

Can e-TEP be a Better Option than TEP for Inguinal Hernia Repair?

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DOI: <https://doi.org/10.3329/jafmc.v19i2.72453>

Abstract

Background: An organ or fatty tissue, like the colon, might abnormally emerge through the wall of the cavity in which it normally resides, for making a hernia. Among different hernias inguinal hernia repair is the most frequently done procedures by surgeons in Bangladesh and worldwide. Now-a-days Laparoscopic repair is performed in this country and accepted by the people. Laparoscopic TEP and e-TEP are excellent procedure for repair of inguinal hernia. In this Centre, we performed both procedures. In Technical aspects e-TEP is better approachable than TEP.

Objective: In this article we present how to overcome the difficulties of TEP technique by doing the enhanced view totally extra peritoneal technique for repair of inguinal hernia.

Methods: This non-randomized comparative study was conducted in CMH Savar. The study consists of patients with laparoscopic hernioplasty for the period of one year (From July 2018 to July 2019). Total 20 cases were included in the study (10 cases of Laparoscopic e-TEP and 10 cases of Laparoscopic TEP). Data were collected by follow up visit, questionnaire and by phone call.

Results: The study consists of 20 patients among whom 10 were placed in group A (e-TEP group) and 10 cases were placed in group B (TEP group). Mean operating time in group A was 108.5 min while in group B was 114 min. Pain scoring in group A was 75% and giving score 1-2 (mild pain). All are male. Mean age for e-TEP was 26.5 years and for TEP was 35.6 years.

Conclusion: Laparoscopic e-TEP provides wide area than TEP for repair of inguinal hernia. It is a surgeon friendly procedure for repairing hernia. It is easier to learn e-TEP than TEP.

Keywords: Hernia, Laparoscopic, Non-randomized, Pain.

Introduction

Extended totally extraperitoneal repair (e-TEP) is a novel technique for difficult and complicated inguinal hernias.¹ Different laparoscopic approach are recently available for

repairing an inguinal hernia: Totally extra peritoneal (TEP) repair, extended view totally extra peritoneal (e-TEP), Trans abdominal preperitoneal (TAPP), Intraabdominal only mesh (IPOM) and reduction of the sac with or without closure of the ring.² Inguinal hernia repair is a common surgical procedure done worldwide. Most surgeons prefer a tension free mesh repair. Inguinal hernias account for 75% of all abdominal wall hernias and with a lifetime risk of 27% in men and 3% in women. Inguinal hernia surgery is a commonly performed surgical procedure in the world.³ For repair of inguinal hernia TEP is a good option as it can avoid penetration of peritoneal cavity and help to prevent intraperitoneal complications.^{4,5} In TEP technique there is limited space which provides difficulty for dissection. We can see it in obese patients, in the patients with large hernias and in the deployment, spreading out and fixation of large meshes.

Materials and Methods

Case selection: In case selection we depend on large symptomatic inguinal hernia, bilateral inguinal hernia, obese patient, recurrent inguinal hernia. For simple reducible small inguinal hernia we prefer TEP approach.

Exclusion criteria:

1. Patient unwilling for laparoscopic surgery.
2. Simple reducible inguinal hernia.
3. Strangulated inguinal hernia.

Techniques:

Key technique aspects –

- Higher placement of camera port
- Flexibility of port distribution
- Division of the posterior fascia (Arcuate / Doglas's line)

A. Position of patient and surgical team :

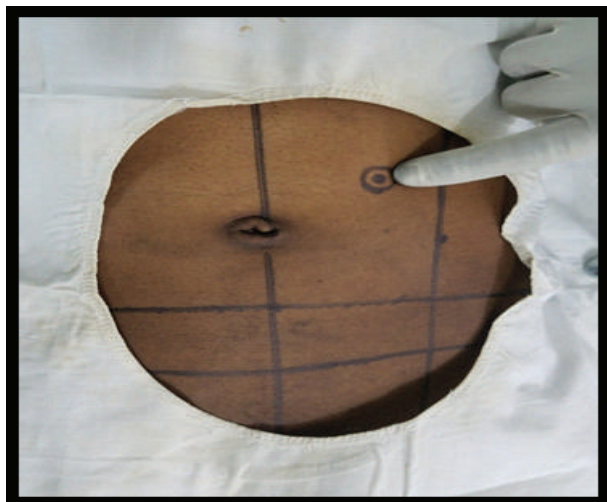
- a. The patient is placed supine with arms placed by the side of the patient.
- b. Surgeons stand on the opposite side of the defect of the patient.
- c. Assistant– Beside surgeon at the cephalad part of the patient.
- d. Video monitor– At foot end of the patient.

