

## A Comparative Study between E-TEP Versus IPOM Hernia Repair

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Date of Submission: 16-03-2020

Date of Acceptance: 01-04-2020

### I. Introduction

- Ventral hernia is defined as any protrusion through abdominal wall, with the exception of hernia through the inguinal and femoral regions.
- Ventral hernia can be classified as spontaneous (primary) or acquired (secondary) or by their site on the abdominal wall.
- 1. Spontaneous hernias are classified as epigastric hernia, umbilical hernia, and hypogastric hernia.
- 2. Acquired hernias commonly occur after surgical incisions, so they are termed incisional hernia.
- Laparoscopic ventral hernia repair (LVHR) was developed as a minimally invasive approach to the gold standard Rives-Stoppa repair (RS). The Rives-Stoppa repair revolutionized abdominal wall reconstruction by markedly decreasing hernia recurrence with widely overlapping retro muscular mesh. Nevertheless, the techniques developed by Stoppa and others to employ meshes for repair involve large areas of tissue-flap dissection and create significant patient morbidity, including wound complications, infection, a need for drains, and pain.
- Advances in minimally invasive surgery prompted the first attempts at laparoscopic ventral hernia repair by LeBlanc in 1993. (Reference no-1)
- After many years of improvement, laparoscopic ventral hernioplasty is now broadly performed. The techniques which are practised widely presently are mainly-
  1. TAPP (Trans abdominal Pre-Peritoneal)
  2. TEP ( Total Extraperitoneal )
  3. IPOM ( Intraperitoneal Only Meshplasty)
  4. e-TEP (Extended view TEP)
- Each technique has its own applications and pitfalls. And have a very gradual learning curve, hence they have remained confined to the expert hands only.
- The Newer modification of TEP is e –TEP. The e-TEP technique ensures that the extra peritoneal space can be reached from almost anywhere in the anterior abdominal wall. (Reference no-2)
- The e-TEP approach can quickly and easily create an extra peritoneal space, enlarge the surgical field, provide a flexible port setup adaptable to many situations, allow unencumbered parietalization of the cord structures (proximal dissection of the sac and peritoneum), ease the management of the distal sac, and improve tolerance of pneumoperitoneum, which is a common complication. (Reference no-3,5 and 6)
- The aim of this study was to compare laparoscopic e-TEP hernioplasty and IPOM hernioplasty in non-complicated ventral hernia regarding operative data, postoperative pain, intra and postoperative complications, and return to normal activity.

### Aim and Objective:

- To compare laparoscopic e-TEP and IPOM hernia repair in noncomplicated ventral hernia.

### II. Methods

This was a prospective observational comparative study conducted from June 2018 to June 2019.

#### INCLUSION CRITERIA:

- (1) Patients with uncomplicated ventral hernias.
- (2) Age between 15 to 65 years.
- (3) Patients fit for laparoscopic surgery.

**EXCLUSION CRITERIA :**

- (1) Patients not fit for laparoscopic surgery.
  - (2) Those who are unwilling.
    - This study involving 60 patients with ventral hernia, who were classified into two groups:
      1. Group I included 30 patients with ventral hernia who were operated by e-TEP hernia repair.
      2. Group II included 30 patients with ventral hernia who were operated by IPOM repair.
- RANDOMIZATION: randomization was done on odd-even method .i.e. every alternate patient was given the same method.
- After admission patients fulfilling the inclusion criteria were taken into study. written informed consent about their willingness to participate in study and also they were informed regarding method by which they would be operated upon and the data was collected : clinical history, examination, diagnosis, investigations, detail of previous operative procedure.
  - **Investigations** include routine preoperative hematological, biochemistry, serological and microbiological and radiology as well as specific such as ultrasonography and for some recurrent cases, CT or MRI of abdomen.
  - All patients provided informed consent to participate in the trial and for the surgical procedure.
  - Intraoperative data includes number of ports and port placement sites, details of tissue dissection, duration of surgery, and intraoperative complications.

**Postoperative follow-up**

- Postoperative pain assessment was done according to the visual analog scale in first postoperative day and analgesia given accordingly.
- The wounds were inspected with respect to hematoma, seroma, and wound infection.
- Postoperative follow ups were taken
  - 1) At the time of discharge
  - 2) At 1 month
  - 3) At 6 months
- The patients were instructed to avoid lifting heavy objects and other strenuous activities for at least 6 weeks, and then return to normal activity gradually.

