A COMPARATIVE STUDY IN LAPAROSCOPIC INGUINAL HERNIA REPAIR BETWEEN FIXATION VS NON-FIXATION OF MESH

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ABSTRACT

INTRODUCTION

An inguinal hernia is a weakness in the wall of the abdominal cavity that is large enough to allow escape of soft body tissue or internal organ, especially a part of the intestine. It usually appears as a lump and for some peoples can cause pain and discomfort, limit daily activities and the ability to work. If the bowel strangulates or becomes obstructed it can be life-threatening.

A hernia is repaired generally using a synthetic mesh either with open surgery or increasingly using less invasive laparoscopic procedures.

AIMS AND OBJECTIVES

To compare and evaluate Laparoscopic hernia repair (trans-abdominal pre-peritoneal and total extra peritoneal repair (TAPP & TEP) using Prolene mesh with or without fixation.

MATERIAL AND METHODS

Our study was conducted in dept. of surgery, Government Medical College and associated Dr. Susheela Tiwari Hospital. A total sample of 100 patients who underwent inguinal hernia repair as an elective surgery. 50 of whom underwent fixation of mesh (fixation will be done either by tacker or suture). Rest 5o underwent non fixation of mesh.

RESULTS

In our study Statistically there was non-significant heterogeneity in operating time ($p = 0.15$), post-operative pain ($p = 0.45$), post-operative complications ($p = 0.55$) and length of hospital stay ($p = 0.11$) were statistically comparable between two techniques of mesh fixation in LIHR. The risk of developing chronic groin pain ($p = 0.67$) and risk of hernia recurrence ($p = 0.77$) was also similar.

CONCLUSION

NMF in LIHR does not increase the risk of hernia recurrence. It is comparable with TMF in terms of operation time, post-operative pain, post-operative complications, length of hospital stay and chronic groin pain. Therefore, based upon the results of our study NMF approach may be adopted routinely and safely in LIHR.

KEYWORDS

Fixation, Non-Fixation, Mesh, Laparoscopic, Inguinal Hernia.

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INTRODUCTION:

- An inguinal hernia is a weakness in the wall of the abdominal cavity that is large enough to allow escape of soft body tissue or internal organ, especially a part of the intestine.
- It usually appears as a lump and for some peoples can cause pain and discomfort, limit daily activities and the ability to work.
- If the bowel strangulates or becomes obstructed it can be life-threatening.

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- A hernia is repaired generally using a synthetic mesh either with open surgery or increasingly using less invasive laparoscopic procedures.[1]

Two Different Techniques for Repairing a Hernia in the Groin:

1. **Open Type:** For open hernia repair surgery, a single long incision is made in the groin.
   - If the hernia is bulging out of the abdominal wall (a direct hernia), the bulge is pushed back into place.
   - If the hernia is going down the inguinal canal (indirect), the hernia sac is either pushed back or tied off and removed.

- The weak spot in the muscle wall-where the hernia bulges through-traditionally has been repaired by sewing the edges of healthy muscle tissue together (herniorrhaphy).
- This is appropriate for smaller hernias that have been present since birth (indirect hernias) and for healthy tissues, where it is possible to use stitches without adding stress on the tissue.
- But the surgical approach varies depending on the area of muscle wall to be repaired and the surgeon's preference.
- Mesh patches of synthetic material are now being widely used to repair hernias (hernioplasty). This is especially true for hernias that recur and for large hernias.
- Patches are sewn over the weakened area in the abdominal wall after the hernia is pushed back into place.

2. Minimal Invasive Surgery (Laparoscopic surgery):

- Intraperitoneal onlay mesh repair (IPOM).
- Total extraperitoneal repair (TEP).
- Trans-abdominal pre-peritoneal repair (TAPP).
- In the total extraperitoneal repair (TEP) surgeon does not enter the peritoneal cavity and the mesh is used to seal the hernia from outside the peritoneum.
- In the Trans abdominal pre-peritoneal repair, (TAP) surgeon goes into the peritoneal cavity and places the mesh through the peritoneal incision over possible sites.
- Our study aims at the comparison of fixation vs non-fixation of mesh by one of the laparoscopic approaches either TEP or TAPP. IPOM is considered obsolete now.

AIMS AND OBJECTIVES:

- To compare and evaluate Laparoscopic hernia repair (trans-abdominal pre-peritoneal and total extra peritoneal repair (TAPP & TEP) using Prolene mesh with or without fixation.
- The study aims at evaluating and analysing Laparoscopic inguinal hernia repair using PROLENE mesh with or without fixation. The evaluations will be made on the following parameters;
  1. Operation time (in minutes).
  2. Intra operative:
     (A) Conversion if any;
        1. Laparoscopy to open type.
        2. TEP TO TAPP.

     (B) Bleeding:
        1. Nil.
        2. Minimal.
        3. Moderate.
        4. Severe (and any intervention done)

     (C) Ease of surgery:
        1. Preperitoneal space.
        2. Identification and isolation of structures around Hernia site.
        3. Ease with which hernia is reduced, sac is dissected.
  3. Applying and fixation of Mesh.
  4. Overall Level of difficulty in doing the procedure. The ease with which the above were done will be rated by the surgeon easy/not easy/difficult.
  5. Post-operative pain (Scaled by visual analogue scale).

