

Preperitoneal Prosthetic Repair (Open Tep) for Inguinal Hernias

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Abstract

Original Research Article

Background: Inguinal hernia is repaired by placing a polypropylene mesh in the preperitoneal space. The entire procedure is performed through a small 3-4 cm incision made in the midline above the pubic symphysis. Pre peritoneal space created by simple digital dissection and retraction. Clear visualisation of the operative site is maintained throughout the procedure with proper dissection. **Materials and Methods:** One hundred Inguinal Hernia patients including direct, indirect and recurrent inguinal hernias operated under spinal/ epidural anaesthesia by placing polypropylene mesh in the preperitoneal space which is created by digital dissection by giving small incision (3-4 cm) in the lower midline above the pubic symphysis. **Results:** We found open TEP is beneficial in terms of less operative time. Open TEP also has the advantage of direct visualisation of anatomy, decreasing the learning curve for laparoscopic TEP, avoiding damage to the nerves and less incidence of seroma and hematoma formation and lesser incidence of recurrence. **Conclusion:** It is an efficient inguinal hernia repair method having all the advantages of Stoppas GPRVS and Laparoscopic TEP with good cosmesis, less cost and better patient compliance.

Keywords: Totally extra peritoneal repair- TEP, Trans abdominal pre peritoneal repair- TAPP, Open TEP, STOPPA'S repair.

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INTRODUCTION

Anterior repair is the most common operative approach for inguinal hernias. Tension free repairs are now standard and there are a variety of different types. Older tissue repairs are rarely indicated except for patients with simultaneous contamination or concomitant bowel resection, when placement of prosthetic mesh is contraindicated.

Anterior approaches have some disadvantages in terms of long operative time, seroma formation, nerve damage, ischemic orchitis, injury to the vas deferens, and recurrence for which posterior approaches are emerged. Conventional posterior approaches are Stoppas (GPRVS), Laparoscopic TEP and TAPP procedures.

The Stoppas procedure (GPRVS) is one known procedure of posterior approach for inguinal hernias by wrapping the lower part of the parietal peritoneum with prosthetic mesh used for recurrent and bilateral inguinal hernias but has the disadvantage of big incisions and extensive tissue dissection

Laparoscopic TEP and TAPP has long learning curve, costly dissection balloons, and requirement of general anaesthesia.

We used the principles of Stoppas and Laparoscopic TEP procedures but by giving small incision under spinal anaesthesia using digital dissection for creating preperitoneal space.

MATERIALS AND METHODS

This is a study of 100 cases in Kamineni Institute of Medical Sciences, Narketpally, Nalgonda, India. Surgery was done under spinal anaesthesia. There were 60 unilateral inguinal hernias of direct and indirect type, 26 bilateral inguinal hernias, 14 recurrent inguinal hernias.

Inclusion Criteria

- Age more than 18 years with primary and recurrent hernias

Exclusion Criteria

- Complicated hernias (Strangulation, Obstruction), complete hernias

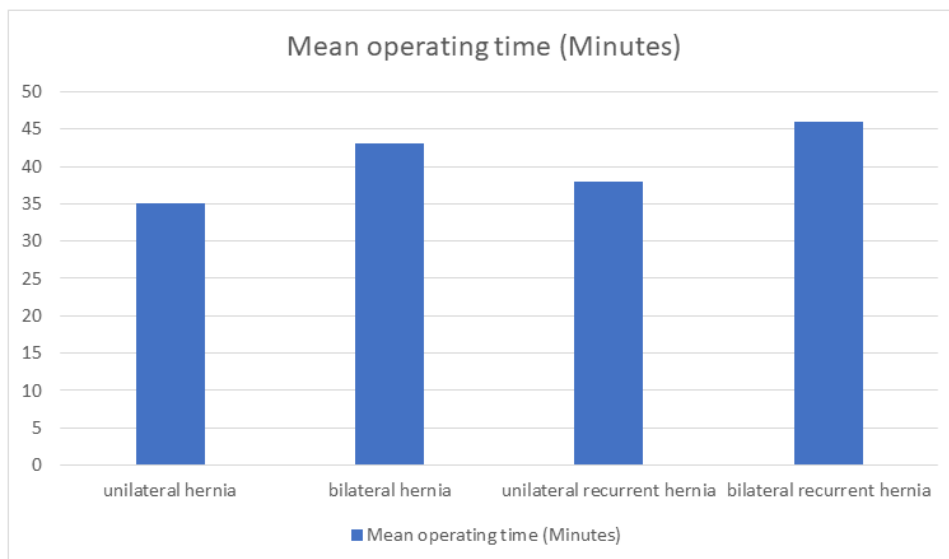
PROCEDURE

Principle is placement of prosthetic mesh occluding the myopectineal orifice of frauchard by preperitoneal approach with a small incision and proper hemostasis. Procedure if done in supine position under spinal anaesthesia. A midline incision was taken just above the pubic symphysis measuring 3-4cm with the upper end of incision at the level of anterior superior iliac spine (ASIS). Incision was deepened and the linea alba was cut in the line of incision, the two recti muscles were split and the preperitoneal space was created by retraction and blunt digital dissection as far as ilioas fascia and ASIS. Dissection continued in the retropubic space of Retzius in front of the bladder. Direct sacs are reduced in the course of dissection spontaneously. The sac in indirect hernias were identified after delivering the cord structures through the main wound. Sac carefully separated from the cord structures avoiding injury to the testicular vessels. Small indirect sacs were reduced easily, but large in direct sacs were divided with cautery near internal inguinal ring leaving the distal sac in situ. Any accidentally opened peritoneum closed with 2-0 absorbable sutures. After all hernia were reduced, a 15x15 cm piece of polypropylene mesh was placed in the inguinal region and evenly spread and the mesh

should cross the midline minimum of 4 cm. the mesh was fixed to the pubic tubercle and posterior rectal musculature and ask the patient to take a deep breath. By this, the mesh will spread evenly by Pascal's law, mesh should cover the direct and indirect and femoral spaces. Romovac suction drain no.14 was kept. Incision closed in layers. Compression dressing was done in the operated area. Post operative pain was evaluated by visual analog scale and occurrence of complications like hematoma, seroma, and infection were noted. All the patients were discharged after complete suture removal, that is on the 10th postoperative day.

