

Original Research Article

Comparison of outcome of inguinal hernia repair by combined method of repair (Lichtenstein and Bassini repair) and its comparison with older techniques

Binod Kumar, M. Habibullah Ansari*, Sushil Kumar, M. Asjad Karim Bakhteyar, Chandrahas Yadav, Tarkeshwar Yadav

Department of Surgery, Patna Medical College, Patna, Bihar, India

Received: 07 August 2019

Revised: 16 September 2019

Accepted: 17 September 2019

***Correspondence:**

Dr. M. Habibullah Ansari,

E-mail: motuhabib@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: The aim of this study is to compare outcome of inguinal hernia repair by combined method of repair (Lichtenstein and Bassini repair) and its comparison with older techniques.

Methods: A prospective study conducted on 158 patients reported in surgery OPD Patna Medical College and Hospital, Patna from July 2017 to June 2018 with inguinal hernia. All these patients were included in the study, operated by combined method of repair (Lichtenstein and Bassini repair) and followed up for 12 months. Data were entered and analyzed by SPSS version 10.0.

Results: Study involved 158 patients who were operated by combined repair. Pain on 1st post-operative day was similar with previous study. Complication was erythema, scrotal swelling, neuralgia, superficial wound infection and seroma formation in the order of frequency. The average hospital stay was 5 days for combined approach. Recurrence rate was 0% in combined approach following 1 year of follow-up.

Conclusions: As compared with previous studies of hernia repair by Modified Bassini's and Lichtenstein mesh hernioplasty, combined approach have comparatively better outcome.

Keywords: Inguinal hernia, Bassini's repair, Lichtenstein tension free mesh hernioplasty, Hernia recurrence, Combined repair

INTRODUCTION

Inguinal hernias are the commonest of all hernias, surgery is the definitive treatment and hernia repair is the most commonly performed general surgical procedure in clinical practice. Inguinal anatomy is essential knowledge for the general surgeon. The canal exists between two openings within the abdominal wall known as the internal (deep) inguinal ring and the external (superficial) inguinal ring. The internal inguinal ring is a lateral hiatus within the transversalis fascia, where the external inguinal ring is a medial hiatus within the external

oblique fascia. The canal can range from 4 cm to 6 cm in length and is typically cone shaped. The inguinal canal is bordered anteriorly by the external oblique aponeurosis, posteriorly by the transversus abdominis and transversalis fascia, laterally by the internal oblique, and inferiorly by the inguinal ligament. The spermatic cord passes through the internal ring and out the external ring before descending into the scrotum. Several additional structures are important to identify during open inguinal hernia repair like the iliopubic tract, inguinal ligament, lacunar ligament and lastly the conjoint tendon.

Two types of inguinal hernias may occur. These are classified as a direct and indirect hernia. An indirect hernia passes through the deep (internal) inguinal ring and is located lateral to the inferior epigastric vessels. A direct hernia passes through a weakened area of transversalis fascia in Hesselbach's triangle (lateral edge of rectus abdominis, inferior edge of the inguinal ligament, and medial to inferior epigastric vessels). A Pantaloon hernia is a combination of a direct and indirect hernia.

Several methods have been developed over the years to improve the traditional methods of hernia repair, the most important being the Lichtenstein mesh repair and laparoscopic mesh repair.¹⁻⁴ The aim of this trial was to determine if, there were any benefits to be gained from using combined repair technique for inguinal hernia. A controlled randomized prospective study was carried out to compare the recurrence rate, postoperative pain, erythema, infection rate, scrotal swelling, seroma formation, neuralgia with associated morbidity and hospital stay in patients in whom combined repair was carried out and it was compared with previous studies.

METHODS

From July 2017 to June 2018, 158 patients admitted from surgery OPD in Patna Medical College and Hospital, Patna, Bihar diagnosed to have inguinal hernia were included in the study. Congenital inguinal hernia, pregnant women with inguinal hernia, patients with recurrent / bilateral / complicated inguinal hernia and patients with coagulopathy and those on anti-coagulant therapy were excluded.

Diagnosis was based on clinical findings like swelling in inguino-scrotal region, cough impulse test positive, cannot get above swelling, ring occlusion test. Investigations were done to assess the fitness of patients for surgery. All patients were given pre-operative prophylaxis with Inj. Ceftriaxone 1 gm IV, stat. Regional anesthesia was administered to patients.

Classical incision was used above and parallel to the medial three fifths of the inguinal ligament (right / left depending on side of hernia) after proper swabbing with anti-septics.

Combined repair

After making in the groin crease external oblique aponeurosis was identified and divided. Sac was separated from cord structures and was dealt appropriately depending on the type of hernia. After dissection of the sac, Conjoint tendon was sutured unto the inguinal ligament with vicryl '1 No' using continuous sutures to strengthen posterior wall. Then mesh was placed and fixed to the inguinal ligament below and to the conjoint tendon above with '2-0' polypropylene, lateral end of the cord is encircled by fish-tailing of mesh.

After securing haemostasis, external oblique aponeurosis was repaired and skin was stitched.

Postoperatively, Inj. Diclofenac was given as analgesia for 48 hours to both the groups. Post-operatively Inj. Ceftriaxone 1gm IV, BD and Inj. Metronidazole 100cc, TDS was given for 48 hours to both the groups and patients were evaluated for Pain, erythema, scrotal swelling, Seroma, Infection and neuralgia. Patients were discharged when considered fit to go about their normal routine. Sutures were removed on 10th day post-operatively. Patients were followed up once a month for the first 3 months, once every 3 months thereafter and were observed for recurrence and overall wellbeing.

