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Original Research Article

A randomized controlled study of transinguinal pre peritoneal repair vs Lichtenstein repair for inguinal hernia

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ABSTRACT

Background: Inguinal hernia repairs are one of most common surgeries performed world-wide. Inguinal hernias are present in 1.7% of the world population.
Methods: Total of 100 patients was included in this study with 50 patients in each group. Group I (n=50): patients in this group underwent hernia repair using open preperitoneal mesh procedure. Group II (n=50): patients in this group underwent hernia repair using Lichtenstein procedure.
Results: The proportion of patients with left inguinal hernia was higher in group I (48.00%) as compared to group II (46.00%), but this difference was not statistically significant. In overall study population (81.25%) as well as in group I (82.50%) and group II (80.00%) of the study, no history of straining was observed in the majority of the cases. Though the proportion of straining was higher in group I (32.00%) as compared to group II (26.00%), but this difference was not statistically significant (p=0.775). Chronic pain (see Table 4) was found in 28.75% of total patients, though the chronic pain was found in higher proportion of patients of group II (32.0%) as compared to group I (22.0%).
Conclusions: In conclusion, this study shows that the TPT provides significant advantages over the Lichtenstein technique in case of repair of unilateral inguinal hernias. Patients in TPT group had less incidence of wound induration and chronic groin pain. They were also able to return to their jobs earlier.

Keywords: Transinguinal preperitoneal mesh repair, Lichtenstein repair, Inguinal hernia repairs

INTRODUCTION

Inguinal hernia repairs are one of most common surgeries performed world-wide. Inguinal hernias are present in 1.7% of the world population. Males have a high predilection for inguinal hernia and in the age group above 50 years the risk of having a hernia increases by 22.8%. Surgery is the treatment of choice and is the only cure.[1]

Hernia repairs have evolved over many decades. The trial and testing period spanned from the ancient Egyptian times to the modern laparoscopic day care repairs. From tissue repair to tension free repair, the surgeries have evolved a long way.

Lichtenstein repair has decreased the hernia recurrence rate to less than 3%. Along with it post-operative complications and cost of surgery has also increased. Post-operative complications still tend to hinder the patients in the long run. Each procedure carries a risk of its own. The prosthetic mesh repair causes chronic groin pain in 15-40% of the population.[2]

Transinguinal pre peritoneal repair (TIPP) by its nascent posterior approach is theoretically and practically sound

alternative. It is also a popular technique in the developing countries. It can also be used in lieu of Lichtenstein repair or when laparoscopic facilities are not available or not affordable by patients. Pre-peritoneal mesh repair also has decreased postoperative complications.[3]

The main objective of the present study is to compare TIPP vs Lichtenstein repair for inguinal hernia.

METHODS

This prospective study was conducted on the patients with a diagnosis of inguinal hernia admitted in the Department of General Surgery at Maheswara Medical College and Hospital, Hyderabad from October 2016 to March 2018(18 months). Institutional ethics committee approval was taken prior to conducting this study. Total of 100 patients were included in this study with 50 patients in each group. Group I (n=50): Patients in this group underwent hernia repair using open preperitoneal mesh procedure. Group II (n=50): Patients in this group underwent hernia repair using Lichtenstein procedure. Randomization was done through computerized random number generation. Both the procedures were performed as per standard guidelines. Patients aged 18 to 80 years for elective hernia repair by either techniques with either direct or indirect hernia or both included in this study. Bilateral and recurrent hernia, other comorbid conditions contraindicating surgery excluded. Both the groups were operated under spinal anaesthesia and by single competent surgeon. All patients were followed 6 months postoperatively.

Lichtenstein's repair was done as per established technique and standard protocol. In Transinguinal pre peritoneal technique (TIPP), incision is the same as that in the Lichtenstein's technique. After dissection of the sac, the transversalis fascia is incised in the line of its fibres to enter into preperitoneal space developed by blunt dissection. The preperitoneal space extends from rectus muscle medially, arcuate line cranially, a little beyond the anterior superior iliac spine over the psoas muscle laterally and the iliopubic tract caudally. A 6"×6" polypropylene mesh trimmed in a semicircular fashion to prevent trauma to the bladder neck, placed in this preperitoneal space and anchored to the Cooper's ligament with a single 2-0 interrupted polypropylene suture.[4]

All statistical analysis was performed using Microsoft excel computer program. Descriptive data was analysed by non-parametric test; Fischer exact chi square test and quantitative data analysed using the paired student's t-test.

RESULTS

A total of 100 patients were studied, TPT group-50% and Licht group 50% patients respectively. The duration of operation was more in the TPT group and this was statistically significant. On assessment of post-operative pain, significant difference of pain observed at 12 hours (p=0.005) which was more in Lichtenstein repair while no significant difference was found after 24, 48 and 72 hrs and at discharge. The duration of hospital stay was found to be similar in both the groups. Return to sedentary work was earlier in the TPT group and it was found to be statistically significant (p=0.045).

