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Lichtenstein Versus Transabdominal Preperitoneal (TAPP) Inguinal Hernia Repair for Unilateral Non Recurrent Hernia: A Clinical Prospective

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Abstract
Inguinal hernia repair is one of the most common surgical procedures performed globally. Open Lichtenstein repair is the most often used method of repair worldwide. The use of laparoscopic surgery to treat inguinal hernias has raised technological demand throughout the last several decades. The primary method is the trans-abdominal pre-peritoneal (TAPP) procedure, which has the advantages of early recovery and minimal postoperative discomfort. The current work is a short-term study comparing the intraoperative, postoperative complications length of hospital stay for unilateral non-recurrent hernias between open Lichtenstein repair and laparoscopic trans-abdominal preperitoneal repair of inguinal hernia (TAPP). A total of 120 male subjects with oblique inguinal hernias (unilateral non-recurrent hernias) who were above the age of eighteen and in good general health were enrolled in this prospective, randomised study. They were divided into two groups as follows: Group A: Laparoscopic trans-abdominal pre-peritoneal repair (TAPP) was performed on 59 patients. Group B: Open Lichtenstein repair was performed on 61 patients. Less post-operative discomfort was seen in this research on days 0, 1, 7 1 month after surgery. Six months after surgery, there was no discernible change. In the end, we determined that TAPP repair is less painful in the early postoperative phase and safer for inguinal hernias (unilateral non-recurrent hernias). Along with a much longer operating period, it also has less difficulties.

INTRODUCTION

Hernias are defined as an abnormal protrusion of a portion of the abdominal cavity's contents in the form of a problem in the walls around them. General surgeons often perform hernia repairs. Despite the prevalence of this treatment, no ideal outcomes are attained since it is associated with certain problems, such as nerve damage, infection, postoperative discomfort recurrence[1]. said that before the introduction of synthetic mesh, the traditional procedure for fixing inguinal hernias had seen little changes throughout the years. Either the open technique or a less invasive laparoscopic access strategy may be used to insert the mesh. The rate of recurrence after laparoscopic and open mesh hernia repair procedures does not significantly vary. The research found that after laparoscopic repair, there was less discomfort and numbness and a quicker return to normal activities.

However, there is a significantly larger risk of major vascular damage and a substantially longer operating time[2].

Declared that, despite the disease's widespread nature, no universally accepted categorization system exists. Consequently, inguinal hernias occur in a large number of instances. Because of this disagreement, there isn't a single repair method that can handle every instance of inguinal hernia. Thus, in order to provide patients with the best repair option depending on unique patient circumstances and the nature of the hernia defect, surgeons who treat inguinal hernias must recognise both laparoscopic and open methods[3]. The majority of repairs are done on an inpatient basis under general anaesthesia patients with bilateral and recurring hernias showed a strong tendency towards laparoscopic or open preperitoneal repairs. For the correction of inguinal hernias, transabdominal preperitoneal (TAPP) and total extra peritoneal (TEP) laparoscopic procedures are most often used[4]. Furthermore, hernia surgery may be carried out ambulatorily and safely in certain circumstances[5,6]. Currently, both laparoscopic and traditional procedures are performed, depending on patient preference, surgeon competence availability. The use of mesh offers a tension-free repair and is linked to a decreased chance of recurrences[7].

According to a randomised controlled trial, laparoscopic procedures are being used more often to treat inguinal hernias because they may provide the benefits of minimally invasive surgery, including a decreased risk of recurrence and cheaper costs[8]. Regardless of the surgical technique used, preperitoneal mesh deployment during unilateral inguinal hernia repair yields outstanding results[9].

The purpose of this research was to evaluate the results of the TAPP vs. Lichtenstein technique for inguinal hernia repairs in terms of the number of hospital days, early postoperative problems pain experienced one day after surgery as assessed by the Inguinal Pain Questionnaire (IPQ).

MATERIALS AND METHODS

120 male individuals were included in this prospective randomised trial and divided into two groups. Group A consisted of 59 instances that had laparoscopic transabdominal pre-peritoneal repair (TAPP). Group B: Open Lichtenstein repair was performed on 61 patients. Both written permission from the patients and ethics committee clearance were obtained.

