

Original Article

COMPARISON OF INGUINAL HERNIA REPAIR UNDER LOCAL ANESTHESIA BY SURGICAL TRAINEES AND CONSULTANTS

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Objective: To evaluate the outcome of Lichtenstein repair under local anesthesia in term of safety, efficacy and complications and to compare the results of surgical trainees with their consultants.

Material and Methods: All Consecutive patients with primary inguinal hernia undergoing Lichtenstein repair under local anesthesia by our trainees and consultants over a 05 year period were included into the study. Operative time, hospital stay and complications were assessed. Data was analyzed using SPSS version 17.

Results: A total of 298 patients were included in the study; 15 patients were excluded from the study due to loss of follow up. Data analysis has been done for 283 patients. All the study subjects were male with a mean age of 39.28 ± 12.61 years. Indirect inguinal hernia (91%) was the commonest, followed by direct inguinal hernia (6.7%) and sliding hernia was only in 1.6% of the patients. Majority of the hernia repairs 221(78%) were performed by the residents and only 62(21.9%) were performed by the consultants. The operative time was slightly more for residents 46.8 versus 42.8 minutes ($P < 0.05$); whereas hospital stay was comparable between the two groups 1.23 versus 1.27 days ($P = 0.562$).

Minor postoperative complications occurred in 24(8.5%) patients. Wound infection, scrotal hematoma and chronic pain were the most common complications in 1.4% patients. All these complications were managed conservatively including wound infection. However recurrence occurred in 2(0.7%) patients of residents group.

Conclusion: Inguinal hernia can be safely repaired under local anesthesia and it is one of the procedures that can be safely delegated to surgical trainees with comparable results with consultants.

Key words: Inguinal hernia local anaesthesia.

Introduction

Inguinal hernia is a common surgical problem and affects 15% of adult men and inguinal hernia repair is one of the most common surgical procedure performed worldwide.¹ Several repair methods have been discussed so far. Open repair like Lichtenstein repair under local anesthesia is safe and cost effective.²⁻⁴ Several studies have shown that inguinal hernia repair is safe and cost effective under local anesthesia.⁵⁻⁷ However there is no agreement regarding the best choice of anesthesia and inguinal hernia repair under local anesthesia is technically more demanding.⁸

In the last two decades Lichtenstein repair has been the most frequently used technique and is gold standard by American College of Surgeon.^{9,10} Lichtenstein's repair learning curve is shorter than traditional groin hernioplasty and it can be performed on outpatient basis under local anesthesia.¹¹

Although inguinal hernioplasty is one of the first

operation performed by surgical residents, only few studies have compared the outcome of hernia repair under local anesthesia by residents and their consultants.^{8,12-15} There are conflicting reports in the literature about the outcome of hernia repair by surgical residents.¹⁶⁻¹⁹ This study was aimed to evaluate the outcome of Lichtenstein repair under local anesthesia in our setup and compare the results of surgical residents with their consultants in term of safety and complications.

Materials and Methods

The study was conducted at Department of Surgery Lahore General Hospital Lahore from March 2008 to March 2012. This was a prospective study of 298 patients. Adult Patients with primary inguinal hernia presenting in the outpatient department willing for hernia repair under local anesthesia were included into the study. Various surgical and anesthetic options were discussed with the patients in detail before their

Enrollment into the trial. Patient with recurrent inguinal hernia, obstructed hernia and unwilling for operation under local anesthesia were excluded. Fifteen patients were excluded from the study because of missing data. For ethical reasons no randomization technique was used, patients were marked to residents and consultants by the Head of the Department as per routine marking of the operation list.

All the patients were assessed and investigated on outpatient basis and were admitted in the morning of the day of operation. The operating surgeon obtained the informed consent and marked the hernia side before shifting to Operation Theater. All the procedures were performed by the residents were supervised by the scrubbed consultant or Senior Registrar. About 50ml of local anesthetic mixture was prepared consisting of 20 ml of 0.1% Lignocaine and 30ml of 0.5% of Bupivacain. Local anesthetic mixture was infiltrated along the line of incision in the subcutaneous plane, around pubic tubercle. Ilioinguinal nerve block was also administered in all patients by injecting about 5 ml of anesthetic mixture deep to external oblique aponeurosis, 2 cm antero-inferior to anterior superior iliac supine. Further infiltration was done around deep ring before dissection of hernia sac.

Herniotomy was done for indirect hernias and sac was reduced for direct hernias. Mesh repair was performed with polypropylene mesh 6×11 cm using Lichtenstein repair technique. All patients were followed in the outpatient clinic at one week and 6 weeks to assess early complications and at 6 month to record recurrence. The outcome measures were operative findings, operative time, hospital stay and complications. Statistical analysis was done using

SPSS 17. Quantitative variables were presented in the form of Mean \pm SD. Qualitative variables were presented with percentages. Chi-square test was used to see the association between complications and status of surgeon. Independent sample t-test was also used to see the difference in hospital stay and operative time with respect to status of surgeon. P-value < 0.05 was taken as significant.

