age and sex was consistently available in most studies. Average patient age ranged from 46 to 60 years Other than the study by Holzman et al [2] patient age was similar in the laparoscopic and open groups. Similar trends were noted for patient sex, with the exception of the study by Robbins et al. [3] last, patients undergoing laparoscopic repair were more likely to have undergone previous (failed) hernia repair in all studies in which that information was available; this difference was statistically significant in 4 of 11 studies.

The operative technique used for open repair varied across studies (Whereas 9 of 11 studies used mesh in all open repairs, some open procedures in one study [2] involved primary repair with nonabsorbable sutures. The position of the mesh placement was either not noted explicitly[2,4,5] or varied from onlay[6,7] to inlay[8] to underlay[3,9] Onlay was defined as placed anteriorly to the fascia, inlay was defined as sewn to the edges of the fascial defect, and underlay was defined as placed retromuscular to the rectus sheath[3,9]

Hospital stay fourteen studies reported shorter postoperative hospital stays for patients undergoing laparoscopic repair (Three studies[4,7,8] reported statistically significant reductions in length of stay, 3 studies[2,9,10] did not assess statistical significance, and the final study[6]found a statistically nonsignificant reduction. One study [3] did not report data on length of stay. In pooled analysis, average length of stay was shorter in the laparoscopic group (2.0 vs. 4.0 days;  $P = .02$ ). The study showing the largest reduction in length of stay was the only randomized controlled trial [4] in our analysis.

## **OPERATIVE TIME**

Studies compared average operating room times in the 2 groups, all studies except 2 noted longer operative times (range, 17-46 minutes longer) with laparoscopic repair. The 2 remaining studies 19, 24 found average operating room times 24 and 29 minutes shorter with laparoscopy. In pooled analysis, we found no statistically significant difference in operative times between the laparoscopic and open groups (99 vs 96 minutes;  $P = .38$ ).

Postoperative complication:

The most common complications were wound infection. Mesh infection, ileus (3%) prolonged seroma (2.6%), hernia recurrence, bowel perforations and cardiopulmonary complication .Wound infection: wound related infection in minority of cases of laparoscopic repair and few of them required drainage and antibiotic cover in comparison with open cases. .Mesh infection: mesh infection were very low when compared to open, skin pathogens responsible for most of infection .Infection with polypropylene mesh can be managed locally but infection with EPTFE need removal of mesh Seroma formation It develops above the mesh and within retained hernia sac, the mean incidence at 4 to 8 weeks 11.4% [1]. It rarely results in long term problems, only aspiration may be recommended for those enlarge or persist before they reach large size. Some article does not prefer aspiration because it may introduce infection. The patient should be well informed about this problem preoperatively Recurrence the incidence of recurrence of Ventral Hernia described in these literatures is decreasing depending upon treatment of infection, adequate mesh fixation, adequate overlap, diagnosing missed hernias laparoscopically, however

few cases of re-recurrence were reported in some articles and readmission for another repair arranged.

## **COMMENT**

Despite the risk of serious bowel injury, laparoscopy achieves as good results as the mesh open repair on the long term with the benefit of a decreased complication rate and a shorter hospital stay.

Laparoscopic surgery was found to have lower complication rate, longer operative time, shorter hospital stay and lower recurrence rate comparing with open repair

The limitation in this study is first lack of case mixing. Second the nature of post operative complication differs between two techniques. The complication in laparoscopic repair may be more sever, while in open repair its wound related. Third there was a significant difference in operative technique and suture material used and type of mesh, the mesh size and the area of overlap. Fourth this study note focus on long term outcome measures such as recurrence, chronic pain, chronic infection, admission for obstruction and fistula development

Finally there is a need for randomized controlled trials comparing laparoscopic with open repair of ventral hernia

## **CONCLUSION**

Laparoscopic ventral hernia repair offers lower complication rates, shorter hospital stay, less operative time and low recurrence rate compare to open repair

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