

Lichtenstein Hernioplasty Under Local Anaesthesia and Totally Extra Peritoneal (TEP) Laparoscopic Inguinal Hernias Repair Under General Anaesthesia: A Comparative Study

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ABSTRACT

Background: Incidence of inguinal hernia has been increasing, with 500,000 new cases every year. Most surgeons prefer open hernia repair techniques; however, more recently, both surgeons and patients have begun to prefer minimally invasive techniques, which result in less pain, early work return, less incidence of infection, better cosmetic results, and better patient satisfaction.

Aim of the Study: To compare Lichtenstein Hernioplasty under local anesthesia and Totally Extra peritoneal (TEP) Laparoscopic Inguinal hernias repair under general anesthesia.

Materials and Methods: The study was conducted in the department of general surgery of the medical hospital. For the selection of study group we included adult male patients with an inguinal hernia presenting for treatment to the surgical OPD. A total of 30 patients were included in the study. The patients were randomly grouped into two groups, Group 1 and Group 2. The patients in group 1 were allocated Lichtenstein Hernioplasty under local anesthesia and patients in group 2 were allocated totally extra peritoneal laparoscopic inguinal hernias repair under general Anesthesia. For the evaluation of the procedures we recorded the primary outcomes and Secondary outcome.

Results: In the present study a total of 30 patients were included. Number of patients in group 1 and group 2 were 15 each. Mean age of the patients in group 1 was 44.38 years and

in group 2 was 42.12 years. Baseline CRP of group 1 patients was 4.22 mg/dL and of group 2 patients was 4.16 mg/dL. The number of dissatisfied patients was more in group 1 as compared to group 2.

Conclusion: Lichtenstein Hernioplasty under local anesthesia and Totally Extra peritoneal (TEP) Laparoscopic Inguinal hernias repair are both very efficient surgical procedure for management of inguinal hernia. TEP laparoscopic inguinal hernia repair is more satisfactory to patients as compared to Lichtenstein Hernioplasty.

Keywords: Inguinal Hernia, Local Anesthesia, General Anesthesia.

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INTRODUCTION

Incidence of inguinal hernia has been increasing, with 500,000 new cases every year. Most surgeons prefer open hernia repair techniques; however, more recently, both surgeons and patients have begun to prefer minimally invasive techniques, which result in less pain, early work return, less incidence of infection, better cosmetic results, and better patient satisfaction.^{1,2}

The first benefit of the laparoscopic, repair is that it induces less pain than an open hernia repair and enables patients to return quickly to normal activity and work. Among the different approaches, the totally extra peritoneal (TEP) has been shown to be an effective and safe repair for primary, recurrent and bilateral hernia.³ Patients with inguinal hernia who underwent open Lichtenstein repair under local anesthesia usually experience more postoperative pain than those treated with laparoscopic TEP

repair.⁴ TEP represents usually the procedure of choice having several advantages, such as shorter hospital stay and early return to work compared open surgery. However, what the most cost-effective procedure for IH repair is, is still under discussion.^{5,6} Hence, the present study is planned to compare Lichtenstein Hernioplasty under local anesthesia and Totally Extra peritoneal (TEP) Laparoscopic Inguinal hernias repair under general anesthesia.

MATERIALS AND METHODS

The study was conducted in the department of general surgery of R.B.M. Hospital, Bharatpur, Rajasthan, India. For the selection of study group we included adult male patients with an inguinal hernia presenting for treatment to the surgical OPD.

Inclusion Criteria

- Age ranging between 18-60 years
- American Society of Anesthesiologists grade I and II
- Medically fit for surgery
- Willing to provide written consent

Exclusion Criteria

- Having complete, recurrent, strangulated, or obstructed hernia
- Having contraindication to GA
- Having a lower abdominal wall scar
- Receiving monoamine oxidase inhibitors or tricyclic antidepressants

A total of 30 patients were included in the study. The patients were randomly grouped into two groups, Group 1 and Group 2. The patients in group 1 were allocated Lichtenstein Hernioplasty under local anesthesia and patients in group 2 were allocated

totally extra peritoneal laparoscopic inguinal hernias repair under general Anesthesia. The surgical procedure was performed under the guidelines with all the respective precautions by expert surgeons. For the evaluation of the procedures we recorded the primary outcomes and Secondary outcome. The primary outcome was postoperative pain, which determines the patient’s functional status and wellbeing after surgery. Secondary outcome measures were OR time (time from patient entering the operating theater to exit from the operating theater), operating time (time from initial incision to the tying of the last skin stitch), intraoperative complications, and adverse events (i.e., vascular, nerve or vas deferens injury, peritoneal breach, pneumoperitoneum).

