



COMPARATIVE STUDY OF LAPAROSCOPIC VERSUS OPEN REPAIR OF INGUINAL HERNIA

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ABSTRACT

Hernia is common problem faced in surgeon daily practice. Laparoscopy role in hernia is evolving day by day. although there are studies worldwide comparing the open and laparoscopic repair of inguinal hernia, very few studies have been reported from developing countries like India. A prospective study done comparing the same with sample size of 60. Our study showed laparoscopic repair has Less incidence of SSI, Early return to work, less postoperative pain, compared to open repair. inspite of high operative time, cost, single case of recurrence this study laparoscopic repair is as good as open repair and a alternative to open repair.

KEYWORD

Laparoscopy Role, Inguinal Hernia, Strangulated Hernia

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INTRODUCTION

Hernia is protrusion of viscus or a part of it through the wall that contains it. In inguinal hernia abdominal cavity contents protrude through inguinal canal. It is commonest problem among surgical diseases

Hernia can be cured only by surgery. surgery can be either by open inguinal hernia repair or by laparoscopic method. both of these methods have their own advantages and disadvantages.

AIM AND OBJECTIVES

To compare various parameters between Lichtenstein repair (OIHR) and Laparoscopic inguinal hernia repair (LIHR).

To compare outcome in terms of various parameters like

- Operative time taken for procedure
- Conversion rate
- Intraoperative and postoperative complications
- Postoperative VAS scores at 24 hours
- Return to daily activities in days
- Recurrence

PATIENTS AND METHODS

This is a prospective study of 60 cases of inguinal hernia admitted during period of two years from august 2015 to September 2017, and analyzed by statistical methods
Sample size – 60

Inclusion criteria

- 1) Patient with inguinal hernia

Table 1 MEAN DURATION OF SURGERY

	LAP		Open		t- value	P- value	Result
	Mean	SD	Mean	SD			
Duration of surgery in minutes	113.44	12.65	58.37	13.06	16.5	0.0001	Highly Significant

MEAN POSTOPERATIVE VAS SCORES at 24 hours

Mean post op VAS score at 24 hrs for LIHR is 4.7

Mean post op VAS score at 24 hrs for OIHR is 4.93

- 2) Consent for surgery and study

Exclusion criteria

- 1) complicated hernia like obstructed or strangulated hernia
- 2) history of lower abdominal surgery in case of LIHR.
- 3) patient unfit for general anesthesia (for LIHR)
- 4) severe co morbidities

OBSERVATIONS AND RESULTS

Cases underwent OIHR = 30

Cases underwent LIHR = 30

Out of 30 LIHR 4 cases directly underwent TAPP procedure

Remaining 26 cases posted for TEP procedure, 2 cases

converted to TAPP, 3 cases converted to open procedure

So 3 cases converted to open were excluded from study

MEAN AGE IN BOTH GROUPS

mean age in LIHR group 45.56 yrs

mean age in OIHR group 50.66 yrs

CONVERSION RATE

3 out of 30 LIHR converted to open procedure = 10 %

2 out of 25 cases of TEP converted to TAPP = 8 %

MEAN OPERATIVE TIME

Mean operative time of all LIHR group = 113.44 mins

Mean operative time of TEP cases = 114.9 mins

Mean operative time of TAPP cases = 106 mins

Mean operative time of open cases = 58.36 mins

TABLE 2 MEAN POSTOPVAS SCORES

	LAP		Open		t-value	P-value	Result
	Mean	SD	Mean	SD			
VAS	4.59	0.18	4.93	1.01	-1.3	0.18	NS

TABLE 3 MEAN DURATION TO DAILY ACTIVITIES

	LAP		Open		t-value	P-value	Result
	Mean	SD	Mean	SD			
Duration to daily activities	2.96	0.94	3.67	1.09	-2.7	0.009	Significant

Average time to return to daily activities

In LIHR group = 2.96 days
In OIHR group = 3.66 days

Average time to return to work

In LIHR group = 11 days
In OIHR group = 14.96 days

TABLE 4 TIME TO RETURN TO WORK IN DAYS

	LAP		Open		t-value	P-value	Result
	Mean	SD	Mean	SD			
Duration to routine work	11.37	2.88	14.97	3	-4.74	0.0001	Highly significant

COMPLICATIONS

Table 5 COMPLICATIONS

COMPLICATION	LIHR	OIHR
SSI	Nil	3
Seroma	Nil	2
Cord edema	1	Nil
Chronic pain	2	3

DISCUSSION

Ever since introduction of TEP and TAPP procedures, many studies have been done comparing with open repairs. but still it is a matter of debate.

In this study we compared TEP and TAPP with Lichtenstein method of open repair which is reasonable as both are tension free procedures.

There is no statistical significance between mean age of both the groups Majority of cases are in 5th decade. In 9 out of 13 cases in age less than 40 laparoscopic surgery is done.

