

 <p>ISSN NO. 2320-5407</p>	<p>Journal Homepage: -www.journalijar.com</p> <h2 style="text-align: center;">INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)</h2> <p style="text-align: center;">Article DOI:10.21474/IJAR01/6551 DOI URL: http://dx.doi.org/10.21474/IJAR01/6551</p>	 <p>INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR) ISSN 2320-5407 Journal homepage: http://www.journalijar.com Journal DOI:10.21474/IJAR01</p>
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RESEARCH ARTICLE

SIMULTANEOUS REPAIR OF BILATERAL INGUINAL HERNIA BY LICHTENSTEIN REPAIR VERSUS STOPPA OPERATION

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Manuscript Info

Manuscript History

Received: 20 December 2017
Final Accepted: 22 January 2018
Published: February 2018

Abstract

Background: Several approaches have been used for repair of groin hernias, each repair has its advantage and disadvantage, this Study presents a comparison between both techniques Stoppa versus bilateral Lichtenstein for repair of bilateral hernia

Methods: Between January 2014 to January 2016, this study included n=70 patient with bilateral inguinal hernia who were allocated randomly to two groups Group (S) included n=35 patients who were operated with Stoppa operation and group (L) included n=35 patients who were operated with bilateral Lichtenstein repair, preoperative data, operative and postoperative complications were noted, follow up at 7 days and every 3 months until two years, at the outpatients clinic.

Results : Respectively for group (S) versus group (L): age 44.33 ± 7.0 years versus 43.23 ± 9.0 years, The operative time was shorter regarding group (L) 55.21 ± 4.0 versus 73.22 ± 9.0 in group (S), ($P = 0.05$), and operating room costs LE613 (S) versus LE 420 in (L). All the patients were enrolled median follow up was 20.4 months ranges (22 and 44 months). Long-term follow-up was possible by telephone interview in 65 patients 35 and 30 in both groups respectively. Recurrences were observed in n= 2 patients of 30 (6.5%) of the contacted patients in L group.

Conclusion: We believe a tension-free technique allows bilateral inguinal hernias to be repaired through one operation with similar outcomes as a unilateral tension-free repair but with less cost than a sequential bilateral repair, and we advised repair of bilateral inguinal hernia with Stoppa operation regarding the recurrence rate, in spite of its more operative time that can be improved with more learning curve thus we advised Stoppa operation, in a familial surgeons

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Introduction:-

Inguinal hernia repair is one of the most common surgical procedures performed worldwide. Improved surgical techniques and a better understanding of the anatomy and Physiology of the inguinal canal have significantly improved outcomes for many patients. There is a belief by some surgeons that simultaneous bilateral inguinal hernia repairs should not be done because of increased postoperative pain, recurrence and wound complications. A retrospective study showed no difference in complications or recurrences with simultaneous repair versus sequential repair of bilateral inguinal hernias^[1].

Currently there are multiple tension-free techniques, which include the open anterior approach (on lay Lichtenstein patch, plug-and patch), open posterior approach (Stoppa-Rives, Kugel), and the closed posterior approach (laparoscopic) Depending on the experience of the surgeon and the type of repair, rate of recurrence ranges from 1% to 15 %^[2,3]

Simultaneous repair of bilateral inguinal hernia carries the advantages of low cost ,due to one surgery also one anesthesia one recovery ,this debate on management of bilateral inguinal hernia allowed us to carry out this study .the aim of this series is to compare both tension free repair techniques Stoppa operation and bilateral Lichtenstein hernia repair regarding the incidence of recurrence and postoperative complications^[4]

Study design:-

This is a prospective , randomized, controlled trial .involved 50 patients ,all were males .The patients were collected and operated in Zagazig University Hospitals ,patients with bilateral primary inguinal hernias simultaneously operated with tension free repair either Stoppa or Lichtenstein in two groups .Patients with associated co-morbidity or recurrent were excluded from the study .

Ethics:-

Ethics Committee had to be signed by the candidates in a form that included detailed information about surgery and expected complications.

Randomization method

The eligible patients were randomized into two groups Group S (Stoppa operation and group L patients were operated with bilateral Lichtenstein) using sealed opaque envelope containing computer generated random numbers.