RESULTS

100 inguinal hernia patients were repaired over a period of 2 years by this method, out of which 60 were unilateral, 26 were bilateral and 14 were recurrent hernias. The mean operative time recorded for unilateral hernias is 35.23 minutes; for bilateral hernias, it is 43.54 minutes; and 38 minutes and 46 minutes for unilateral and bilateral recurrent hernias respectively. Post operative complications like hematoma formation noted in 4 patients, seroma formation noted in 2 patients, postoperative pain was noted in 2 patients and recurrence noted in 1 patient who has bilateral recurrent inguinal hernia.



DISCUSSION

Strengthening the posterior inguinal floor is the main principle for inguinal hernia surgery. Lichtenstein's tension free repair is the most standard procedure which is done all over the world, with least recurrence rate (0.3%). It is done by simply placing the polypropylene mesh on the inguinal floor without any closure of tissue defect. It is widely accepted having advantages like non requirement of specialized surgical equipments and very low recurrence rates, but complications like Hematoma formation, Seroma formation, Nerve injuries, nerve entrapments, injury to the testicular vessels and vas deferens, testicular

atrophy, scrotal oedema are more common with this anterior dissections. For bilateral hernias, we have to use two separate incisions. For recurrent cases, it is some sort of difficult to go through anterior approach because scarring of tissues.

To prevent these posterior complications, posterior approaches are emerged. Stoppas (Giant prosthetic reinforcement of visceral sac). Total extra peritoneal repair and TAPP (Trans abdominal preperitoneal repair) are common posterior approaches. Pre-peritoneal approaches are better in terms of avoiding local wound complications. For bilateral cases repair is done through the same incision or ports. For

recurrent cases it is advisable to go for posterior approach.

Stoppa's procedure is done in cases of recurrent and bilateral inguinal hernias requires big incision with extensive tissue dissection of preperitoneal space for the insertion of mesh. The potential complications like fluid collections due to extensive tissue dissection are hematoma, seroma, infection.

Coda *et al.*, 1997 reported a 24.6% rate of hematoma and seroma solorzoo *et al.*, 1999 reported 14% hematoma infections complications while Beeys *et al.*, 1999 reported 22.6% of hematoma and seroma, hydrocele, hematoma, and use of suction drainage in 83% of the patients prolonged the days of hospital stay with a mean of 3.5 days.

Laparoscopic procedures, total extra peritoneal repair (TEP) is done by one umbilical camera port, and two working ports. The procedure is done under general anaesthesia. Preperitoneal space is created by balloon dissection. The hospital cost of laparoscopic repairs is significantly higher than that of conventional repair because of expensive equipment needs and general anaesthesia is required for laparoscopy adding complications of general anaesthesia.

However, in open TEP which is done under spinal anaesthesia, with a small incision, not using specialized equipments. Direct visualisation of anatomy and not disturbing the inguinal canal, structures like testicular vessels, vas deferens and nerves are the main advantages of this procedure. The learning curve for laparoscopic TEP is minimised with this open procedure by understanding the anatomical relations of vital structures. Open TEP is especially useful for recurrent hernia, which are approached anteriorly in previous surgeries.

Post operative pain is seen in 2 cases (2%), for whom oral analgesics are given. Local wound complications like hematoma, seroma formation, is seen in 4 patients, comparatively, much less incidence than Lichenstein repair. Recurrence was seen in 1 case (1%)

for which open Lichenstein's repair was done after 6 months. Based on studies by Amid *et al.*, 1997, that a shrinkage reduces its size by 20% during the first 5 months, proposes the need to place mesh with larger size to prevent such recurrences. The mesh should not be smaller than 24.6 cm, which is the distance between 2 iliac spines and from navel to the pubis.

Since repair is done through midline incision, it is convenient in cases for bilateral hernias to be dealt with through the same incision and there is good patient compliance in terms of pain, oedema, swelling as compared to Lichenstein's repair.

CONCLUSION

Looking into the advantages and disadvantages, the above mentioned techniques, we performed the method combining the best effects of laparoscopic TEP and Stoppa's GPRVS. Open TEP procedure has the advantages of both laparoscopic TEP and Stoppa's in terms of spinal anaesthesia, small incision, less operative time, less recurrence rate with good cosmesis and patient compliance and less cost. Here we can visualise the anatomy directly which decreases the learning curve for laparoscopic TEP. Local wound complications like hematoma, seroma formation, infections, neurodynia, ischaemic orchitis are negligible with this procedure.

REFERENCES

- Voyles, C. R., Hamilton, B. J., Johnson, W. D., & Kano, N. (2002). Meta-analysis of laparoscopic inguinal hernia trials favors open hernia repair with preperitoneal mesh prosthesis. *The American journal of surgery*, 184(1), 6-10.
- Mahon, D., Decadt, B., & Rhodes, M. (2003). Prospective randomized trial of laparoscopic (transabdominal preperitoneal) vs open (mesh) repair for bilateral and recurrent inguinal hernia. *Surgical Endoscopy And Other Interventional Techniques*, 17(9), 1386-1390.
- Amid, P. K. (1997). Classification of biomaterials and their related complications in abdominal wall hernia surgery. *Hernia*, 1(1), 15-21.