



OUR EXPERIENCE OF LAPAROSCOPIC INTRA-PERITONEAL ONLAY MESH PLUS (IPOM PLUS) REPAIR FOR UMBILICAL AND PARA-UMBILICAL HERNIA AT TERTIARY CARE CENTRE

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ABSTRACT

Aim: To summarize our experience in laparoscopic intra-peritoneal onlay mesh (IPOM) plus repair for umbilical and para-umbilical hernia at tertiary Care Centre over a 2-year period. **Study design-** This is a Retrospective observational study of patients treated at Tertiary health Care Centre, Pune. **Type of study-** Retrospective observational study. **Period of study-** July 2020 to July 2022. **Sample size-** 36 patients with umbilical and paraumbilical hernias. **Conclusion:** Thus, IPOM plus repair for umbilical and para-umbilical hernia is safe with advantages of minimal post-operative pain, less hospital stay and early return to normal activities.

KEYWORDS : Laparoscopic umbilical and para-umbilical hernia repair, intra-peritoneal onlay mesh plus repair.

INTRODUCTION

A hernia is the bulging of part of the contents of abdominal cavity through weakness in the abdominal wall. Umbilical Hernia is one of the types of ventral wall hernia which may occur in neonatal life as well as in adulthood.

Nonetheless the only treatment considered before was open surgical repair. But over a period, laparoscopic approach has gained more importance for umbilical hernia repair.

Laparoscopic repair of such hernias has an advantage of shorter hospital stay, lower wound infection, less recurrence rate and earlier recovery.^[1-3] As compared to open repair, laparoscopic repair of umbilical and paraumbilical hernias has shown favorable outcomes.

Early description of this repair was done in 1993, and hence is gaining acceptance and becoming popular method Worldwide.^[4]

The standard laparoscopic repair of umbilical and paraumbilical hernias consisted of bridging the defect from peritoneal side, known as the Intraperitoneal Onlay Mesh plus (IPOM plus) repair, which is placement of mesh in underlay position through laparoscopic Intraperitoneal approach. In IPOM repair, the contents of hernia are reduced and the defect is not sutured or approximated. In IPOM repair, mesh is placed in underlay position.

AIM

To summarize our experience in laparoscopic intra-peritoneal onlay mesh (IPOM) plus repair for umbilical and para-umbilical hernia at tertiary care Centre over a 2-year period.

METHODS

This is a retrospective, observational study of patients treated at tertiary health care hospital, Pune, Maharashtra. This study was conducted from July 2020 to July 2022 with complete knowledge and consent.

Inclusion criteria-

All patients posted for laparoscopic Intraperitoneal Onlay Mesh plus (IPOM plus) repair of umbilical and para-umbilical hernia.

Exclusion criteria-

Incarcerated, strangulated, or obstructed hernias; Unfit for General anesthesia; Defect size more than 5 cm were excluded from this study.

This study is a review of all patients operated for Intra peritoneal Onlay Mesh plus (IPOM plus) repair in the department of surgery at a Tertiary Care Centre.

All patients were assessed preoperatively. The following investigations were done: Complete blood count; Renal function tests; Liver function tests (Prothrombin time and International normalized ratio), HIV and HBsAg, Imaging: Chest x-ray and Ultrasonography.

The width of defect was measured with maximum distance from medical edges of defect. The average width of defect was 2.1 cm.

The operating time was calculated from the insertion of the first trocar to exsufflation. The patient was placed in supine position with both upper limbs by the side.

The monitor was placed on the right side of operation table and surgeon was standing on left side of operation table with the camera surgeon to his left.

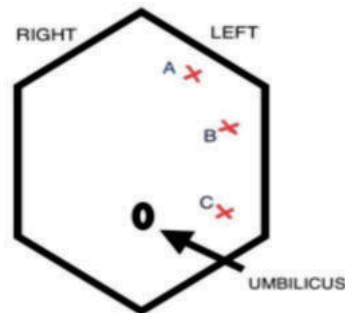


Figure 1: Port Placement

Port A- 10 mm camera port
 Port B- 10 mm working port
 Port C- 5 mm working port
 5 cm margin was kept around defect circumferentially for mesh placement and marking done for the same over anterior abdominal wall.