Results

During the study period a total of 298 patients were included in the study; 15 patients were excluded from the study due to missing data. Data analysis has been done for 283 patients. All the study subjects were male and the mean age of study population was 39.28 ± 12.61 years. The most common variety of hernia was indirect inguinal hernia (91%), followed by direct inguinal hernia (6.7%) and sliding hernia was only 1.6%. Majority of the hernia repairs 221 (78%) were performed by the residents and only 62 (21.9%) were performed by the consultants. The operative time was slightly higher for residents 46.8 minutes vs 42.8 minutes for consultants ($P < 0.05$); however hospital stay was comparable between the two groups i.e. 1.23 vs. 1.27 days ($P = 0.562$).

Minor postoperative complications occurred in 24 (8.5%) patients. Wound infection, scrotal hematoma and chronic pain were the most common complications in 1.4% patients. All these complications were managed conservatively including wound infection. There was no significant difference observed between the two groups in term of early complications ($P = 0.923$) table 1. However recurrence was recorded in 2 (0.7%) patients of residents group within the first 6 months of surgery.

Table-1: Description about study Parameters.

		Age (Years)	Hospital, Stay (Days)
N		283	
Mean \pm SD		39.28 \pm 12.61	1.24 \pm 0.475
		Frequency	Percentage
Hernia	Right	116	41.0%
	Left	167	59.0%
	Total	283	100.0%
Operative findings	Direct	19	6.7%
	Indirect	260	91.0%

	Sliding Hernia	04	1.4%
	Total	283	100.0%
Surgeon	Consultant	62	21.9%
	Resident	221	78.1%
	Total	283	100.0%
Complecations	No Complications		0.4%
	Hematoma		0.4%
	Hydrocele	4	1.4%
	Chronic Pain	2	0.7%
	Scrotal hematoma	4	1.4%
	Serums	2	0.7%
	Stiffness	2	0.7%
	Testicular pain	2	0.7%
	Urinary retention	2	0.7%
	Wound infection	4	1.4%
	Total	283	100.0%

Table-2: Hospital Stay, Operative Time and Complications with respect to Surgeon Status.

		Surgeon		P-Values
		Consultan	Resident	
N		62	221	
Hospital Stay (Days)		1.27±0.518	1.23±0.46	0.562
Operative Time (Minutes)		42.76±6.64	46.76±07.03	0.000*
		5 (8.1%)	19 (8.5%)	
Complication	Yes	57 (91.9%%)	204 (91.4%)	0.923

Discussion

Inguinal hernia repair under local anesthesia as a day case surgery is widely practiced in western countries but here in Pakistan still majority of inguinal hernia repairs are done under spinal or general anesthesia. Hernia repair under local anesthesia is technically more demanding and may be associated with higher recurrence rates^{1,6,19}. This study was aimed to assess the feasibility of performing this operation under local anesthesia here in our setup where many hernias present at a later stage and hence are less amenable to be managed under local anesthesia without significant discomfort. Second thing which was assessed in this study was the role of experience in terms of postoperative complication rate.

The audit of collective complication rates assessed in this study is acceptable when considered against

international norms for this procedure. Wound infection is 0-5% in the specialized hernia centers.^{24,25} In our study wound infection rate was 1.4% that is in line with the specialized hernia clinics. All the wound infections were managed conservatively and mesh removal was not required in any case.

Chronic pain was reported in only 4 patients in the present study. In the literature review pain has been reported in 10-30% patients after hernia repair.^{8,22} In a recent study in Finland chronic pain was the most common postoperative complication after hernia repair.²³ In the present study such a low incidence of pain might be because of better endurance for pain in the study population. Our operative policy is to preserve the nerves instead of cutting them but we routinely didn't identify all the nerves. Even though many patients present in our setup at a later stage with

Hernia, local anesthesia can be safely administered and operation can be performed with acceptable complication rates and patient comfort level.

Inguinal hernia repair is generally considered an ideal operation for the training of surgical residents however few studies have documented a higher complication rate if done by the residents^{17,20}. Similarly, hernia repair under general anesthesia by the trainees was associated with low recurrence; however recurrence rates were higher when hernia repair was performed under local anesthesia by surgical trainees.^{17,19} In-fact, Wilkiemeyer et al reported a higher recurrence rate when open hernia repair is performed by the junior residents.⁸ However these findings have not been consistently reproduced by all authors. Contrary to above authors, Cutoe Rozon et al from France concluded that Lichtenstein hernia repair can be safely performed by the supervised surgical trainees.¹⁹ In

the present study where more than two third hernia repairs were done by the surgical residents under consultant supervision, the outcome was comparable with consultants. The results reflect that proper supervision is the key and surgical residents are able to perform Lichtenstein hernia repair without jeopardizing the safety of patients.

Conclusions

The present study has clearly shown that Lichtenstein hernia repair can be safely performed under local anesthesia and the good results obtained by the surgical trainees clearly suggest that hernia repair under local anesthesia can be safely delegated to surgical trainees under supervision.

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