Endpoints:-

To evaluate preoperative data and operative time

Hospital stay:-

Time to return to normal daily activity

Chronic groin pain

Postoperative recurrence

Surgical techniques:-**Lichtenstein repair:-**

The Lichtenstein tension-free repair, introduced in 1986, opened a new era in groin hernia repair with superior results over prior methods. In this repair, the inguinal canal is approached from an open anterior approach after dividing the skin, Scarpa's fascia, and external oblique aponeurosis. The cord is examined for an indirect sac, any direct hernia is reduced, and the floor is reinforced with a piece of flat polypropylene mesh (6 ×11cm) that is sewn to the conjoint tendon and the shelving edge of the inguinal ligament. The mesh is slit to accommodate the cord structures This repair has a very low learning curve and can readily be performed using local anesthesia in patients who are high risk for general anesthesia^[5].

Stoppa operation:-

The Stoppa repair is also known as Great Prosthesis for Reinforcement of the Visceral Sac (GPRVS). The GPRVS technique was presented by Stoppa et al^[6] The procedure is performed through a sub-umbilical incision. The dissection is carried out in front of the bladder and the sides laterally. The technique was initially developed for the repair of bilateral hernias, since the mesh covers both sides with all three hernia orifices. When the preperitoneal space is carefully dissected a large mesh is inserted. The mesh should have a width equal to the distance between the anterior superior iliac spines minus 2 cm and the height of the mesh should be equal to the distance between the pubis and the umbilicus. The mesh is fixated with one absorbable suture to the inferior border of the umbilical fascia.^[7]

Postoperative course and follow up:-

Postoperative data for every patient were recorded includes the hospital stay, operative time postoperative pain through visual analogue scale.

All patients were followed at 7 days and every 3 months for two years for assessment of chronic pain, time to return to normal activity and recurrence.

Statistical considerations:-

Statistical analysis was carried out using the statistical package for the social science ,version 20 software) (SPSS Inc., Chicago, Illusion ,USA) Significant level was set at $\alpha = 0.05$. Qualitative data were collected using the number and percent .Quantitative data were described using the minimum and maximum mean \pm SD, and median. Comparison between different groups with different variables was performed using the X² test. For normally distributed data ,comparisons between independent population were performed using an independent *t* test.

Results:-

The demographics and operative data are listed in Table (1),no significant difference between both groups regarding the preoperative data (age ,BMI, Sex, type of hernia and co-morbidity) .The operating time was significantly increased from 55 minutes for the L group versus 75 minutes for the S group ($P = 0.05$). Operating room costs were higher for the S group by LE 200 but non-significant, $P = 0.06$, two-tailed *t* test).

Table 1:- preoperative patient's characters

Variables	Group S (35)	Group L(35)	Test sign	P value
Age				
Minimum to maximum	21.0 -62.0	23.0-66.0	$T=0.776$	0.564
Mean \pm SD	44.33 \pm 7.0	43.23 \pm 9.0		
BMI				
Minimum to maximum	20.0 -25.0	22.0 -28.0	$T=0.676$	$T=0.648$
Mean \pm SD	26.31 \pm 6.0	27.11 \pm 9.0		
Type of hernia			$X=1.334$	
Direct	11	10		
Indirect	9	10		
Combined	5	5		
Sex				
male/female	25/0	25/0	$X=1.554$	
Comorbidity				
Diabetes	4	5		
hypertension	5	7		
Smoking	10	9		

No significant difference between both groups regarding preoperative patients characters

Postoperative data are listed in Table 2. The number of patients who required overnight admissions were $n=8$ ($n=5$ in the S group and 3 in the L group. The reasons for overnight admissions included urinary retention ($n=3$ and 2), and excessive nausea and vomiting post-op. ($n=2$ and 1) in both groups respectively with non-significant difference. Long-term follow-up was possible by telephone interview in 65 of 70 patients. The average time at follow-up was 20.11 ± 2 months. No Recurrence was observed in the patients contacted in group S versus 2 patients of 30 .In the L group there (6.5%) one of the two patients who had recurrence occurred at 3 months post op. the other had occurred at 8 months.