The statistical analysis of the data was done using SPSS version 20.0 for windows. The Student’s t-test and Chi-square test were used to check the significance of the data. The p-value less than 0.05 were predetermined as statistically significant.

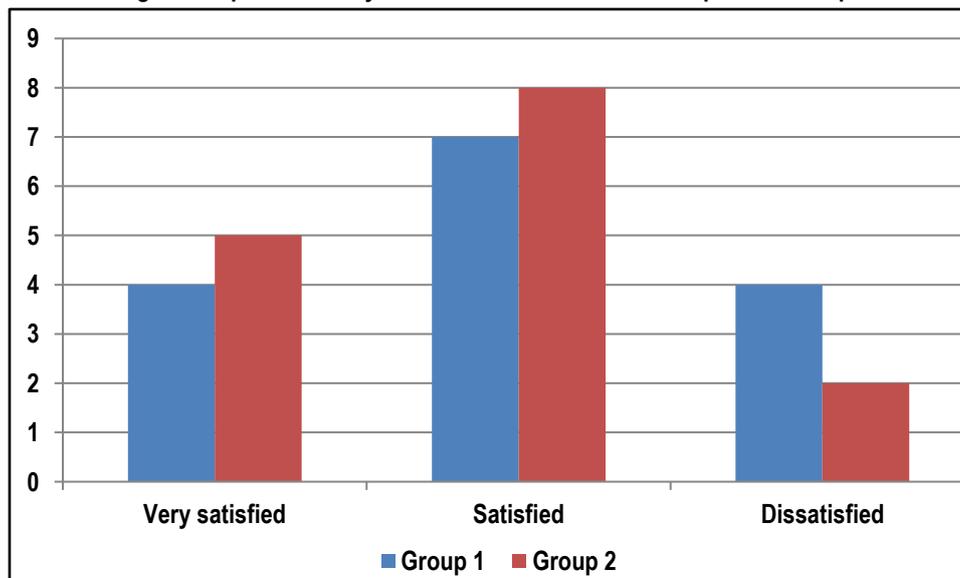
Table 1: Demographic data of the patients

Parameters	Group 1	Group 2	p-value
No. of patients	15	15	0.22
Mean age (years)	44.38	42.12	0.56
Baseline CRP (mg/L)	4.22	4.16	0.31
Baseline PCS (SF-36v2)	42.69	43.65	0.54

Table 2: Comparative analysis of satisfaction level of Group 1 and Group 2

Satisfaction status	Group 1	Group 2	p-value
Very satisfied	4	5	0.19
Satisfied	7	8	
Dissatisfied	4	2	

Fig 1: Comparative analysis of satisfaction level of Group 1 and Group 2



RESULTS

In the present study a total of 30 patients were included. Number of patients in group 1 and group 2 were 15 each. Mean age of the patients in group 1 was 44.38 years and in group 2 was 42.12 years. Baseline CRP of group 1 patients was 4.22 mg/dL and of group 2 patients was 4.16 mg/dL. Baseline PCS of group 1 patients was 42.69 SF-36v2 and of group 2 was 43.65 SF-36v2.

Table 2 shows the comparative analysis of satisfaction level of Group 1 and Group 2 patients. The number of dissatisfied patients was more in group 1 as compared to group 2. Group 1 had 4 patients that were very satisfied. On the contrary, group 2 had 5 patients that were very satisfied. On comparing the results we found that the results are non-significant (Fig 1).