Inclusion criteria: Patients with oblique inguinal hernias for unilateral non-recurrent hernias who were over the age of eighteen and in good general health who visited the general surgery departments of Al-Azhar University Hospitals and Ain Shams University Hospitals between January 2019 and January 2020 were included in this study.

Exclusion criteria: Patients with heart, liver, uremic uncompensated pulmonary illness, as well as female sex. Moreover, there are recurring group, bilateral inguinal hernia, prior abdominal surgeries complex group.

All patients included in the study were subjected to: Taking a history, doing a general physical doing standard preoperative examinations. In addition to getting formal, informed permission. assessments of the surgical duration, blood loss, mesh type and size, technique, mesh fixation material any post-operative problems. postoperative assessment of pain score (NRS), analgesic need, length of hospital stay complications after surgery. A six-month follow-up was conducted to assess patient satisfaction and effectiveness between the two groups. In compliance with the STROCSS 2020 guidelines, the work has been reported.

Statistical Analysis: R Studio (Posit, Boston, USA), JASPER (Jaspersoft, Tibco, San Francisco, California, USA), IBM SPSS Statistics for Windows, Version 23 (Released 2015, IBM Corp., Armonk, New York, USA) JAMOVI software (Version 2.3, Sydney, Australia, retrieved from https://www.jamovi.org) were used to perform the statistical analysis of the data. With continuous variables, the ANOVA test was used. Fisher's exact test and Pearson chi-square were employed to assess the relationship between the discrete variables. The homogeneity of the two groups with respect to the kind of hernia, degree of engagement in motor activities overall condition was evaluated using Fisher's exact test and independent samples t-test. For inguinal hernia repairs, the benefits

Table 1: Age in both groups.

		TAPP 59	Lichtenstein 61	Test value	P value	significance
Age	mean ± SD)	35.70 ± 12.91	36.81 ± 12.41	0.475	0.674	NS
	Range	21-65	24-66			

Table 2: Operative time.

	TAPP 59	Lichtenstein 61	Test value	P value	significance
Operative time (min)mean ± SD	94.71 ± 18.21	73.33 ± 19.20	7.021	0.000	HS
Range	60-130	45-110			

Table 3: Comparison of post-operative pain scores.

		TAPP 59	Lichtenstein 61	Test value	P value	significance
Day 0	mean ± SD	2.79 ± 0.89	4.23 ± 0.94	9.368	0.000	HS
Range		0-4	1-5			
Day 1	mean ± SD	2.21 ± 0.82	3.40 ± 0.99	7.612	0.000	HS
Range		0-2	1-4			
1 Week	mean ± SD	0.17 ± 0.39	0.82 ± 0.79	6.299	0.000	HS
Range		0-1	0-2			
1 Month	mean ± SD	0000	0.14 ± 0.34	3.586	0.015	S
Range		0-0	0-1			
6 Months	mean ± SD	0000	0000	NA	NA	NA
Range		0-0	0-0			

Table 4: Comparison of post-operative complications.

	TAPP 59	Lichtenstein 61	Test value	P value	significance
Overall Complications Yes No	4(6.7%)	12(19.6%)	2.926a	0.095	NS
	55(93.2%)	49(60.3%)			
Seroma Yes No	4(6.7%)	6(9.8%)	0.789a	0.680	NS
	55(93.2%)	55(90.1%)			
Infection Yes No	0(0%)	2(3.2%)	2.396a	0.498	NS
	59(100%)	57(93.4%)			
Hematoma Yes No	0(0%)	4(6.5%)	2.395a	0.498	NS
	59(100%)	57(93.4%)			
recurrence Yes No	00	00	NA	NA	NA
	59(100%)	61(100%)			

of the TAPP approach over the Lichtenstein procedure were also shown using the independent samples t-test.

RESULTS AND DISCUSSIONS

The results can be summarized in the following tables see Tables 1-4. No Intra operative complications in both groups.

Said that one of the surgical operations carried out most often worldwide is the correction of an inguinal hernia. The most often used repair method is Lichtenstein repair. However, the laparoscopic approach for inguinal hernia repair has become more and more technically required in recent years, primarily as part of the TAPP procedure[10]. Said that the advantages of minimally invasive surgery, such as pain relief and early recovery, are required for the TAPP technique[11]. demonstrated how a laparoscopic operation has increased intraoperative problems[12].