Table 2:- Postoperative prospective outcome data;

Variables	Group S(35)	Group L(30)	Test sig	P value
Operative time				
Minimum to maximum	75.0-110	50.0-66.0	10.321	<0.001
Mean \pm SD	73.22 \pm 9.0	55.21 \pm 4.0		
Postoperative complications				
Overnight admission	5/35 14%	3/35 10.5%		

Severe vomiting /nausea	3	2	$X=2.354$	
urinary retention	2	1		
	3/35(7%)	6/35(14%)		
neuralgia	0	2	$X=2.115$	
heamatoma	1	2		
wound infection	2	2		
Time to return normal activity	14.0 -15.0	11.0 -16.0		
Mean \pm SD	10.22 \pm 5.0	9.22 \pm 8.0		
Chronic groin pain				
Absent	16	15	10.321	<0.001
Minimal	15	10		
Moderate	4	5		
Recurrence	0	2/30		

N=65 patients with complete follow up n=35 in group S and n=30 in group L ,it showed a significant difference between both groups regarding the recurrence rate in favor of Stoppa group operations and time of the operation in favor of Group L .

Discussion:-

Inguinal hernia repair is the most frequent procedure in general surgery, accounting for 10% to 15% of all operations [8]. These data demonstrate the huge impact of herniorrhaphy on health-care expenditure and working disability. Opinions still differ about the technique of hernioplasty, and the addition of mesh procedures and laparoscopic surgery have not solved the problem. Although classic operations are still performed, now mostly all authors recommend the use of prosthetic materials for the repair of all types of abdominal wall defects [9].

Reinforcement of repairs with prostheses appears to significantly reduce the number of failures, but does not make them disappear [8].

Many potential advantages of simultaneous bilateral inguinal hernia include obviating the need for a second anesthetic and operation, also decreased psychological stress and financial savings due to less time off from work, or avoidance of the risk of incarceration or disability caused by the hernia on the opposite side. Simultaneous repair of bilateral inguinal hernias remains controversial for some. Many surgeons continue to have the opinion that Stoppa repair increases postoperative pain ,recovery time and recurrence rate. This bias is from the low experience in this era when Stoppa tension-free hernia repairs were not popular [10].

European Hernia Society elaborated guidelines for treatment of bilateral inguinal hernia repair and recommended a one stage procedure either bilateral Lichtenstein or laparoscopic repair [11]. Stoppa procedure can be used as an alternative for bilateral Lichtenstein but only for surgeons who are familiar with this technique [11,12].

In this series, postoperative morbidity after Stoppa operation was low (7%).versus L group , we believe this to be due to several factors. First, because of the one incision versus two in group L second the less dissection in stoppa versus Lichtenstien technique, that permitting easy hemostasis and avoiding hemorrhagic complications (only 1 case of preperitoneal hematoma, which resolved without reintervention) the third, the absence of suturing in Stoppa procedure minimizes the risk of vascular (no case) or neurologic injury [9], we always leave the hernial orifice unsutured, regardless of its size, thus reducing postoperative discomfort, **koc et al** [13]. Stated in a comparative study between both techniques that Stoppa procedure took significantly shorter time than bilateral Lichtenstein repair, versus our results regarding the operative time [14] the operative time in Stoppa procedure ,in the present study was longer it may be due to we were not familiar with the Stoppa procedure .

Sasso et al [15] carried out a study to evaluate simultaneous repair of bilateral inguinal hernia by Lichtenstein procedure and reported a mean operative time 113 \pm 19.3 min,that was significantly longer than our study.

In our study we had no significant difference between both groups regarding the hospital stay and wound complications also , **koc et al** [13] stated that stoppa procedure is superior to bilateral Lichtenstien technique regarding

long term follow up but in our study there was no significant difference between both groups in regard to the return to the normal activity that was close to the results to those of **Malazigirt** et al ^[14]

Conclusion:-

We believe a tension-free technique allows bilateral inguinal hernias to be repaired through one operation with similar outcomes as a unilateral tension-free repair ,but with less cost than a sequential bilateral repair, and we advised repair of bilateral inguinal hernia with Stoppa operation regarding the to the recurrence rate, in spite of its more operative time that can be improved with more learning curve thus we advised Stoppa operation, in a familial surgeons

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