



Surgery

TWO-YEAR OBSERVATIONAL RETROSPECTIVE STUDY OF MANAGEMENT OF INGUINAL HERNIAS BY OPEN AND LAPAROSCOPIC METHODS IN A MEDICAL COLLEGE HOSPITAL OF SOUTH KASHMIR

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ABSTRACT

In a newly established Medical School (2019) at Anantnag in South Kashmir, we performed 65 elective open and laparoscopic surgeries for both direct and indirect inguinal hernias as well as single or bilateral hernias. The Majority (45) of the patients were operated by open Lichtenstein Mesh Repair and 20 patients underwent laparoscopic Mesh Repair including Totally extra peritoneal (TEP) and Trans abdominal pre peritoneal Mesh Repair (TAPP). The results of this small study clearly demonstrate a benefit of laparoscopic over open surgery regarding severity of postoperative pain and early return to work if done by experienced laparoscopic surgeon. However, the learning curve of this type of laparoscopic surgery is long and taxing for the surgeon.

KEYWORDS : Lichtenstein Mesh repair, Laparoscopic Mesh Repair, Open Hernia repair, inguinal, Groin Hernia

Introduction

Inguinal hernia repair is the most commonly performed elective surgical procedure in general surgery worldwide. Incidence is 5 to 7 percent. The prevalence is more common in developing countries like India.

The weak muscular area in the inguinal region has been named after the surgeon and anatomist Henre Fruchaud. Craniomedially this area is bordered by the conjoined tendon and rectus abdominis muscle, laterally by iliopsoas muscle and caudally by superior ramus of the os pubis. The area is covered by fascia transversalis, split in two by inguinal ligament and penetrated by spermatic cord in men /round ligament in women and femoral vessels. The integrity of the area hence primarily depends upon transversalis fascia whose failure to sustain preperitoneal fat and varying intra abdominal pressure is therefore the fundamental cause for formation of congenital or acquired inguinal hernia. The inguinal hernias are treated by repairing the fascial defect in the myopectineal orifice of Fruchaud or by strengthening the weakened fascia transversalis by placement of prosthesis (mesh).

The operating techniques have evolved continuously over the past decades establishing tension free mesh repair as a standard care for inguinal hernia management

The milestone development in the hernia repair might be the introduction of laparoscopy after discovery of synthetic mesh. Extensive and sound clinical research is needed to set up a new 'Gold Standard' for hernia repair. (1,2) Though there are claims of passage of advantage of laparoscopy in inguinal hernia repair to the patients as well but to date the current evidence does not show clear evidence to support laparoscopy for routine repair of inguinal hernias (3,4,5,6,7). A pub med and COCHRANE data base research was accomplished in this regard to establish the current status of inguinal hernia repair in view of recent published literature.

In published data comparing open and laparoscopic hernia repair, we quote 4 studies which were solely concerned with the repair of primary inguinal hernias (8, 9, 10, and 11)

Patients and Methods

The study was conducted on 65 patients mainly adult males with primary inguinal hernias (Nyhus IIIa, IIIb) admitted in the Surgical Unit III of the Department of Surgery Government Medical College Hospital Anantnag South Kashmir from April 2019 to March 2021. The patients were offered 3 types of surgeries:

Open tension free Mesh Hernioplasty (Lichtenstein)

Laparoscopic Totally extra peritoneal Mesh Hernioplasty (TEP)

Laparoscopic Trans abdominal Pre peritoneal Approach (TAPP)

The study was approved by the Ethical Committee of the College and an informed consent was obtained from every patient.

Inclusion Criteria:

Adult Males with Nyhus II-III Type hernias

Exclusion Criteria:

Irreducible Obstructive Hernias

Patients with lower abdominal open surgeries

Patients with Coagulopathies

All patients underwent thorough clinical examination and laboratory workup. The operative time was calculated in minutes from the onset of induction of anesthesia and the time required for setting up of laparoscopy.

