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SURGICAL MANAGEMENT OF BILATERAL INGUINAL HERNIAS: A PROSPECTIVE STUDY OF LICHTENSTEIN, STOPPAS AND TEP REPAIR.

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ABSTRACT **BACKGROUND:** The choice of surgery for bilateral inguinal hernia repair still remains a debatable question for surgeons. This study was aimed at analysing the effectives as well as comparing Lichtenstein, Stoppas and laparoscopic TEP(total extraperitoneal repair) approaches for Bilateral inguinal hernia. **MATERIALS AND METHODS:** Prospective study involving 60 patients of Bilateral inguinal hernia, were divided into 3 groups, 20 patients each in Lichtenstein, Stoppas and TEP. As per relevant rating scales, parameters analysed were duration of surgery, post operative pain, post operative analgesia requirement, duration of hospital stay, return to normal activity, cost effectiveness, surgical complications, recurrence over 6months. **RESULTS:** Minor complications such as seroma, scrotal oedema, wound infection were common in Lichtenstein compared to Stoppas and TEP. Shorter duration of surgery, early discharge and early return to normal activities was seen in Stoppas and TEP compared to Lichtenstein. One recurrence was seen in TEP and Lichtenstein. Post operative pain was least with TEP than the other two groups. Open surgery proved to be more cost effective than TEP. **CONCLUSION:** TEP in comparison with Stoppas and Lichtenstein is safer with lesser complications and earlier recovery, but less cost effective than open surgery. In developing countries, where cost effectiveness plays a crucial role in deciding the surgery, Stoppas is safe with minimal complications and rapid recovery. This study also demonstrates the effect of surgeon's experience on clinical outcome, with learning curve being shorter in open vs TEP repair.

KEYWORDS :

INTRODUCTION:

Bilateral inguinal hernia is a common condition that affects men and women of all ages. 1 It occurs when a portion of the intestine protrudes through a weak point in the abdominal wall, causing discomfort and pain. The choice of surgery for bilateral inguinal hernia repair is a debatable question for surgeons, as there are several surgical options available, each with their own advantages and disadvantages. The three most commonly used surgical techniques for bilateral inguinal hernia repair are Lichtenstein repair, Stoppa repair, and laparoscopic TEP (total extraperitoneal) repair.

The Lichtenstein repair, also known as the "open mesh" repair, is a widely used technique that involves the use of a mesh to reinforce the weak point in the abdominal wall. The mesh is placed in the preperitoneal space, and the edges of the mesh are fixed to the abdominal wall with non-absorbable sutures. 2 This technique is considered to be the gold standard for inguinal hernia repair and has a high success rate. One of the advantages of this technique is that it is a simple procedure that can be performed quickly and easily. Additionally, it has a low recurrence rate and a low complication rate.

The Stoppa repair is a technique that involves the use of a mesh to reinforce the weak point in the abdominal wall. The mesh is placed in the retroperitoneal space, through a lower midline incison. The mesh is held in place by the basic ideology of Pascal's law, where the intarabdominal pressure helps in holding the mesh securely in the pre peritoneal space. This technique is considered to be an alternative to the Lichtenstein repair and has a high success rate. One of the advantages of this technique is that it allows for a more anatomic repair, which may reduce the risk of recurrence.[3]

The concept of TEP repair derived from Stoppa's is a laparoscopic technique that involves the use of a mesh to reinforce the weak point in the abdominal wall. The mesh is placed in the preperitoneal space, and the edges of the mesh are fixed to the abdominal wall with non-absorbable sutures. This technique is considered to be a minimally invasive alternative to open surgery and has a high success rate. One of the advantages of this technique is that it causes less pain and scarring than open surgery. Additionally, it allows for a faster recovery time.

The objective of this prospective study is to compare the effectiveness of Lichtenstein repair, Stoppa repair, and TEP repair for bilateral inguinal hernia. The study will include a large number of patients who will be randomly assigned to one of the three surgical groups. The patients will be followed up for a period of 6 months, and the outcome measures will include pain, recurrence rate, complications, and patient satisfaction.

In conclusion, the choice of surgery for bilateral inguinal hernia repair is a debatable question for surgeons, as there are several surgical options available, each with their own advantages and disadvantages. The Lichtenstein repair, Stoppa repair, and TEP repair are the three most commonly used surgical techniques for bilateral inguinal hernia repair. This prospective study aims to compare the effectiveness of these three surgical techniques and provide valuable insights for surgeons to make informed decisions about the best surgical approach for their patients. Furthermore, the study will provide data that will help to identify the best surgical technique for specific patients based on individual characteristics such as age, sex, and medical history.

