



A COMPARITIVE STUDY BETWEEN LICHTENSTEIN'S TENSION FREE "HERNIOPLASTY" UNDER LOCAL ANESTHESIA VERUS MINIMALLY INVASIVE LAPAROSCOPIC APPROACH FOR INGUINAL HERNIAS

Dr Deepak L	Government Medical College, Kozhikode.
Dr Santhosh Kumar	Associate Professor, Government Medical College, Kottayam.
Dr Jayan N P*	Assistant Professor, Department of General and Laparoscopic Surgery Government Medical college, Kozhikode. *Corresponding Author

ABSTRACT

Introduction: Despite the frequency of Hernia surgery, no surgeon has obtained an ideal result continually and for complications such as Post operative pain, Nerve Injury, and Surgical site infection remain. The chance of recurrence remains variably positive, making it a chronic disease. Hernia is derived from a Latin origin from a word meaning 'Rupture.' Hernia is defined as an Abnormal protrusion of an organ or tissue through a defect in the surrounding walls. Inguinal Hernias, are among the most common ones, occurring through the Abdominal wall defects in the Inguinal region. Most Commonly used method and world wide acceptable method is the Lichtenstein Tension free Mesh repair, and the recent advanced one is the Laparoscopic Hernia Repair. The Comparative study of the latter in many aspects remain limitedly explored. **Aims and Objectives:** To compare Laparoscopic Hernia Repair as opposed to Conventional Open Hernia Repair in measures of: Duration of Surgical Procedure, Vascular and Visceral Injuries, Length of Hospital stay, Time to return to work, Early Post Operative Complications (Urinary Retention, Seroma, Hematoma, Wound Infection), Chronic Persisting pain (>3 Months), Cost effectiveness. **Methodology and Methods:** The Present study is a Comparative study performed in Government Medical College, Kozhikode. Department of General Surgery. Performed over 168 cases admitted, during a study period of February 2018 to August 2019. 42 cases underwent Laparoscopic Hernia repair and 126 Cases underwent Lichtenstein tension free mesh repair, based on Inclusion and Exclusion criteria. **Results:** Standard studies denote that the time taken for Laparoscopic hernia surgery is more than the Open surgeries, and similar results were obtained in our studies, with Laparoscopic surgeries taking typically >60-120 mins, whereas, open surgeries maintained a time <60 mins with a p value of <0.05. Vascular injuries observed in our studies were discordant with the standard studies, but were not statistically significant either with a p value of 0.243. Where 95% of post laparoscopy patients could be discharged on time, (i.e, within 2 days), only 68% of Open hernias could be discharged on time (due to immediate post op complications like: Post Op pain, Erythema, swelling, Wound infection and Hematomas. It was statistically significant with a p value <0.05. Almost all the Post operative patients treated by both disciplines could return back to their normal activity by post operative period. 71% of Laparoscopic cases could return to work by 2-4 weeks, whereas a majority (54%) cases could not return to work in 4 weeks time, which was again statistically significant with a p value <0.05. 97.6% of laparoscopic cases had a pain of less than 5 Points assessed by Visual analogue scale. As opposed to Open hernias, where 71% cases had a pain score of >5 points. P value of <0.05. 26.2% cases of open hernias complained of Pain/Paraesthesia over the wound/ Scrotum/Inner thigh aspect over around 3 Months Post Operatively. Whereas none of the cases operated by Laparoscopic Hernias showed any of these symptoms. P value <0.05. 7.9% cases of open hernias had hematomas, Nil for Laparoscopic repair. P value 0.06. 2 cases of Laparoscopic repair had surgical site infection, compared to 23 cases in Open hernias, P value <0.05. 1 case of seroma was picked up in the Laparoscopic repair group, compared to 9 cases in Open hernia repair. P value 0.259. **Conclusion:** Based on above study, we saw advantages of Open and Laparoscopic repairs as well as Disadvantages. Where, Decreased operating time was an Advantage of Open Hernias, Decreased wound infection, Shorter Hospital stay, Faster return to work, Decreased post operative pain and decreased nerve injury seem as an advantage for Laparoscopic Repair. Taking all points into consideration, Laparoscopic Hernia was found to be more cost effective than open hernia repair.