Veress needle inserted at Palmer's point A and pneumoperitoneum insufflate by CO2. Two ports are inserted B & C at left anterior axillary line. [Figure1]. Telescope inserted at port A. Adhesiolysis done. After adhesiolysis, defect identified and hernia sac excised. The defect is closed intracorporeally with continuous sutures, using prolene no 1 suture for para-umbilical and umbilical hernia.

The intra-peritoneal pressure is reduced to 8- 10 mm of mercury for this step.

15*15 cm Composite mesh (Parietex Optimized Composite Mesh, Medtronic, USA) is introduced for intra-peritoneal placement. 4 trans fascial sutures were taken and absorbable tackler was used to fix the mesh over peritoneum.

The Ryle's tube is removed before extubation of the patient. The patients were ambulated after 4-6 hours of surgery and orally liquids were started on postoperative day 1. Patients were followed up for 7 days, 1 month and 6 monthly.

RESULTS

Total 36 patients were posted for umbilical and paraumbilical hernia repair between July 2020 and July 2022. Out of which 20 were paraumbilical hernias and 16 were umbilical hernias.

These included 22 female patients (61%) and 14 male patients (38.9).

The defect ranged 1-5 cm with average defect width 2.1 cm for umbilical and paraumbilical hernias.

Out of 36 patients, 30 patients had hospital stay of less than 2 days (83%) and 6 patients had more than 2 days (17%). The average length of hospital stay was 3 days for all patients.



Figure 2: -Distribution of Hospital Stay

Out of 36 patients, all patients required analgesics on postoperative day 1(100%), 7 patients required analgesics on postoperative day 2 (19%) and 2 patients required analgesics on postoperative day 2 (5%).



Figure 3: -Distribution of Analgesic required

Table 1: -Details of characteristics

Characteristics	Data
Total number of patients	36
Male: Female	22:14
Operating time in minutes	120 minutes
Length of hospital stay in days	3 days
Conversion to open	Nil
Intraoperative bowel injury	Nil
Surgical site infections	Nil
Recurrence	Nil

DISCUSSION

This paper summarizes our experience of Laparoscopic intra-peritoneal onlay mesh plus (IPOM plus) repair for Umbilical and Para-umbilical Hernia at Tertiary care Centre.

The closure of the fascial defect has been described by various techniques - interrupted or continuous, intracorporeal or extracorporeal.^[6]

The extracorporeal technique consists of placing multiple stab wounds on either side of the defect to pass the suture material and take interrupted stitches We prefer to suture the defect intracorporeally.

Measuring the defect preoperatively in the resting supine position allows us to select an adequately sized mesh for placement, allowing a minimum of 5 cm overlap of the edges of defect.^[7] Literature suggests that different center's select the mesh size depending on the original defect or the closed defect.

However, whichever way the defect is measured, there should be an overlap over the fascial edges of the defect of at least 5 cm in all directions.

Average hospital stay in our series was around 3 days. In general, laparoscopic repair is associated with a shorter hospital stay than open repairs.

In our study, seroma formation was seen in zero patients. In our study, all patients required analgesics on postoperative day 1(100%), 7 patients required analgesics on postoperative day 2 (19%) and 2 patients required analgesics on postoperative day 2 (5%). Pain is due to trans fascial suture, so sometimes if suture passes through the nerve ending, patient experiences excruciating pain. It needs further evaluation though it is rare.

There is no drain required in this repair, so there are no ascending infections. There are no surgical site infections because port entry is away from the site of hernia.

In our study, no patient had intra-operative bowel injury, recurrence and none was converted to open repair. The only disadvantage of this repair is that it is not cost effective. Low socio-economic status people cannot afford this repair and has to opt for open hernia repair.

Improvement in functional status of abdominal muscles has been reported after an IPOM Plus repair. Both Den Hartog *et al*^[9] and Clapp *et al*.^[10] reported improved isokinetic strength of the trunk flexor muscles and better functional activity after closure of the fascial defect. Thus, IPOM plus repair is safe and feasible.

CONCLUSION

Laparoscopic Intraperitoneal Onlay Mesh plus (IPOM plus) repair for umbilical and para- umbilical hernia is safe with advantages of minimal postoperative pain, less hospital stays, early return to normal activities, no need of drain at operative site, no surgical site infection, and no mesh infection. The only disadvantage of this repair is, it is not cost effective.

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