A Series of Cases of Incisional Hernia - Laparoscopic Versus Open Mesh Repair

Medical Science

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ABSTRACT

Incisional hernia is a nightmare for surgeons. Many techniques of repair have evolved through the decades, from abdominal truss to laparoscopic mesh repair, each having their own set of complications and difficulties. We have compared a series of patients operated by open hernia meshplasty with those who underwent laparoscopic mesh repair in terms of intra-operative and post-operative parameters to compare these two techniques.

INTRODUCTION:

Incisional hernia has an incidence of 3-20% of all abdominal operations. Before the introduction of mesh prosthesis, only anatomical repair with non-absorbable sutures was in practice, but there was an unacceptable rate of recurrence of up to 50%. However, wound-related complications are higher after mesh placement.

The recent trend of laparoscopic reduction and repair of incisional hernia is becoming popular due to the lower complication rate and lesser post-operative stay of the patient. It will be informative to compare the outcomes of open and laparoscopic mesh repair in view of the growing indications of laparoscopy today.

PATIENTS & METHODS:

A total of 36 patients were included, out of whom 18 underwent open meshplasty and 18 underwent laparoscopic mesh repair at our hospital between December 2013 and December 2015. Patients between the ages of 20 and 60 years, with uncomplicated incisional hernias with defect sizes between 1.3cm and 10cm, falling into ASA grade 1 and 2 and medically fit to undergo the procedure were included in the study.

PROCEDURE FOR OPEN SURGERY:

All patients were operated under spinal anaesthesia.

Open onlay mesh repair was done.

FIGURE 1 : CLOSURE OF THE HERNIAL DEFECT

FIGURE 2 : PLACEMENT OF APPROPRIATELY SIZED MESH

PROCEDURE FOR LAPAROSCOPIC SURGERY

All patients were operated under general anaesthesia.First, hernial sac and defect were identified, structures adherent to the defect and the pertioneal sac were released carefully. Defect was not closed.Adequate sized mesh covering the defect and extending 4-5 cm beyond its edges was fixed with transfascial sutures.

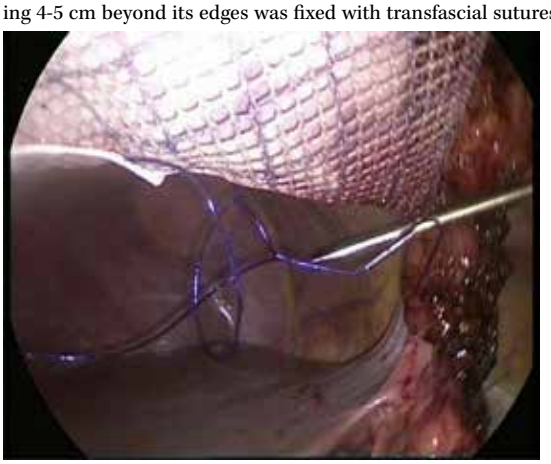

FIGURE: TRANSFASCIAL FIXATION OF MESH USING SUTURE PASSER NEEDLE

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POST OPERATIVE ASSESSMENT:

- Pain experienced was measured by number of days requiring parenteral analgesics.
- Wounds were inspected for seroma, hematoma or infection. In open group drains were removed when the collection was less than 10 ml for 2 consecutive days.
- Patients were given abdominal support for one month.

FOLLOW UP EVALUATION:

Patients were followed up at 1 week, 1 month, 3 month, 6 month intervals, and were evaluated for complications like hematoma, wound infection, wound dehiscence, seroma, chronic pain at the operated site, return to normal activity and recurrence.

RESULTS AND DISCUSSION:

In the present study, the majority of the patients were females. The majority of laparoscopic group (44%) patients were in the age group of 31-40 years against 55% of in the 50-60 years age group in the open repair group.

Most (66.6%) of the hernias were located in the lower abdomen. In the present study mean defect size is 5.38cm in open group and 4.68cm in laparoscopic group, which is comparable to other studies.

Park et al reported cardiopulmonary complication rates of 1.7% and 10.2% in patients who underwent laparoscopic and conventional hernia repair, respectively[1]. In our study, postoperative atelectasis was detected in 1 (5.55%) patient in open repair group. This patient improved with medical treatment.