It is true that surgeon proficiency in laparoscopic repair matters. Additionally, spermatic cord structures showed less damage with TAPP than from the open technique; this might be because of the enlarged laparoscopic perspective.

None of the participants in this trial had any intraoperative problems. This is explained by our study's tiny sample size. showed significantly reduced rates of hematoma and wound infections, as well as increased rates of seromas after laparoscopic repair.

In contrast to 4 seroma cases (7.8%), 2 hematoma cases (3.9%) 2 wound infection cases (3.9%), our study included no patients with wound infection (0%), two seroma cases (4.1%) no hematoma patients (0%), for TAPP repair. Nevertheless, no discernible differences were found between the two groups[13]. With a very significant P value, our research found that there was decreased postoperative discomfort in TAPP repair on days 0, 1 and 7. After surgery, there was a noticeable improvement one month later. Six months after surgery, no discernible changes were seen.

The very small sample size of this experiment is one of its limitations. A further drawback is the comparatively short 6-month follow-up time, which raises the risk of missing the surgery's cumulative long-term benefits.

One of the most common and unsettling postoperative consequences, chronic groyne discomfort is defined as ongoing pain for six months after hernia surgery and is a measure of the patient's quality of life[14-16]. Its incidence might range from 6.9% to 60%, depending on the methodology and design of the investigation[16]. Prior research has identified high intensity preoperative and early postoperative pain, surgical trauma, neurolysis postoperative complications as risk factors for persistent groyne pain[15,16]. Regarding the degree of early perioperative discomfort between TAPP and the open Lichtenstein technique, as well as the need of painkillers throughout the postoperative phase, there is, however, a dearth of previously published data. Based on early postoperative assessment using the IPQ Scale,

we discovered considerably less pain in the TAPP group in the current research. Analysing ratings on the Visual Analogue Scale (VAS), other investigations came to similar conclusions. The greater tissue damage from open surgery provides one reason. Pain is associated with the dissection of the parietal peritoneum during the TAPP operation, but in a Lichtenstein repair, the spermatic cord and the cremaster muscle must be removed[16]. There were no appreciable variations in the frequency of postoperative problems between the two kinds of inguinal hernia surgeries that we could discover. A genitofemoral or ilioinguinal intraoperative injury during the open technique may have contributed to the more common observation of genital or scrotal numbness after open repair[17,18]. Serious problems after TAPP were noted; they were brought on by visceral or vascular damage and required immediate reintervention, even though the issues following the open Lichtenstein technique could often be handled with a conservative strategy. Additionally, there were statistically significant differences between the TAPP group and the Lichtenstein group in the number of hospital days in our research. The average length of stay for patients in the first group was one to two days, while the average length of stay for patients in the second group was five to six days. The fact that the two groups' mean ages were different-younger patients in the TAPP group-could be a potential research drawback. Nonetheless, some research in the literature contends that gender and age have little bearing as long as the surgeon applies the best techniques for the patient's issues[19]. Despite the fact that the patients were randomised to different research groups, this is a prospective investigation. The absence of statistical support for the sample size raises the possibility of selection bias and restricts how far the findings may be applied.

CONCLUSION

Better aesthetic outcomes, a quicker hospital release reduced postoperative discomfort were all associated with TAPP treatment. The two techniques had comparable rates of early postoperative problems. Reintervention may be necessary if issues turn out to be more serious after TAPP. A possible avenue for future study might be a comparison between the TAPP procedure and another laparoscopic technique. We think that minimally invasive laparoscopic surgery may expedite recovery and enhance quality of life that the surgeon can often play a major role in all of this by selecting the best course of action for the patient's situation. According to our research, TAPP repair of inguinal hernias is less painful in the early post-operative phase and safer. Along with a much longer operating period, it also has less difficulties.