TABLE 6 COMPARISON OF CONVERSION RATE

neumayer ¹ et al	5 %
jl duluq ² et al	1.2 %
mcCormack ³ et al	4.6 %
eklund ⁴ et al	1.8 %
krishna ⁵ A et al	0 %
Present study	10 %

In present study 3 out of 30 LIHR, TEP group converted to open procedure. all the conversion are due to tear in peritoneum, during creation of plane for air insufflation. 2 cases started with TEP are converted to TAPP where tear in peritoneum is after air insufflation. none of the cases started as TAPP required conversion.

High conversion rate during TEP in present study could be due to early learning curve. use of scope instead of balloon could also be a cause of peritoneal breach which resulted in conversion.

In present study, it is found that if there is a breach in peritoneum after completion of dissection, mesh if can be

placed faster could avoid conversion to TAPP. And a TEP converted to TAPP has easiness to dissect a plane probably due to previous created air insufflation.

TABLE 7 COMPARISON OF OPERATIVE TIMES IN MINUTES

Langeveld et al ⁶	54	49
Singh et al ⁷	91.85	NA
Sawarkar p et al ⁸	81.3	70
Present study	113.4	58.36

Duration of surgery, in present study is correlating with previous studies in case of OIHR but not in case of LIHR. There is a mean difference of 55 minutes between LIHR and OIHR, which is statistically significant and very high compared to any other reported study.

In present study operative time is measured from incision to skin closure including dissection of preperitoneal plan. This unusual result of high operative time on LIHR could be due to learning curve and use of 0 degree scope rather than a balloon during dissection. According to a study leandro ryuchi et al, mean operative time reached a plateau after 65 cases in LIHR.9According to VK bansal et al¹⁰, 2016 study, a minimum of 13 lap hernia repair are required to reach at par the operative time of an experienced surgeon. There is no significant difference in operative time between TAPP and TEP groups

Table 8 COMPARISON OF POSTOPERATIVE pain

Eklund ⁴ et al	No statistical significance
Rathod ¹¹ et al	Less in LIHR
Present study	Less in LIHR

Mean VAS score for LIHR group is 4.7 and for OIHR is 4.93, which is statistically nonsignificant .2 cases in LIHR and 3 cases in OIHR has chronic groin discomfort in present study. Return to daily activities is earlier in LIHR compared to OIHR Majority of patients who underwent LIHR returned to daily activities within 2 days Patients who underwent laparoscopic procedure had early return to work with a mean difference of 4 days. this mean difference is relatively high in above reported studies. surgical site infections and long incisions in groin region affected time to return work significantly in OIHR group. no single case in present study required drain which could further affect this outcome.

Table 9 COMPARISON OF RECURRENCE RATES

Langeveld et al ⁶	3.8	3.1
El dhuwaib et al ¹²	4	2.1
Present study	3.7	0

Recurrence in hernia surgery is most important outcome on which efficacy of hernia surgery is measured. In present study, recurrence is noted only in 1 case of LIHR group out of 27 cases amounting to 3.7 %, even this recurrence is detected only radiologically by ultrasonography. recurrence in this case is in TEP and as early as in 3rd week. we could not evaluate a reason for such early recurrence. Most common cause for such recurrences in literature is found to be a displaced mesh.

however this study, had a follow up period ranging from 3months to 2years only. whereas reported larger studies had a follow up period ranging from 1 year to 5 years. so recurrence rate may increase with further follow up.

No recurrence reported for OIHR group in present study.

There are no recurrences in TAPP procedures of LIHR group either.

Table 10 COMPARISON OF OVERALL COMPLICATION RATE

Saleh et al ¹³	1 %	1%
Tadaki et al ¹⁴	1.8 %	3.1 %
Present study	11.1 %	16.6 %

No serious complication is reported in present study with zero mortality.

Overall complication rate excluding conversions are 5 (16.6 %) in OIHR group and 3 (11.1 %) in LIHR group. these rates were comparable to previous reported studies.

Out of 5 complications in OIHR group 3 are SSI, 2 are seromas

3 patients in LIHR group had complications which are persistent sac, recurrence, cord edema In one case of TEP sac is unable to reduce completely resulting in persistent sac. this lead to collection of fluid in distal leftover sac in scrotum. it took 3 months for obliteration of this sac.

cord edema is seen in one of the TEP cases after complete dissection and reduction of large sac.

cord edema and persistent sac are found to be complications in large sac in LIHR cases, if reduced incompletely resulted in collection of fluid, if reduced completely resulted in cord edema.

CONCLUSION

On analyzing data, morbidity is low for laparoscopic hernia, with less postoperative pain and early return to work with better cosmetic result.

inspite of high operative time, cost, single case of recurrence this study laparoscopic repair is as good as open repair and a alternative to open repair.

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