Mean operational duration was 124.16 min and 127.5 min in laparoscopic and conventional repair group, respectively. Although longer or similar durations were reported by different studies[1,2], recent literature supports shorter operational duration with laparoscopic technique due to technological advancements. Carbajo et al reported that operational duration was reduced by 50% by the help of external knotting technique which was also used in our laparoscopic surgery [3].

In laparoscopic repair blood loss was consistently significantly less as compared to open repair group and this is an important consideration as most of our female patients are usually anemic.

With respect to intra-operative complications there was no complication in open repair group but there was one major complication of inadvertent enterotomy (ileal perforation) while releasing bowel adhesions in laparoscopic repair group which was managed by open suturing of the perforation. Two laparoscopic surgeries had to be converted to open surgery due to dense adhesions of bowel to the abdominal wall which could not be released by sharp dissection in laparoscopic repair. These were excluded from the study.

Clearly, the role of surgical expertise in this context cannot be denied, and larger studies are required for a valid assessment of this rare complication.

Due to the amount of tissue dissection needed in open incisional hernia repair group wound related infectious complications are higher. Moreover, the infection during the previous surgery puts them at a higher risk probably due to some bacteria lying dormant as shown by Davis and Houck[4,5].

In our study wound infections were significantly higher in open repair group 33.33% as compared to nil in laparoscopic group, which is comparable to most such studies. Most of the wound related infectious complications were superficial and responded to local wound toilet and antibiotics.

Unfortunately one patient in open mesh repair group developed severe prolonged mesh infection which responded poorly to antibiotics and local wound toilet techniques and was eventually managed by removal of mesh. This patient later developed hernia recurrence.

Seroma formation occurs both in open repair and laparoscopic repair and varies from 1 to 14%. The incidence of 2 minor seromas (<3 cm) in laparoscopic repair was noted in our study, developed at 2 weeks postoperatively and responded to conservative management wit in 6 weeks.

The literature on wound related complications of open mesh repair is in favor of laparoscopic repair. For open mesh repair the wound related complications range from 3.5% to 18%with an average of 8.1% where as for laparoscopic repair it is overall 2%[3,6,7-13].

In our study we found that postoperative pain was definitely less in laparoscopic group as compared to open repair group (mean parenteral analgesic use) i.e., 5.66 days in open method and 2.22 days in laparoscopic group. De-Maria[14] and Raftopoulos[8] in their series found that patients had less pain following laparoscopic repair.

The mean hospital stay was significantly shorter in laparoscopic incisional hernia repair group (2.88 days) as compared to open repair group (12.11days).

In the numerous series of open and laparoscopic incisional hernia repair the recurrence rate is 4% for the laparoscopic approach and 16.5%[16] for the open technique. At a follow up of 6months, we had no recurrence in the laparoscopic repair group and 1 recurrence in open group.

The recurrence rate in our study, none in laparoscopic group and 5.5% in open group, is almost the same as in the published literature, 4% in laparoscopic repair and 16% in open repair[6,9].

CONCLUSION:

On analysing the data , we found a definite difference in outcome between laparoscopic and open incisional hernia repair in consecutively selected patients. Laparoscopic approach has shown promising results and is being widely accepted

The advantages of laparoscopic approach several:

Laparoscopic repair allows viewing of hernia defects, which are not apparent clinically and treat multiple hernias located in different quadrants of abdomen through same incision. It also allows dissection in the right anatomical plane.

It is associated with less chances of wound infection. Operative time is more or less equal to that of open repair for experienced surgeons.

The degree of post operative pain and its duration is less.

Duration of hospital stay required is less.

Patients of laparoscopic group can resume their work earlier. The cosmetic advantage in laparoscopic group is obvious.

However with the above mentioned advantages there is a small disadvantage of laparoscopic approach as it cannot be undertaken in patients with ASA class III and above and also whenever there is an inadvertent bowel injury.

As laparoscopic ventral hernia repair is a relatively new surgical technique with a potential for serious complications, the results of this study are strongly limited by the small size and short follow-up of patients. Although the laparoscopic technique was

found to offer good short-term results (especially with regard to local wound infections), any definitive evaluation requires a thorough assessment of recurrence rates. Nevertheless, the benefits of laparoscopic surgery in the hands of a trained and experienced surgeon far outnumber the risks and have a significant advantage over open repair for the patient.

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