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Original Article

Laparoscopic hernia repair using TAPP and TEP- A comparative study

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ABSTRACT:

Background: Inguinal hernia repair is one of the most commonly performed surgical procedures in the world. The present study compared laparoscopic hernia repair using TAPP and TEP. **Materials & Methods:** The present study was conducted on 110 patients with inguinal hernia of both genders. Patients were divided into 2 groups of 55 each. Group I patients were treated with transabdominal preperitoneal patch plasty (TAPP) and group II patients with total extraperitoneal patch plasty (TEP). In both groups, type of hernia, ASA score, duration of operation, length of hospital stay and complications were recorded. **Results:** Type of hernia was medial in 16 in group I and 15 in group II, lateral 30 in group I and 25 in group II, femoral 6 in group I and 9 in group II and scrotal 3 in group I and 6 in group II. Duration of operation was 47.2 minutes in group I and 54.1 minutes in group II and length of stay was 1.72 days and 1.98 days in group I and group II. The difference was significant (P< 0.05). Intra- operative complication were bleeding 24 I group I and 35 in group II, injuries 20 in group I and 32 I group II which comprised of vascular, bladder and bowel injuries. Post- operative complications were intestinal lesion in 1 in group I and 2 in group II, infection 2 in group I and 3 in group II, seroma 4 in group I and 7 in group II, Intestinal obstruction 1 in group II, re- operation 4 in group I and 8 in group II and exitus letalis 2 in group II. The difference was significant (P< 0.05). **Conclusion:** Authors found that TAPP had less intra- operative and post operative complication and less operation time and hospital stay as compared to TEP.

Key words: intra- operative, post operative complication, TAPP.

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INTRODUCTION

Inguinal hernia repair is one of the most commonly performed surgical procedures in the world, with an estimated 800,000 cases per year in the United States alone, and >20 million procedures across the globe annually.[1] The most common technique for inguinal hernia repair was originally an open, tissue–based suture repair, which eventually evolved to commonly use prosthetics (with various fixation devices of sutures, staples, tacks, and glue) for a tension-free repair with a significantly lower recurrence rate and lower chronic pain after surgery. Laparoscopic repair of the inguinal hernia is becoming an increasingly popular method of herniorrhaphy, with a range of 16.8–41.0% of such operations in the United States (varying with the region and the characteristics of the hernias).[2]

The TAPP technique is easy to learn, but there is disadvantage, that the peritoneal cavity is breached, and there is possibility of bowel adhesion to the mesh after repair.[3] In TEP, hernia is repaired extra peritoneal and preserve the "peritoneal sanctity" but it is technically difficult procedure, it has a longer and steeper learning curve due to inside out anatomical view. To learn TEP technique, it requires the surgeon to be familiar with unfamiliar anatomy but it has the advantage of direct access to the posterior defect without entering the peritoneal cavity.[4]

Due to the confusing data situation, all four systematic reviews/meta-analyses concluded that operation-related results for TEP and TAPP were similar, and the superiority of one method over the other could not be demonstrated and further studies were needed.[5] The reason for this lack of clarity, which has now persisted for more than 20 years since the introduction of both techniques into clinical routine practices, is due in particular to the limited quality of the studies conducted so far.[6] The present

study compared laparoscopic hernia repair using TAPP and TEP.

MATERIALS & METHODS

The present study was conducted in the department of general surgery. It comprised of 110 patients with inguinal hernia of both genders. Hernia type: medial, lateral, femoral, scrotal. Defect size: Grade I = <1.5 cm, Grade II 1.5–3 cm, Grade III >3 cm were included in the study. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study.

Data such as name, age etc. was recorded. Patients were divided into 2 groups of 55 each. Group I patients were treated with transabdominal preperitoneal patch plasty (TAPP) and group II patients with total extraperitoneal patch plasty (TEP). In both groups, type of hernia, ASA score, duration of operation, length of hospital stay and complications were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Technique	TAPP	TEP
Number	55	55

Table I shows that group I patients were treated with TAPP and group II with TEP. Each group had 5 patients.

Table II Comparison of parameters

Parameters	Group I	Group II	P value
ASA			
I	14	15	0.15
II	28	26	
III	8	8	
IV	5	6	
Type of hernia			
Medial	16	15	0.12
Lateral	30	25	
Femoral	6	9	
Scrotal	3	6	
Duration of operation (mins)	47.2	54.1	0.01
Length of stay (Days)	1.72	1.98	0.02

Table II shows that ASA grade I was seen in 14 in group I and 15 in group II, grade II in 28 in group I and 26 in group II, grade III in 8 in group I and 8 in group II and grade IV in 5 in group I and 6 in group II. Type of hernia was medial in 16 in group I and 15 in group II, lateral 30 in group I and 25 in group II, femoral 6 in group I and 9 in group II and scrotal 3 in group I and 6 in group II. Duration of operation was 47.2 minutes in group I and 54.1 minutes in group II and length of stay was 1.72 days and 1.98 days in group I and group II. The difference was significant (P< 0.05).