AIMS AND OBJECTIVES

AIM: 1. To study and compare the superiority of Lichtenstein repair, Stoppas Repair and TEP in Bilateral Inguinal hernia. OBJECTIVES: 1. To study the advantages and disadvantages of Lichtenstein, Stoppas repair and TEP with respect to overall time required, post op pain, duration of hospital stay, return to daily activities and any notable post op complications.

INCLUSION AND EXCLUSION CRITERIA:

Age more than 18 years and Bilateral Inguinal Hernias cases Patients with Bilateral inguinal hernia with age more than 18years were included in this study. All patients with unilateral, Recurrent hernias or complicated hernias(irreducible, obstructed, strangulated) were excluded from this study.

MATERIALS AND METHODS

In this study, patients with clinical diagnosis of bilateral inguinal hernia in department of General Surgery at Rajarajeswari medical college and hospital were included. The study being a Prospective comparative study was conducted from a period of July 2020 to August 2022 which included a follow up period of 6months. 60 patients of Bilateral inguinal hernia were randomly allocated into 3 groups. Patients were divided into 3 groups, Group A- Lichtenstein repair, Group B-Stoppas repair, Group C-TEP procedure. Routine blood and radiological were done. The three surgeries were compared compared under the following parameters: duration of surgery, Post operative pain, Post operative analgesia requirement, return to daily activities, and complications such as seroma, wound infection, hematoma, surgical site infection, chronic inguidynia. Additionally cost analysis of the three surgeries was done and patients were followed up for a period of 6 months.

STATISTICALANALYSIS

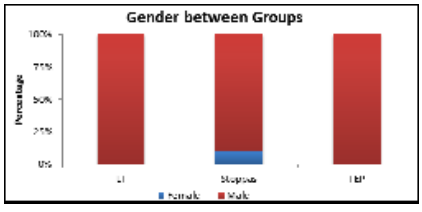
The collected data were analysed with IBM SPSS Statistics for Windows, Version 23.0.(Armonk, NY: IBM Corp).

Analysis were made using multiple tests such as ANOVA, Turkeys Post-Hoc & Chi- Square tests.

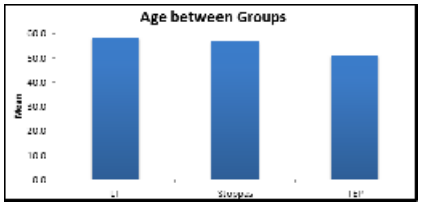
In all the above statistical tools the probability value 0.05 is considered as Significant level and Highly Statistical Significance at $p < 0.01$.

RESULTS

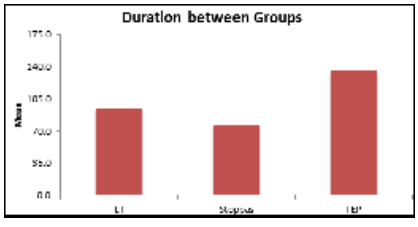
This result is a summary of this study that compares different groups on various factors, including gender, age, duration, pain, seroma formation, recurrence, number of days to return to daily activities, and cost. The study uses several statistical tests, including Pearson's Chi-Square test and One-way ANOVA, to determine the significance of the differences between the groups.



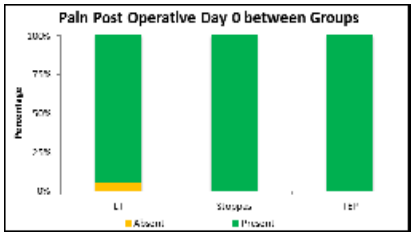
The Gender between Groups by Pearson's Chi-Square test shows no statistical significance between Gender and Groups.



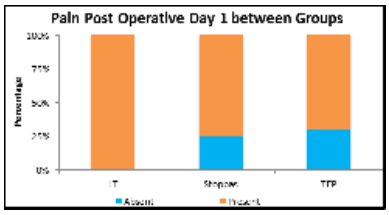
The Age between Groups by using One-way ANOVA shows a statistical significance difference at $p < 0.05$ level.



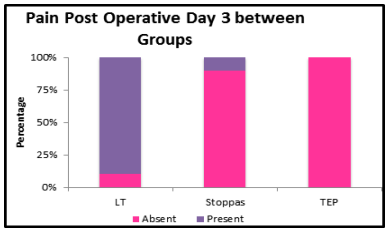
The Duration between Groups by using One-way ANOVA shows a highly satatistical significance difference at $p < 0.01$ level.



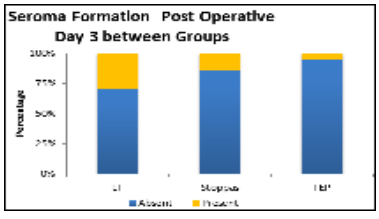
The Pain Post Operative Day 0 between Groups by Pearson's Chi-Square test shows no statistical significance between Pain Post Operative Day 0 and Groups.