Table 1: Comparison of age among two groups.

Age group (years)	Group I (n=50) TIPP		Group II (n=50) Lichtenstein	
	N	%	N	%
18-30	20	40	15	30
30-40	5	10	7	14
41-50	5	10	5	10
51-60	7	14	13	26
61-70	7	14	10	20
71-80	6	12	0	0

Table 2: Comparison of diagnosis.

Diagnosis	Group I (n=50) TIPP		Group II (n=50) Lichtenstein	
	No	%	No	%
Left inguinal hernia	24	48	23	46
Right inguinal hernia	26	52	27	54

Table 3: Comparison of risk factors.

Risk factors	Group I (n=50) TIPP		Group II (n=50) Lichtenstein	
	No	%	No	%
No history of straining	34	68	37	74
History of straining	16	32	13	26

Table 4: Comparison of late post-operative complications.

	Group I (n=50) TIPP		Group II (n=50) Lichtenstein's	
	No	%	No	%
Chronic pain	11	22	16	32
Recurrence	0	0	0	0
Seroma	24	48	3	6

Patients included in the study were aged between 18 and 80 years. Proportional differences in age groups of patients in both the groups was not statistically significant. Mean age (see Table 1) of patients in the present study was 42.10±14.47 years, while that in group

I and group II was 45.85±16.43 years and 47.15±14.59 years respectively. Out of 100 Patients with inguinal hernia (Table 2), 26 (52%) were diagnosed as right inguinal hernia and rest 24 (48%) as left inguinal hernia.

Table 5: Comparison of duration of surgery (mins).

Group	No. of patients	Min	Max	Median	Mean
Group I	50	35	90	55	60.00
Group II	50	40	80	55	54.00
Total	100	35	90	55	57.00

Table 6: Comparison of total duration of hospital stay.

Group	No. of patients	Min	Max	Median	Mean
Group I	50	3	9	5	5.20
Group II	50	3	9	5	5.13
Total	100	3	9	5	5.16

The proportion of patients with left inguinal hernia was higher in group I (48.00%) as compared to group II (46.00%), but this difference was not statistically significant. In overall study population (81.25%) as well as in group I (82.50%) and group II (80.00%) of the study, no history of straining (Table 3) was observed in the majority of the cases. Though the proportion of straining was higher in group I (32.00%) as compared to group II (26.00%), but this difference was not statistically significant (p=0.775). Chronic pain (Table 4) was found in 28.75% of total patients, though the chronic pain was found in higher proportion of patients of group II (32.0%) as compared to group I (22.0%), but this difference was not statistically significant. Seroma was present in only 6.25% of total population. The incidence of seromain group I (48.0%) was found to be higher than that in group II (6.0%), but the difference was not statistically significant (p=0.864).

DISCUSSION

These advantages of preperitoneal repair are well demonstrated by the totally extraperitoneal (TEP) or by the transabdominal preperitoneal (TAPP) methods of inguinal hernia repair. However, laparoscopic methods have their unique set of complications as well as having a difficult and prolonged learning curve, and the need of general anaesthesia during the procedure. The transinguinal preperitoneal technique can be considered more analogous to the totally extra peritoneal repair. But compared to the totally extra peritoneal repair this technique is not expensive, easier to perform and can be performed under regional anaesthesia. It can be applied to all types of primary inguinal hernia.[8,9]

In TPT the average operating time is slightly longer than the Lichtenstein procedure which can be attributed to preperitoneal dissection as well as proper placement of the mesh. Complications like peritoneal breach are easily avoided by meticulous technique. Large tears should be repaired with a few stitches of absorbable suture as it helps in proper mesh placement. Placing the mesh could pose some difficulty since the total dissected area cannot be visualised directly and can only be felt with the fingertips.[10] The mesh also needs to be folded similar to laparoscopic techniques to introduce it into the preperitoneal space through the defect in the fascia transversalis. While fixing the mesh to the Coopers ligament care should be taken so as not to injure the corona mortis, or troublesome bleeding may result.[11]

CONCLUSION

In conclusion, this study shows that the TPT provides significant advantages over the Lichtenstein technique in case of repair of unilateral inguinal hernias. Patients in TPT group had less incidence of wound induration and chronic groin pain. They were also able to return to their jobs earlier. Though the average operating time was slightly increased, the duration of hospital stay was same compared to the Lichtenstein group. On 2 years follow-up TPT did not have any recurrence. Therefore the transinguinal pre peritoneal technique offers a better alternative to Lichtenstein technique for open repair of unilateral inguinal hernias and should be recommended wherever indications or scope of laparoscopy does not exist.

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