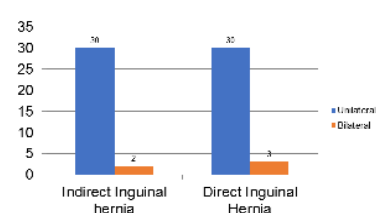
Postoperative pain was assessed using Visual Analogue Pain Scale (VAS) which is a 10-point scale where zero means feeling no pain and 10 means worst possible pain. The intensity of pain was recorded twice: 6 hours postoperatively and mid-day on second postoperative day. Postoperative hospital stay was recorded in days. The period in days required for the patient to return to routine work was calculated. The patients were followed up in the OPD at 2, 12 and 24 weeks postoperatively.

The data was analyzed using SPSS version II software. T or χ^2 tests were used for the significance at a level of error of 5 %. Monte Carlo test was used to compare small numbers

Results

Sixty-five male adult patients with primary inguinal hernia were recruited for this study. They were randomized in 3 groups. Out of 65 patients 32 had indirect inguinal hernia while as 33 patients had direct inguinal hernia. Among indirect hernia group two patients had bilateral hernia while as 3 patients in direct hernia group had bilateral hernia (Figure 1).

Figure 1



The age group comparison showed majority of younger patient with indirect inguinal hernia 21 out of 32 between 18 to 40 years of age

(65.62 percent) and older patients mostly having direct hernia 21 out of 33 in age group above 51 years had direct hernia (63.63) (Figure2).

Figure 2

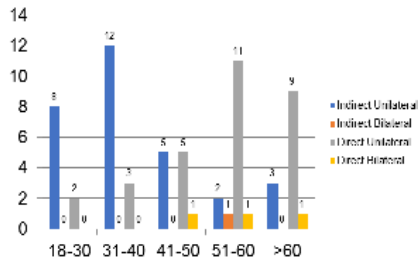
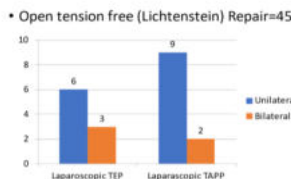


Table 1: Age Distribution and Type of Hernia

Age Group (Years)	Indirect Hernia N=32		Direct Hernia N=33	
	Unilateral N=30	Bilateral N=02	Unilateral N=30	Bilateral N=03
18-30	08	00	02	00
31-40	12	01	03	00
41-50	05	00	05	01
51-60	02	01	11	01
>60	03	00	09	01
Chi	3.98	0.39		
P	0.40	0.98		

Out of 65 patients 45 underwent open Lichtenstein tension free repair.09 patients were operated laparoscopic ally by TEP technique out of which three patients with bilateral hernia were treated by this technique.11 patients underwent laparoscopic TAPP including 02 bilateral TAPP also. (Fig. 3)

Procedure



The operative time ranged from 39 minutes to 127 minutes. Laparoscopic operations were significantly longer than open operations. There was however no significant difference between TEP and TAPP approaches. (Table 2)

Table 2: Procedure Time range (Minutes)

	Open N=45	Laparoscopic TEP(N=09)		Laparoscopic TAPP(N=11)	
		Right/Left N= 06	Bilateral N=03	Right/Left N=09	Bilateral N=02
Procedure Time range (Minutes)	34 -55	49-125	105-132	67-139	129—145

Post-operative pain scores recorded 6 hour postoperatively were significantly higher in patients who had open repairs compared to those who had laparoscopic repair. There was however not significant difference between TEP and TAPP repairs. Similar results were seen after day two of surgery regarding pain score of open and laparoscopic operations (Table 3)

Table 3: Postoperative Pain Score (Visual Analogue Score) VAS

Pain score Scale	0	1	2	3	4	5	6	7	8	9	10	Mean	SD	t stat	P value
6 hours Postoperative	00	01	01	02	12	29	00	00	00	00	00	4.48	0.85	6.5	<0.0001
Lap Hernia Repair (N=20)	03	01	09	02	04	01	00	00	00	00	00	2.3	1.38		

Second Day Postoperative	Open Hernia Repair (N=45)	02	19	10	10	04	00	00	00	00	00	00	1.8	1.07	7.1	<0.0001
	Lap Hernia Repair (N=20)	16	02	02	00	00	00	00	00	00	00	00	0.3	0.64		

There was no serious complication of viscera injury in any of the 3 operative procedures. Two cases had to be converted from TEP to TAPP approach because of loss of extra peritoneal space due to peritoneal opening and subsequent pneumoperitoneum which could not be avoided in spite of putting Verres Needle in the peritoneum.