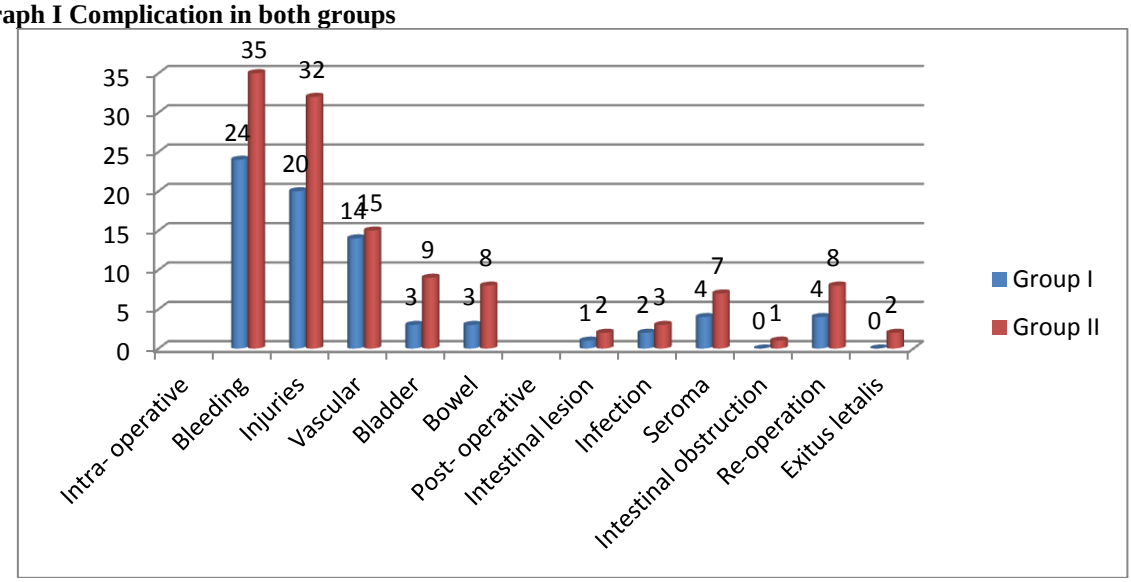
Table III Complications in both groups

Parameters	Group I	Group II	P value
Intra- operative			
Bleeding	24	35	0.05
Injuries	20	32	0.01
Vascular	14	15	
Bladder	3	9	
Bowel	3	8	
Post- operative			
Intestinal lesion	1	2	0.12
Infection	2	3	0.19
Seroma	4	7	0.02
Intestinal obstruction	0	1	0.12
Re-operation	4	8	0.01
Exitus letalis	0	2	0.02

Table III, graph I shows that intra- operative complication were bleeding 24 I group I and 35 in group II, injuries 20 in group I and 32 I group II which comprised of vascular, bladder and bowel injuries. Post- operative complications were intestinal lesion in 1 in group I and 2 in group II, infection 2 in group I and 3 in group II,

seroma 4 in group I and 7 in group II, Intestinal obstruction 1 in group II, re- operation 4 in group I and 8 in group II and exitus letalis 2 in group II. The difference was significant (P< 0.05).

Graph I Complication in both groups



DISCUSSION

Inguinal hernia is a common surgical problem worldwide. It significantly decreases the quality of life.[7] Inguinal hernia repair is one of the most common worldwide elective general surgical operations, and it can be emergency surgical operation in case of obstructed or strangulated inguinal hernia. Inguinal hernia can be repaired by various open and laparoscopic methods, no single procedure is superior to others.[8] The development and innovation in minimally access surgery during the late 1980s, allowed inguinal hernia to be repaired laparoscopically. During the last two centuries various methods to repair inguinal hernia have been described, like Marcy's repair, Bassini's repair, now at present Laparoscopic inguinal hernia repair.[9] The present study compared laparoscopic hernia repair using TAPP and TEP.

In this study, group I patients were treated with TAPP and group II with TEP. Each group had 5 patients. Kockerling et al[10] conducted a study in which 10,887 (61.9 %) had a TAPP and 6700 (38.1 %) a TEP repair. Multivariable analysis verified the results of unadjusted analysis, indicating that the surgical technique did not have any significant impact, also while taking account of other factors, on occurrence of intraoperative and general postoperative complications. Postoperative surgical complications were noted more often after TAPP. Furthermore, the hernia defect size or scrotal hernia and age had a significant impact on the occurrence of postoperative complications. Complications were observed more commonly for larger hernia defects and a scrotal hernia.

We found that ASA grade I was seen in 14 in group I and 15 in group II, grade II in 28 in group I and 26 in group II, grade III in 8 in group I and 8 in group II and grade IV in 5 in group I and 6 in group II. Rao et al[11] compared both techniques for operative & postoperative complications, operative time & hospital stay. One hundred twenty one patients were included in this study twelve patients have bilateral inguinal hernia. Total 133 inguinal hernia were repaired laparoscopically, 74(55.64%) hernia were repaired by TAPP and 59 (44.36%) hernia by TEP technique. There was no mortality, and no major complication occurs during any technique. The operative time was longer in TEP (mean 55 minutes) then TAPP (mean 48 minutes).

In present study, type of hernia was medial in 16 in group I and 15 in group II, lateral 30 in group I and 25 in group II, femoral 6 in group I and 9 in group II and scrotal 3 in group I and 6 in group II. Duration of operation was 47.2 minutes in group I and 54.1 minutes in group II and length of stay was 1.72 days and 1.98 days in group I and group II.

Reiner et al[12] examined outcomes of 1240 laparoscopic hernia operations in 783 patients, focusing on intraoperative and early postoperative complications, pain, and time until return to work and normal physical activities. There were no intraoperative complications in this series; 106 patients experienced early postoperative complications across 8 evaluated categories: urinary retention (4.1%), seroma (3.0%), testicular/hemiscrotal swelling (1.9%), testicular atrophy (0%), hydrocele (0.6%), mesh infection (0.1%), and neurological symptoms (transient, 1.0%; persistent, 0.2%). Patients used an average of 5.6 Percocet pills after the procedure, and mean times until return to work and normal activities, including their routine exercise regimen, were 3.0 and 3.8 days, respectively.

CONCLUSION

Authors found that TAPP had less intra- operative and post operative complication and less operation time and hospital stay as compared to TEP.

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