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B. Port position: We have flexibility of port position. For unilateral hernia we use 3 ports and for bilateral hernias we use 4 ports.

For unilateral hernia:

1. High placement of camera port -



- In unilateral hernia cases, we made camera port at opposite to hernia. But it can be placed at same site of hernia.
- 10-12 cm incision is placed line joining 5 cm lateral and 3 cm vertical from umbilicus.

2. Flexible port distribution:

- One working port at infraumbilical region.
- Second working port was placed high in the lower abdominal quadrant (Junction between linea semilunaris and arcuate line)
- N.B- The working port can also be placed with one port lateral to the umbilicus and the other port slightly lower and lateral to the first.

For Bilateral hernia:

- Camera port can be placed any of the side.
- For B/L inguinal hernia we placed camera port at left side of patient like unilateral hernia.
- 1st working port at umbilicus and 2nd working port at left side like unilateral hernia.
- 3rd working port- Rt side of patient at the junction between arcuate line and linea semilunaris.

C. Entering the rectorectus space: We gave a 10-11 mm transverse incision by no. 11 blade. Then anterior rectus sheath will be exposed. We gave a transverse incision over anterior rectus sheath. Now rectus muscle will be exposed and it is splitted by forceps. The index finger is introduced at rectorectus space and made little space and introduce 10 mm canula and fix it. Then we introduced 0-degree telescope and moved towards pubic symphysis. Remove telescope and insufflate the space to maximum of 12 mm Hg.

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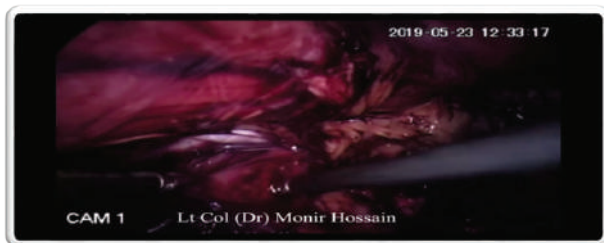
D. Making working ports: As I described in port position.

E. Further dissection

- Lowest trocar port is used to introduce scissor to cut the Douglas line at the level of camera.
- Space of retzius dissection.



iii. Space of Bogros lateral dissection.



iv. Hernial sac dissection.



v. Parietalisation of cord structures.

vi. Making space for large mesh.

vii. Introduction and placement of mesh.



F. Post-operative care: We allow movement and clear fluid after 6-8 hours of surgery. We prescribe injection paracetamol as analgesic in the first 48 hours. We able to discharge the patient after 3-4 days.

Results

We have done total 10 cases from July 2018 to July 2019. The mean age (years) was 26.5 years. All patients are male. Mean BMI was 23.9 kg/m². Two patients were hypertensive and one patient was diabetic. Out of 10 cases 5 were bilateral.

Table-I: Characteristics of patents

| | e- TEP | TEP |
|-------------------------|------------|-----------|
| Mean age (Years) | 26.5 | 35.6 |
| Male | 100% | 100% |
| Bilateral | 5 | 3 |
| Recurrent | 0 | 0 |
| BMI | 23.9 | 23.3 |
| Smoking | 4 | 3 |
| Elective | 100% | 100% |
| Mean ASA | | |
| Score | HTN | DM |
| | 2 | 2 |
| | 1 | 2 |

Out of 10 cases, we perform 7 cases under general anesthesia and 3 cases under SAB with sedative. Mean operating time was 108 min. The time was more because this was the beginning of e-TEP, bilateral cases took more time, few cases was difficult and need documenting the cases. But in the 10th case we took only 51 mins. We use 15x15 cm prolene mesh. We use single tracker at pubic bone for fixation of mesh. We could able to move the patient 8 hours after surgery and discharge 3-4 days after surgery. Soldiers want to stay more in the hospital though they are symptomless.