**III. Results**

- In our study, e-TEP was performed in 30 patients having mean age of 36 and 40% were females whereas IPOM was performed in 30 patients having mean age of 41 years and 50% were females.
- Operative time of laparoscopic e-TEP repair is 81min which is longer than the IPOM 62.4 min.
- There was no significant injury to bowel, viscera or vessel in either group.
- In e-TEP group, the percentage of patients requiring additional analgesia was 30%, whereas in IPOM group, the percentage of patients requiring additional analgesia was 45% in the form of NSAID.
- The mean postoperative hospital stay was shorter in e-TEP group than IPOM group(2.20day vs. 3.4days).
- Post operative postoperative paralytic ileus more common in IPOM group than e-TEP group whereas post-operative seroma more common in e-TEP than IPOM.
- Recurrence occur in one patient underwent IPOM hernia repair whereas no recurrence occur in patient underwent in e-TEP hernia repair.
- Abdominal pain persist after 1 month in 3 patient in IPOM group whereas in e-TEP group there were no significant abdominal pain after 1 month of follow-up.

Complication	Operation		P-Value
	e-TEP repair	IPOM repair	
Surgical site infection	0	0	1
Seroma	4	0	0.0384(significant)
Postoperative ileus	0	3	0.0755
Bowel or Viscera injury	0	0	1
Vascular complication	0	0	1
Mesh Infection	0	0	1
Recurrence	0	1	0.3132

Chronic abdominal pain	0	3	0.0755
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#### IV. Discussion

- Ventral hernias are associated with reduced daily activities and high socio-economic costs for its operations. The use of mesh has reduced surgical failure.
- The study was conducted to assess the e-TEP repair of ventral hernia in comparison with IPOM repair of ventral hernia.
- To achieve this aim, 60 patients were included in this study who were divided into two groups: group I included 30 patients with ventral hernia who were operated on by e-TEP repair and group II included 30 patients with ventral hernia who were operated by IPOM repair.
- Regarding the operative time in this study, the Mean operative time of IPOM repair (62.4 min) was shorter than that of e-TEP repair (81 min) .
- In our study, all patients received single dose of postoperative analgesic in the form of intramuscular injection of NSAIDs, but 30% of patients of e-TEP group versus 45% of patients of IPOM group needed extra analgesics, with significant difference between both groups in postoperative pain.
- In this study, there was a significant difference between hospital stay of both groups. Mean hospital stay of laparoscopic e-TEP group was 2.20 days whereas in IPOM group was 3.4 days.
- Seroma occurred more in e-TEP group than laparoscopic IPOM group with p-value 0.0384 which is significant. In laparoscopic e-TEP hernia repair, the hernia sac is not excised. This effectively leaves behind a potential space for formation of seroma. It happens to be one of the complication which inherent to this procedure. Most seroma resolve with time, some requiring eight to 12 weeks for complete resolution.
- Post op paralytic ileus were more in IPOM than the e-TEP group because IPOM procedure is totally intra-peritoneal.
- There was no hollow viscous injury or vascular or mesh related complication reported in both groups of this study.
- Recurrence rate is higher in IPOM group (1 patient) in our study as compared to e-TEP (No recurrence) after 6 month follow up.

#### Acknowledgements

- Laparoscopic e-TEP repair of ventral hernia has a long learning curve and surgery requires advanced laparoscopic skills. It has shown promising results and is being widely accepted. It results in shorter hospital stay and lower short-term complications when compared to IPOM repair.
- Laparoscopic e-TEP ventral hernia has less postoperative pain, shorter hospital stay thereby lesser overall cost of procedure, faster return to normal daily activity, lower rate of postoperative complications regarding seroma, low rate of recurrence as compared to IPOM ventral hernia repair. So, laparoscopic e-TEP repair is considered as first choice for ventral hernia repair.

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Dr. Firdaus Dekhaiya, et al. "A Comparative Study between E-TEP Versus IPOM Hernia Repair." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(3), 2020, pp. 19-21.