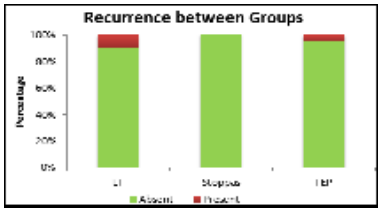
The Pain Post Operative Day 1 between Groups by Pearson's Chi-Square test shows statistical significance between Pain Post Operative Day 1 and Groups.



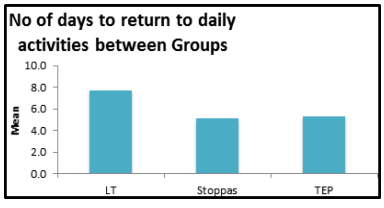
The Pain Post Operative Day 3 between Groups by Pearson's Chi-Square test shows highly statistical significance between Pain Post Operative Day 3 and Groups.



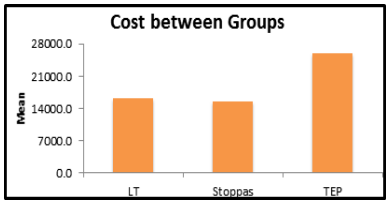
The Seroma Formation Post Operative Day 3 between Groups by Pearson's Chi-Square test shows no statistical significance between Seroma Formation Post Operative Day 3 and Groups.



The Recurrence between Groups by Pearson's Chi-Square test shows no statistical significance between Recurrence and Groups.



The No of Days to Return to Daily Activities between Groups by using One-way ANOVA shows highly statistical significance difference at $p < 0.01$ level.



The Cost between Groups by using One-way ANOVA shows highly statistical significance difference at $p < 0.01$ level.

Overall, this study suggests that there are significant differences between the groups on various factors, particularly in terms of duration, pain, number of days to return to daily activities, and cost.

However, there is no significant difference between the groups on gender, seroma formation, and recurrence

DISCUSSION

The University of Aberdeen's Health Services Research and Health Economics Research Unit recently conducted an analysis on the cost-effectiveness of laparoscopic surgery for bilateral hernias and found that it is likely more cost-effective than open mesh repair. This is due to shorter operating times and a quicker recovery period with the laparoscopic approach. Additionally, laparoscopic hernia repair offers a minimal access approach to pre-peritoneal repair, making it a preferred method for experienced laparoscopic surgeons in repairing recurrent groin hernias.

Laparoscopic TEP hernia repair is a new alternative to conventional treatment for bilateral hernia and has several advantages like reduction of postoperative pain, mesh placement in the preperitoneal space where the hernia is produced(myopectineal orifice), bilateral repair by a single access and the possibility that unexpected opposite hernia can be repaired simultaneously, easier repair of recurrent hernia as the repair is performed in tissue that has not been previously dissected, the highest possible ligation of hernial sac, less tissue dissection and disruption of tissue planes, three ports are adequate for all type of hernia, Improved Cosmesis, Low rate of intraoperatively and postoperative complications. There are drawbacks to laparoscopic hernia repair, the most serious of which is the long learning curve. This is compounded by the fact that the average surgeon only repairs around 50 inguinal hernias per year.[6] A further serious drawback of laparoscopic hernia repair is the rare but serious occurrence of vascular and visceral injury. The cost differences can be reduced by using reusable rather than disposable equipment and with increasing experience time should become as least at fast as that for open repair. In present study average duration of surgery was 40min for Laparoscopic TEP which is less as compared to Singh V et al12, in which it was 120min. The overall complication rate of TEP present study was 7%. The only intraoperative complication seen was one episode of balloon rupture (3%) during creation of pre peritoneal space Post-operative complications have been reported by Sinha R et al 7 (hematoma-3.3%, infection -1%, retention 2-10.9%) which were not seen in present study. Neumayer L et al6 reported retention of urine in 2.8%, hematoma/seroma formation in 16.4%, and infection in 1% cases. Singh V et al12 reported retention in 2.8%, hematoma/seroma in 16.4% & wound infection in 1% cases. The recurrence rate in present study was 3% which is less as compared to most of the other studies. (Singh V et al [12] 6.7%, Neumayer L et al 6 10.1%, Sinha R et al 7 3.33%), Mc Corman et al [9] 2.7%). All studies reported reduced morbidity with this approach in terms of pain with earlier return to routine activities & shorter duration of hospital stay except the study conducted by Sinha R et al[7] which had a greater duration of hospital stay in the laparoscopic group as compared to the open inguinal approach.(laparoscopic-3.5days & open-1.8 days) Open Stoppa's repair took average of 42 min in present study which is more as compared to the study conducted by Sinha R et al [7] (32min) but less than the study conducted by Melangirt Z et al[3](51min). There were no intra operative complications in present study, whereas postoperative complications were seen in 4 patients(14%). Recurrence was seen in 2 patients (7%) in present study which is greater than study of Neumayer L et al 6 (0.9%), Sinha R et al 7 (1.67%), Melangirt Z et al[3] (4.5%). Open lichtenstein tension free inguinal approach took average 50 min for bilateral repair in present study which is less as compared to the study of Tanphiphat C et al 1067 min, Singh V et al [12] 75min, Melangirt Z et al [3] 65min. There were no intra operative complications in the present study. Incidence of minor postoperative complications like scrotal edema & seroma formation was 16% in present study which was high in conducted by Fagade S et al [8] up to 25% & Melangirt Z et al [3] (26%), but greater than the study of Muldoon RL[5] in which scrotal hematoma was 4% & wound hematoma was 2.6%. in the study of Neumayer L et al 6 & Singh V et al [12] reported incidence of wound hematoma/seroma was up to 13.6%. In present study there was no recurrence in the open lichenstein tensionfree inguinal approach group which was comparable with study of Melangirt Z et al [3], which has been reported 4.3% by Muldoon RL5 , 4.9% by Neumayer L et al 6 & 1.67% by Singh V et al [12].