KEYWORDS :

INTRODUCTION:

Despite the frequency of Hernia surgery, no surgeon has obtained an ideal result continually and for complications such as Post operative pain, Nerve Injury, and Surgical site infection remain. The chance of recurrence remains variably positive, making it a chronic disease. Statistically around 1.5-2 million Inguinal Hernias are done in India annually. So, a certainty regarding the procedure one chooses must to be established.

Hernia is derived from a Latin origin from a word meaning 'Rupture.' Hernia is defined as an Abnormal protrusion of an organ or tissue through a defect in the surrounding walls. Inguinal Hernias, are among the most common ones, occurring through the Abdominal wall defects in the Inguinal region.

Most Commonly used method and world-wide acceptable method is the Lichtenstein Tension free Mesh repair, and the recent advanced one is the Laparoscopic Hernia Repair. The Comparative study of the latter in many aspects remain limitedly explored.

AIMS AND OBJECTIVES:

To compare Laparoscopic Hernia Repair as opposed to Conventional Open Hernia Repair in measures of: Duration of Surgical Procedure, Vascular and Visceral Injuries, Length of Hospital stay, Time to return to work, Early Post Operative Complications (Urinary Retention, Seroma, Hematoma, Wound Infection), Chronic Persisting pain (>3 Months), Cost effectiveness.

To Compare Laparoscopic Hernia repair as opposed to Conventional Open Hernia repair on various domains.

- Duration of procedure
- Visceral and Vascular Injuries
- Length of Hospital stay
- Time to return to work
- Early/ Late post operative complications of Hernia
- Overall Cost effectiveness.

METHODOLOGY AND METHODS:

The Present study is a Comparative study performed in Government Medical College, Kozhikode. Department of General Surgery. Performed over 168 cases admitted, during a study period of February 2018 to August 2019.

42 cases underwent Laparoscopic Hernia repair and 126 Cases underwent Lichtenstein tension free mesh repair, based on Inclusion and Exclusion criteria.

Patients with NYHUS Type II, Type IIIa and Type IIIb, with no evidence of infection, no risk factors for wound healing. Patients with uncomplicated inguinal hernia and ready to follow up were considered in Inclusion Criteria.

NYHUS Type I and Type IV, Complicated Hernias, Patients with Bleeding Diathesis, CAD, COPD/ Laparoscopy converted to open, Patients not willing for Surgery or Follow up, History of Previous major Abdominal Surgeries were excluded from the studies.

RESULTS AND DISCUSSION:

The sex distribution in the study 92.3% males and 7.7% females is comparable with the study by Ira.M. Rutkow et al in which 90% were males and 10% were females. The age incidence in the same study was 45-64, which is comparable in our study with the majority in the group of 45-59 years of age.

Standard studies denote that the **time taken for Laparoscopic hernia surgery** (TAPP/TEP) is more than the Open surgeries, and similar results were obtained in our studies, with Laparoscopic surgeries taking typically >60-120 mins for 54.8% Laparoscopic Surgeries done, whereas, open surgeries typically maintained a time <60 mins of the 74.6% of Surgeries performed, with a p value of <0.05. Comparable to standard studies. McCormack K et al, Scheurmann et al, Udwardia tehamanton et al all found that Operation time was significantly longer for laparoscopic Surgeries. Zieran J et al published his study and noted an operating time of 61+/- 12 mins for Laparoscopic Group. B.Johansson et al noted a similar results of an operating time of 65+/- 25 mins for Laparoscopic Group. This could be also attributed to the learning curve taken by the surgeons leading to prolonged time.

Vascular injuries observed in our studies were discordant with the standard studies, but were not statistically significant either with a p value of 0.243. With Nil injuries in Laparoscopic surgeries and 4 Injuries in Open Hernia Repair Cases. In standard studies, McCormack I et al, Laparoscopic repairs were typically seen to be having more Vascular injuries than Open repair, especially bladder injuries.

No cases of **Visceral injuries** were seen in both Laparoscopic and Open Hernia Repair in our study.