One patient of bilateral TAPP developed recurrence on right side with obstructed hernia features nearly two years after laparoscopic TAPP and was subjected to open mesh Hernioplasty subsequently

Table 4: Return to normal domestic activities and work

Duration (Days)	Open	TEP	TAPP	Chi	P
Domestic	13+4	8+2	14+5	0.07	0.96
Routine	18+3	10+5	17+4		

Discussion

The goal of performing inguinal hernia repair has been to find an ideal method or procedure that should cause minimum pain or discomfort to the patient during or after surgery and with lesser complications and last but not the least without any recurrence. The cost effectiveness of the procedure is another concern. Does the laparoscopic surgery provide us the ideal procedure or comes closer to such advantages along with cost is the question yet to be answered comprehensively. (12) As the hernia repair is the most commonly performed general surgery a significant reduction in the cost of these procedures by laparoscopic methods can have a significant economic impact on the society with the benefits of minimal access surgery. (13, 14)

Though our experience is short one in laparoscopic surgery but it showed a significant variation in operating time in favor of open mesh hernioplasty. Thus Lichtenstein method was simple, quicker and easier to perform by general surgeons. By going through literature the open method is still largely adopted as compared to laparoscopic method (16)

Literature also supports that operating time is significantly prolonged in laparoscopic procedures though it comes down with experience of the surgeon. However there is no significant difference in operating time between the TEP and TAPP procedure for hernia repair.(5,15).It is clear that there is a considerable learning curve for laparoscopic repair estimated by some to be at least 50 repairs(16-18).The UK Medical Research Council study concluded that laparoscopic hernia repair had a lengthy learning curve and should be performed by only individuals who have a considerable experience with the technique(19).In contrast the learning curve of open technique is as short as 20 cases(20,21)

Though pain is difficult parameter to assess due to variability of perception from individual to individual (22) and hence wide disparity in the published reports. There is however significant evidence to support that laparoscopic approaches cause less post-operative pain ,at least in the immediate post-operative period (23)

Hospital stay is even more elusive parameter when used to compare the efficacy of surgical techniques. As open hernia repairs are now done as day care surgeries under local anesthesia in some centers, it scores over laparoscopy which needs general anesthesia hence prolonged hospital stay. Though our experience of doing open procedures under spinal anesthesia shows that there is no shorter comparative hospital stay in open procedures .To date, however, most of the published data do not support this assumption. Yet it does not show any advantage of the laparoscopy either (24, 25).

Laparoscopic procedures cost more than open repairs. Much of the extra cost is attributed to the longer duration of the surgical procedure, which can be expected to decrease with increasing experience. This extra cost is to be compensated by reducing the loss of working days(12).The reduction in duration of return to normal activity is in line with the published randomized studies(26-35).However some studies have gone against this observation of favorable shortening

with laparoscopic technique(23,36-38) In present study return to normal domestic and routine work was sooner after laparoscopic repairs. This finding was universal in reported trials in either TEP or TAPP repairs as compared with open repairs (39)

The postoperative follow up was shorter in our study hence it will be too earlier to comment on the results of recurrence though we had one long term complication after 22 months who needed re-exploration for bowel obstruction following bilateral TAPP repair. However the literature does not support a significant difference in recurrence rates between open and laparoscopic hernia repairs.

Conclusion

The laparoscopic hernia surgery gives less post-operative pain and faster recovery though the operative procedure takes longer time as compared to open hernia repair. There is no significant difference in the postoperative results of TEP or TAPP hernia repair and the outcome and results remain almost similar.

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