CONCLUSION

The laparoscopic TEP method of treating bilateral hernias has been shown to be safe n when compared to open Stoppa's and Lichenstein repair methods. However, it should be noted that the procedure requires a high level of technical skill. While there is a significant learning curve for laparoscopic TEP, it is still considered the preferred technique for managing bilateral inguinal hernias by experienced surgeons. TEP has good outcomes in terms of post operative complications, cosmesis and recovery, but apart from being an expensive procedure, it has serious drawbacks such as a very long learning curve and dreadful intra op complications.In developing countries, where laparoscopy facilities are not easily available at all centres and cost effectiveness plays a major role in deciding the treatment protocol, Stoppas is a feasible alternative.Stoppas is an equally effective procedure and technically less demanding than Laproscopic TEP.

REFERENCES

1. R.Van.Hee; History of inguinal hernia repair, Journalul de chirurgie, lasi, 2011, 7(3): 301- 319.
2. Milic DJ, Pejic MA; Tension-free procedures in the surgical treatment of groin hernias, Srp Arh Celok Lek. 2003;131(1-2):82-91.
3. Malazgirt Z, Ozkan K, Dervisoglu A; Comparison of Stoppa and Lichenstein's techniques in the repair of bilateral inguinal hernias. Hernia 2000; 4(2):264-267.
4. Johansen B, Hallerback B, Glise H, Anesten B, Smedberg S, Roman J. Laparoscopic mesh versus open preperitoneal versus conventional technique for inguinal hernia repair. Ann Surg. 1999;230:225-231
5. Muldoon RL, Marchant K, Johnson DD, Yoder GG, Read RC, Hauer-Jensen M. hernia repair: a prospective randomized trial. Hernia. 2004;8(2):98–103.
6. Neumayer L, Giobbie-Hurder A, Jonasson O, et al. Open mesh versus laparoscopic mesh repair of inguinal hernia. N Engl J Med. 2004; 350:1819-1827.
7. Sinha R, Sharma N, Dhobal D, Joshi M. Laparoscopic total extraperitoneal repair versus anterior preperitoneal repair for inguinal hernia. Hernia 2006; 10(1):187-191. 8. Fegade S. Laparoscopic versus open repair of inguinal hernias. World Journal of Laparoscopic Surgery, 2008;1(1):41-48
9. McCormack K, Scott N, Go PM, Ross SJ, Grant A, Collaboration the EU Hernia Trialists. Laparoscopic techniques versus open techniques for inguinalhernia repair. Cochrane Database of Systematic Reviews 2003, Issue 1.
10. Tanphiphat C, Tanprayoon T, Sangsubhan C, Chatamra K. Laparoscopic vs.open inguinal hernia repair. Surg Endosc. 1998;12(5):846- 851.
11. Maghsoudi H, Pourzand A, Giant prosthetic reinforcement of the visceral sac : The Stoppa groin hernia repair in 234 patients; Ann Saudi Med. 2005; 25(3):228-232.
12. Singh UV: Laparoscopic Mesh versus Open Mesh Repair of Inguinal Hernia. An Experience from West Bengal, India. The Internet Journal of Surgery. 2009.20(1). 13. Eklund A, Montgomery A, Bergkvist L. Rudberg C. Chronic pain 5 years after randomized comparison of laparoscopic and Lichtenstein inguinal hernia repair. Br J Surg.2010. 97(4): 600–608.