The data items were entered and analyzed by SPSS version 10.0. Simple descriptive statistics were used for computing the continuous and categorical data.

RESULTS

The difference with older techniques was studied and postoperative complications and recurrence was compared.

Table 1: Postoperative complications.

Complication	Total no. of patients	%
Postoperative pain	24	15.1
Scrotal swelling	8	5
Suprficial wound infection	6	3.7
Neuralgia	3	1.8
Erythema	2	1.2
Seroma	2	1.2

A total of 158 patients with indirect inguinal hernia were included in this study. All were operated by combined repair (Lichtenstein and Bassini repair). Out of 158 patients, 24 patients (15.1%) developed post-operative pain. 8 patients (5%) developed scrotal swelling.

Wound sepsis, leading to removal of skin stitches and expectant treatment were seen in 6 patients.

Cases were followed on monthly bases for three months and three monthly till nine month. Recurrence rate was zero after 1 year of follow-up.

DISCUSSION

A prospective study was done to assess the outcome of inguinal hernia repair by combined (Lichtenstein and Bassini repair) technique and its comparison with older techniques of inguinal hernia repair. The recurrence rate has always been considered an important parameter to assess the effectiveness of any form of hernia repair.

In non-specialised centres recurrence rates is 10-40% after Bassini's repair.^{5,6} The problem in the repair of inguinal hernia is the wide discrepancy between the monotonous excellence achieved in personal series and the uniformly depressing results obtained by impersonal statistical reviews. Yet impersonal reviews indicate that the recurrence rate remains excessively high and fairly constant, whatever methods and material are employed. Various modifications of the Bassini's technique were introduced with an expectation of reducing the recurrence rate. Shouldice and Cooper's ligament repair is the most popular modification of Bassini's repair.

Lichtenstein's hernia repair is probably easier for trainees to learn. In a recent prospective trial of primary inguinal hernia repair by surgical trainees, the recurrence rate was 8% for Lichtenstein and 5% for Shouldice repair at 6-9 years of follow-up and 38% of patients had chronic groin pain following Lichtenstein repair.⁷ No patient reported with recurrence of inguinal hernia within the study period.

Surgical site infection is the most feared complication in inguinal hernia repair leading to mesh removal. According to the U.S. Centers for Disease Control and Prevention. The overall incidence of surgical site infection (SSI) has been estimated to be 4.2%. In our study we found the infection rates to be 3.7%.

Incidence of seroma formation hernia surgery is in the range 0.5-8%. In our study the rate was found to be 1.2%.

The incidence of neuralgia is reported to be between 0.5 and 4.6% depending on the technique of repair⁸. In our study the incidence was 1.2%.

Cigarette smoking is known to disturb the protease/antiprotease system leading to destruction of elastin and collagen of the rectus sheath and fascia transversalis. To conclude combined (Lichtenstein and Bassini) repair technique was found to be better than the Lichtenstein's tension free mesh hernioplasty and the Bassini's repair due to minimal recurrence rate and early ambulation with an acceptable postoperative rehabilitation.

CONCLUSION

Inguinal hernia repair remains the most commonly performed surgery by a general surgeon. Over the years

different modifications have been forwarded for its repair with different complication rates. As compared with previous studies of hernia repair by Modified Bassini's and Lichtenstein mesh hernioplasty, combined approach have comparatively better outcome in respect of recurrence rate. We need prolonged follow-up period to know the exact delayed complication. Sample size should also be larger for better results. Surgeons in the training found this technique easier to master than the Bassini's repair and Lichtenstein's tension free mesh hernioplasty.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Lichtenstein IL. Herniorrhaphy: a personal experience with 6,321 cases. *Am J Surg.* 1987;153:553-9.
2. Amid PK. Pioneers in Hernia Surgery. Lichtenstein tension- free hernioplasty: Its inception, evolution, and principles. *Hernia.* 2004;8:1-7.
3. Cervantes J. Inguinal Hernia in the New Millennium. *World J Surg.* 2004;28:343-7.
4. Seid AS, Amos E. Entrapment neuropathy in laparoscopic herniorrhaphy. *Surg Endosc.* 1994;8:1050-3.
5. Haapaniemi S, Nilsson E. Recurrence and pain three years after groin hernia repair. Validation of postal questionnaire and selective physical examination as a method of follow up. *Eur J Surg* 2002;168:22-8.
6. Abrahamson J. Aetiology and pathophysiology of primary and recurrent inguinal hernia formation. *Surg Clin North Am.* 1998;78:953-72.
7. Barbier J, Carretier M, Richer J P. Cooper ligament repair: an update. *World J Surg.* 1989;13:499-505.
8. Fitzgibbons RJ, Jr, Camps J, Cornet DA, Nguyen NX, Litke BS, Annibali R, et al. Laparoscopic inguinal herniorrhaphy Results of multicenter trial. *Ann Surg.* 1995;221:3-13.

Cite this article as: Kumar B, Ansari MH, Kumar S, Bakhteyar MAK, Yadav C, Yadav T. Comparison of outcome of inguinal hernia repair by combined method of repair (Lichtenstein and Bassini repair) and its comparison with older techniques. *Int Surg J* 2019;6:3698-700.