REFERENCES

1. Courtney, M.T., B.D. Beauchamp and L.M. Kenneth, 2012. Sabiston Text Book of Surgery. 19 Edn., Elsevier Health Sciences, Netherland, ISBN-13: 9781455738083, Pages: 2152.
2. McCormack, K., A. Grant and N. Scott, 2004. Value of updating a systematic review in surgery using individual patient data. Br. J. Surg., 91: 495-499.
3. John, L.c. and M.C. Andrew, 2014. Laparoscopic Inguinal Hernia Repair in Current Surgical Therapy, pp: 1337-1342.
4. Mancini, R., G. Pattaro and E. Spaziani, 2018. Laparoscopic trans-abdominal pre-peritoneal (tapp) surgery for incarcerated inguinal hernia repair. Hernia, 23: 261-266.
5. Hajri, M., D. Haddad, H. Zaafouri, M. Cherif and A. Zouaghi et al., 2022. Ambulatory hernia repair: A study of 1294 patients in a single institution. Pan Afr. Med. J., Vol. 42 .10.11604/pamj.2022. 42.235.32863.
6. Serban, D., C.M. Branea?cu, G.C. Smarandache, C. Tudor and C. Tanasescu et al., 2021. Safe surgery in day care centers: Focus on preventing medical legal issues. Romanian J. Legal Med., 29: 60-64.
7. Ghariani, W., M.W. Dougaz, H. Jerraya, M. Khalfallah, I. Bouasker and C. Dziri, 2019. Recurrence factors of groin hernia: a systematic review. Tunis. Med., 97: 619-625.
8. Olmi, S., A. Scaini, G.C. Cesana, L. Erba and E. Croce, 2007. Laparoscopic versus open incisional hernia repair. Surg. Endoscopy, 21: 555-559.
9. Corthals, S., S. van Cleven, O. Uyttebroek, L.A. de Carvalho, A. Vanlander and F. Berrevoet, 2021. Quality of life after open versus laparoscopic preperitoneal mesh repair for unilateral inguinal hernias. Asian J. Surg., 44: 1266-1273.
10. Antoniou, S.A., G.A. Antoniou, D.K. Bartsch, V. Fendrich, O.O. Koch, R. Pointner and F.A. Granderath, 2013. Transabdominal preperitoneal versus totally extraperitoneal repair of inguinal hernia: A meta-analysis of randomized studies. The Am. J. Surg., 206: 245-252.
11. Claus, C.M.P., G.M. Rocha, A.C.L. Campos, E.A. Bonin, D. Dimbarre, M.P. Loureiro and J.C.U. Coelho, 2015. Prospective, randomized and controlled study of mesh displacement after laparoscopic inguinal repair: Fixation versus no fixation of mesh. Surg. Endoscopy, 30: 1134-1140.
12. Neumayer, L., A. Giobbie-Hurder, O. Jonasson, R. Fitzgibbons and D. Dunlop et al., 2004. Open mesh versus laparoscopic mesh repair of inguinal hernia. New Engl. J. Med., 350: 1819-1827.
13. Mansouri, K., M.T. Leite, F.A. Medeiros, C.K. Leung and R.N. Weinreb, 2011. Assessment of rates of structural change in glaucoma using imaging technologies. Eye, 25: 269-277.

14. Chen, D., M. Bjurstrom, P. Amid and A. Nicol, 2014. Pain control following inguinal herniorrhaphy: Current perspectives. J. Pain Res., 7: 277-290.
15. Reinpold, W., 2017. Risk factors of chronic pain after inguinal hernia repair: A systematic review. Innovative Surg. Sci., 2: 61-68.
16. Bande, D., L. Moltó, J.A. Pereira and A. Montes, 2020. Chronic pain after groin hernia repair: Pain characteristics and impact on quality of life. BMC Surg., Vol. 20 .10.1186/s12893-020-00805-9.
17. Jan, Z., S. Ali, N. Ahmed and M.A. Sarwar, 2021. Comparison of common postoperative complications between lichtenstein open repair and laparoscopic transabdominal pre-peritoneal (tapp) repair for unilateral inguinal hernia. Cureus, Vol. 13 .10.7759/cureus.17863.
18. Yildiz, A., 2022. Laparoscopic transabdominal preperitoneal and totally extraperitoneal in inguinal hernia surgery: Comparison of intraoperative and postoperative early complications of two techniques. J. Minimally Invasive Surg., 25: 18-23.
19. Jacobson, L.K. and G.N. Dutton, 2000. Periventricular leukomalacia. Surv. Ophth., 45: 1-13.