Table-II: Operative data

| | e-TEP | TEP |
|----------------------------|-----------------|-----------------|
| G/A | 7 | 10 |
| SAB with sedative | 3 | 0 |
| Mean operating time | 108 min | 114mn |
| Vascular injury | 0 | 1 |
| Mesh (Prolene) | 15x15cm | 15x15cm |
| Fixation | Single fixation | Single fixation |

None of these cases have been converted to TAPP or open surgery. In two cases peritoneum was opened accidentally but we could complete this operation. One patient develops seroma, for which we aspirated once since it was painful and distressing. Pain scores were obtained using Visual Analogue Scale (VAS) at 12 hours, 1 day and 2 days after surgery. Results was same with the classical technique. Only one patient was complaining pain upto 2 months. We don't have any recurrence.

Table-III: Post-operative outcomes

| | e-TEP | TEP |
|--------------------------------|---------------------|---------------------|
| Urinary retention | 5 | 4 |
| Pain | 1 | 2 |
| Hospital stay (days) | 3-4 | 3-4 |
| Time of Ambulation | 8 hrs after surgery | 8 hrs after surgery |
| Recurrence | 0 | 0 |
| Systemic complications | 0 | 0 |
| Seroma | 1 | 0 |
| Surgical site infection | 0 | 0 |
| Mortality | 0 | 0 |

Discussion

TEP is a good option for repair of inguinal hernia as it can avoid penetration of peritoneal cavity and help to prevent intraperitoneal complications. Limited space for dissection in TEP approach can be overcome by e-TEP technique. e-TEP technic has started by Jorge Daes in 2012.¹

We consider e-TEP technique for difficult hernias like bilateral inguinal hernia, obese patient, recurrent inguinal hernia. It is an excellent technique for difficult inguinal hernia and we are comfortable for doing such hernias. For simple inguinal hernia and the distance between pubic tubercle to umbilicus if >15 cm we usually go for TEP technique. Some surgeons have preferred the e-TEP technique for ventral hernia.⁷ In this study, all ten patients were male. None of the case has been recurred within 12 months follow up. One of the patients developed seroma which was aspirated; it was due to large inguinoscrotal hernia.

We took more time for completing the surgery as we are the beginner of this approach. Confidence and experience will reduce the time in future.⁶ Only one patient was complaining pain for 2 months, but other patients was found good in relation with pain. It is a single centre and short duration study. More patients, long duration and multicenter should be included for better evidence and outcome.

Conclusion

We are fortunate to perform e-TEP technique for inguinal hernia. Experience and confidence will help us to give benefit to the patients and to overcome the limitation. We are grateful to Dr Jorge Daes who is the pioneer of this surgery. More and more RCT are required to establish the beauty of this surgery.

References

1. Daes J. The enhanced view totally extra peritoneal technique for repair of inguinal hernia. *Surg Endosc.* 2012; 26:1187-9.
2. Daes J. The extended view Totally Extra peritoneal (e-TEP) technique for inguinal hernia repair. Springer international publishing. *Hernia surgery.* 2016:467-72.
3. Jenkin JT, O' Dwyer PJ. Inguinal hernias. *BMJ.* 2008; 336:269-72.
4. Wake BL, McCormack K, Fraser C et al. Transabdominal preperitoneal (TAPP) vs totally extraperitoneal (TEP) laparoscopic techniques for inguinal hernia repair. *Cochrane Database Syst Rev.* 2005; 2005(1):1-23.
5. Leibl BJ, Jager C, Kraft B et al. Laparoscopic hernia repair– TAPP or/and TEP? *Langenbecks Arch Surg.* 2005; 390:77-82.
6. Bittner R, Montgomery MA, Arregui E. Update of guidelines on laparoscopic (TAPP) and endoscopic (TEP) treatment of inguinal hernia. *Surg Endosc.* 2015; 29:289-321.
7. Belyansky I, Daes J, Radu VG et al. A novel approach using the enhanced view totally extraperitoneal (e-TEP) technique for laparoscopic retromuscular hernia repair. *Surg Endosc.* 2018; 32:1525-32.