Where 95% of post laparoscopy patients could be **discharged** on time, (i.e. within 2 days), only 68% of Open hernias could be discharged on time (due to immediate post op complications like: Post Op pain, Erythema, swelling, Wound infection and Hematomas. It was statistically significant with a p value <0.05. This observation was comparable to standard comparative studies in length of Hospital stay post Hernia Repair .Feliu X et al observed a mean Hospital stay of 0.6+/- 0.8 days for Laparoscopic Hernia and 1.3+/- 1.2 days for open group. Rest standard studies by Gokalp et al, Langeveld et al, Eklund et al too reported a favourable verdict for Laparoscopic Hernia Repair. McCormack et al reported no significant difference in length of Hospital Stay for both the Groups.

Almost all the Post operative patients treated by both disciplines could **return back to their normal** activity by post operative period. 92.2% Laparoscopic Hernia repair patients and 92.1% of Open Hernia repair cases could return back to their routine activities in the Post operative period without help of any help.

However **time taken to return back to their Routine** varied significantly, where 71% of Laparoscopic cases could return to work by 2-4 weeks ,a majority (54%) cases could not return to work in 4 weeks time, which was again statistically significant with a p value <0.05. 7.1% of Laparoscopically repaired Hernias could resume to work in less than 2 weeks time, this was Nil in case of Open Hernia repair. McCormack et al, observed Laparoscopic group to have a faster return to routine activities. Heikkinen et al, reported a mean period of 14 days for Laparoscopic Group and 21 days for open group. Study published by Wilson et al, suggested a mean return period of 7-10 days for Laparoscopic group and 14-21 days for Open Hernia repair group. Stoker D L et al, reported a mean time of 14 days for return to work for Laparoscopic group and 28 days for Open Repair.

Pain was the most common symptom for both the groups post operatively, 97.6% of laparoscopic cases had a **pain** of less than 5 Points assessed by Visual analogue scale. As opposed to Open hernias, where 71% cases had a pain score of >5 points both of which were assessed in Immediate Post operative period. P value of <0.05. this value is comparable to Standard studies. Study conducted by Kargar S et al, dictated a finding that Laparoscopic group will experience lesser pain than Open group. Study by Yang et al, Lelpo et al and Li J et al also came up with similar results regarding immediate post op pain.

26.2% cases of open hernias complained of Pain/Paraesthesia over the wound/ Scrotum/Inner thigh aspect over around 3 Months Post Operatively. Whereas none of the cases operated by Laparoscopic

modality showed any of these symptoms. P value <0.05. Erhan et al, study reported 4-6% of patients having Chronic pain in Open group and Poobalan et al reported a number of 10% incidence for open group. Kouhia S T et al observed that Chronic pain was more Prevalant in Open Group than Laparoscopic group with an Incidence of 27.7% and 8.2% respectively.

7.9% cases of open hernias had **hematomas**, Nil for Laparoscopic repair. P value 0.06.

2 cases of Laparoscopic repair (at the camera port site) had **surgical site infection**, compared to 23 cases in Open hernias, P value <0.05. 5 out of 23 cases with Surgical site infection required letting out of the pus and IV Antibiotics with removal of mesh to control infection.

1 case of **seroma** was picked up in the Laparoscopic repair group, compared to 9 cases in Open hernia repair. P value 0.259. All of the cases were managed conservatively with aspiration alone, which responded.

In a study comparing open and laparoscopic inguinal hernia repairs, Juul P et al, concluded that the complication rates in the two groups were similar. In a study conducted by Bringman et al., the total complication rate in the laparoscopic group was seen to be 9.8% (wound hematoma 3.3%, seroma and superficial infection 1.1% each) and in the open mesh group it was seen to be 20.4% (wound hematoma 7.8%, superficial infection 3.9%). Bhandarkar S et al., reported that the wound infection rates were significantly low after laparoscopic techniques (1%) than after the Lichtenstein operation (2.7%) and other open mesh repairs (2.4%). The incidence of inguinal hematoma was found to be significantly lower after the laparoscopic repairs (13.1%) thereafter the Lichtenstein repair (16.0%) as well as with the other open mesh techniques (14.3%).

CONCLUSION:

Based on above study, we saw advantages of Open and Laparoscopic repairs as well as Disadvantages. Where, Decreased operating time was an Advantage of Open Hernias, Decreased wound infection, Shorter Hospital stay, Faster return to work, Decreased post operative pin and decreased nerve injury seem as an advantage for Laparoscopic Repair.

Taking all points into consideration, Laparoscopic Hernia was found to be more cost effective than open hernia repair.

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