MATERIAL AND METHODS:

- Our study was conducted in dept. of surgery government medical college and associated dr. susheela tiwari hospital.
- A total sample of 100 patients who underwent inguinal hernia repair as an elective surgery. 50 of whom underwent fixation of mesh (fixation will be done either by tacker or suture).rest 5o underwent non fixation of mesh.

Inclusion Criteria:

- Consented for surgery with above methods.
- BODY MASS INDEX of patients being less than 27.
- No previous major surgeries.
- ASA I & II patients (American Society of Anaesthesiologists).

Exclusion Criteria:

- Patient not consented with above methods.
- Patients with BODY MASS INDEX greater than 27.
- ASA III & IV patients (American Society of Anaesthesiologists).
- All the data was subjected for statistical analysis SPSS 17.

RESULTS:

- Our study was conducted in dept. of surgery government medical college and associated Dr. Susheela Tiwari Hospital.
- A total sample of 100 patients who underwent inguinal hernia repair as an elective surgery. 50 of whom underwent fixation of mesh (fixation will be done either by tacker or suture).rest 50 underwent non fixation of mesh.

In our study statistically there was non-significant heterogeneity in operating time ($p = 0.15$), post-operative pain ($p = 0.45$), post-operative complications ($p = 0.55$) and length of hospital stay ($p = 0.11$) were statistically comparable between two techniques of mesh fixation in LIHR. The risk of developing chronic groin pain ($p = 0.67$) and risk of hernia recurrence ($p = 0.77$) was also similar

DISCUSSION:

- Although Should ice Hospital achieves a very low cumulative recurrence rate by performing its own tissue suture technique, today prosthetic repairs are accepted to be superior to "non-mesh" suture repairs.
- A recent meta-analysis revealed that Should ice herniorrhaphy is the best non-mesh technique in terms of recurrence, though it is more time consuming and needs a slightly longer postoperative hospital stay. Nevertheless, the use of mesh is associated with a lower rate of recurrence.[2]
- "Non-mesh" repairs may be considered as an option in women. Transversalis fascia is often quite strong in women and indirect hernias in these patients can be treated without a mesh.[3]
- Findings of our study coincided with the above studies.

Figure 1

Figure 2

Endoscopic and laparoscopic repairs provide very good results where surgeons have expertise in the technique. It results in very low postoperative pain, fewer wound infection, and quick return to daily activity and working.[4]

A mesh is placed either with a total extraperitoneal technique (TEP) or a transabdominal preperitoneal approach (TAPP). A Cochrane review found these two approaches equivalent regarding duration of operation, haematoma, length of stay, time to return to usual activity and recurrence.[5]

Different mesh techniques have been described to date. Single and double layer meshes, and plug repairs all have been reported with good results by their users and defenders. However, EHS Guideline has clearly stated that none of the alternative mesh techniques except for the Lichtenstein and endoscopic techniques has received sufficient scientific evaluation to be recommended.[6]

- A retrospective comparison in the early years of the techniques reported similar results in general, however major complications like bowel injury was a concern in TAPP.[7]
- In our study also similar results were obtained.
  EHS has the opinion that a totally extraperitoneal (TEP) repair is preferred to a transabdominal preperitoneal (TAPP) approach in the case of endoscopic surgery.[7]
- Our study demonstrated that non fixation of mesh had better results as compared to that of fixation on other hand.

CONCLUSION:

- NMF in LIHR does not increase the risk of hernia recurrence. It is comparable with TMF in terms of operation time, post-operative pain, post-operative complications, length of hospital stay and chronic groin pain.
- Therefore, based upon the results of our study NMF approach may be adopted routinely and safely in LIHR.

REFERENCES:

1. Shouldice EB. The shouldice repair for groin hernias. Surg Clin North Am 2003;83:1163–1187.
2. Amato B, Moja L, Panico S, et al. Shouldice technique versus other open techniques for inguinal hernia repair. Cochrane database Syst Rev 2009;4:CD001543.
3. Thairu NM, Heather BP, Earnshaw JJ. Open inguinal hernia repair in women: is mesh necessary? Hernia 2008;12:173–175.
4. Karthikesalingam A, Markar SR, Holt PJ, et al. Metaanalysis of randomized controlled trials comparing laparoscopic with open mesh repair of recurrent inguinal hernia. Br J Surg 2010;97:4–11.
5. Wake BL, McCormack K, Fraser C, et al. Transabdominal pre-peritoneal (TAPP) vs totally extraperitoneal (TEP) laparoscopic techniques for inguinal hernia repair. Cochrane Database Syst Rev 2005;1:CD004703.
6. Felix EL, Michas CA, Gonzalez MH Jr. Laparoscopic hernioplasty. TAPP vs TEP. Surg Endosc 1995;9:984–989.
7. Simons MP, Aufenacker T, Bay-Nielsen M, et al. European hernia society guidelines on the treatment of inguinal hernia in adult patients. Hernia 2009;13:343–403.