DISCUSSION

In the present study we compared Lichtenstein Hernioplasty under local anesthesia and Totally Extra peritoneal (TEP) Laparoscopic Inguinal hernias repair under general anesthesia. We observed that Lichtenstein Hernioplasty under local anesthesia and Totally Extra peritoneal (TEP) Laparoscopic Inguinal hernias repair are both very efficient surgical procedure for management of inguinal hernia. TEP laparoscopic inguinal hernia repair is more satisfactory to patients as compared to Lichtenstein Hernioplasty under local anesthesia. On comparing the results we observed that the results were statistically non-significant. The results were compared with previous studies and results were consistent with previous studies. Dhankhar DS et al performed a prospective randomized trial to compare the outcome of TEP repair under general anesthesia versus open Lichtenstein inguinal hernioplasty under local anesthesia. Adult men with primary unilateral inguinal hernia without any history of lower abdominal surgery were assessed for inclusion in the study. Of the 194 patients assessed for eligibility for recruitment in the trial, 72 were recruited in the trial and randomized into two groups of 36 patients each. A per-protocol analysis was performed. Patients were followed for a period of 3 months. Pain was assessed by a visual analog scale, and quality of life was assessed by the SF-36 Health Survey Questionnaire, version 2. A total of 59 patients were analyzed at the end of the study, 30 in the Lichtenstein group and 29 in the TEP group. The operating time and total operating room time were significantly longer in the TEP group. Postoperative pain scores in the TEP group were lower than the scores in Lichtenstein group, but the difference was not statistically significant. There was significantly more use of analgesics and higher C-reactive protein levels in the Lichtenstein group. Quality of life and patient satisfaction were similar in both groups. It was concluded that Lichtenstein repair under local anesthesia is as good as TEP under general anesthesia. The shorter operating room time, smaller mesh size, and lower cost of local anesthetic drugs all contribute to make Lichtenstein repair the better choice for repair of uncomplicated unilateral inguinal hernia, especially in developing nations with scarce resources. Dahlstrand U et al compared open Lichtenstein repair under local anesthesia (LLA) with laparoscopic total extraperitoneal repair (TEP) with respect to postoperative pain. Between 2006 and 2010, a total of 389 men with a unilateral primary groin hernia were randomized, in an open-label study, to either TEP (n = 194) or LLA (n = 195). One patient in the TEP group and four in the LLA group were excluded due to protocol violation. Details about the procedure and patient and hernia characteristics were registered. Patients completed the Inguinal Pain Questionnaire (IPQ) 6 weeks after surgery. A total of 378 (98.4 %) patients completed the IPQ. One hundred forty-eight patients (39.1 %) reported some degree of pain, 22 of whom had pain that affected concentration during daily activities. Men in the TEP group had less risk for pain affecting daily activities. Pain prevented participation in sporting activities less frequently after TEP. Twenty-nine patients (7.7 %) reported sick leave exceeding 1 week due to groin pain, with no difference between the treatment groups. They concluded that patients who underwent the laparoscopic TEP procedure suffered less pain 6 weeks after inguinal hernia repair than those who underwent LLA. Groin pain affected the LLA patients' ability to perform strenuous activities such as sports more than TEP patients.^{7,8}

Westin L et al compared long-term postoperative pain after inguinal hernia surgery using 2 techniques that have shown favorable long-term outcome in previous randomized studies: Lichtenstein using local anesthesia (LLA) and endoscopic total extra-peritoneal repair (TEP) under general anesthesia. A randomized controlled trial was conducted to detect any difference in long-term postoperative inguinal pain. Altogether 384 patients were randomized and operated using either TEP under general anesthesia or LLA. One year postoperatively, patients were examined by an independent surgeon and requested to complete the Inguinal Pain Questionnaire (IPQ), a validated questionnaire for the assessment of postoperative inguinal pain. Three hundred seventy-five (97.7%) patients completed follow-up at 1 year. In the TEP group, 39 (20.7%) patients experienced pain, compared with 62 (33.2%) patients in the LLA group. Severe pain was reported by 4 patients in the TEP group and 6 patients in the LLA group. Pain in the operated groin limited the ability to exercise for 5 TEP patients and 14 LLA patients. They concluded that the patients operated with TEP experienced less long-term postoperative pain and less limitation in their ability to exercise than those operated with LLA. Eker HH et al compared minimally invasive total extraperitoneal inguinal hernioplasty (TEP) with Lichtenstein repair to determine if one is associated with less postoperative pain, hypoesthesia, and hernia recurrence. Six hundred sixty patients were randomized to TEP or Lichtenstein repair. The primary outcome was postoperative pain. Secondary end points were hernia recurrence, operative complications, operating time, length of hospital stay, time to complete recovery, quality of life, chronic pain, and operative costs. At 5 years after surgery, TEP was associated with less chronic pain. Impairment of inguinal sensibility was less frequently seen after TEP vs Lichtenstein repair. Operative complications were more frequent after TEP vs Lichtenstein repair, while no difference was noted in length of hospital stay. After TEP, patients had faster time to return to daily activities and less absence from work. Although operative costs were higher for TEP, total costs were comparable for the 2 procedures, as were overall hernia recurrences at 5 years after surgery. However, among experienced surgeons, significantly lower hernia recurrence rates were seen after TEP. They concluded that in the short term, TEP was associated with more operative complications, longer operating time, and higher operative costs; however, total costs were comparable for the 2 procedures.^{9,10}

CONCLUSION

Within the limitations of the study we conclude that Lichtenstein Hernioplasty under local anesthesia and Totally Extra peritoneal (TEP) Laparoscopic Inguinal hernias repair are both very efficient surgical procedure for management of inguinal hernia. TEP laparoscopic inguinal hernia repair is more satisfactory to patients as compared to Lichtenstein Hernioplasty.

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