RESEARCH PAPER

Comparison of Clinical Outcomes of Transabdominal Pre-Peritoneal Repair in Elderly and Young Patients: Our Experience

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ABSTRACT

Background: Transabdominal pre-peritoneal inguinal hernia repair is one of the commonest minimal access surgeries performed in our daily practice. This procedure is done widely for young and elderly with a primary inguinal hernia or recurrence following an open inguinal hernia repair.

Aim: We aimed to compare the clinical outcomes of TAPP repair for inguinal hernia in young (<60 years) and elderly (>60 years) patients.

Materials and Methods: A retrospective study was conducted at our hospital from January 2019 to December 2023. The study included 60 patients with inguinal hernia who were subdivided in two groups: 30 patients in TAPP-y (<60 years) group and 30 patients in TAPP-e (>60 years) group. Data including gender, age, mean duration of surgery, mean hospital stay, hernia laterality, recurrence, chronic pain, mesh infection, surgical site infection (SSI), scrotal swelling, urinary retention were studied.

Results: The study included 60 patients (all males). The mean age +/- standard deviation (SD) of the patients was 44 +/- 6.2 years in TAPP-y group and 63 +/- 8.4 years in TAPP-e group. Unilateral (U/L) inguinal hernia was present in 28 (46.6%) cases, bilateral (B/L) in 30 (50%) cases and 2 (3.3%) cases developed recurrence. In TAPP-y group, the mean operative time was 94 +/- 11.2 minutes and for TAPP-e group was 87 +/- 12.6 minutes. The TAPP-y group had a mean hospital stay for 2.6 +/- 1.2 days and TAPP-e group for 3.8 +/- 2.2 days. Urinary retention was noted as the common complication in 10 (16.6%) cases, followed by 8 (13.3%) cases of scrotal swelling, chronic pain was noted in 2 (3.3%) cases, recurrence was seen in 2 (3.3%) cases. No SSI and mesh infection was noted in our study.

Conclusion: According with literature, in our experience TAPP technique is safe and feasible technique irrespective of elderly or young age groups with good clinical outcomes.

Keywords: Laparoscopy, inguinal hernia, TAPP repair, elderly.

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INTRODUCTION

Groin hernia remains one of the most common surgical conditions encountered across the globe, contributing significantly to the workload of general surgeons and healthcare systems(1). Historically, a wide range of open surgical techniques have been employed for inguinal hernia repair, each with distinct advantages and limitations(2). With the

evolution of minimal access surgery over the past three decades, laparoscopic techniques have progressively gained popularity owing to their ability to provide an "Eagle's eye view" of the groin anatomy, reduction in postoperative pain, facilitation of early ambulation, shorter hospital stay, and superior cosmetic outcomes.

Among the minimally invasive techniques, Transabdominal Preperitoneal (TAPP) repair has emerged as one of the most widely accepted and standardized approaches, especially in cases of bilateral inguinal hernia and recurrent hernia following open repair, where the laparoscopic route offers clear advantages by avoiding bilateral groin incisions and minimizing tissue trauma.However, TAPP repair is not without challenges. The technique is associated with a relatively steep learning curve, requiring familiarity with preperitoneal anatomy and careful dissection, which may initially translate into longer operative times and occasional technical difficulties[3]. Another factor that may influence surgical decision-making is patient age. Elderly individuals, often with multiple comorbidities, may hesitate to undergo TAPP repair due to concerns related to general anesthesia, pneumoperitoneum, and perceived higher perioperative risks[4].

Despite these apprehensions, growing evidence and global literature increasingly support the safety, feasibility, and efficacy of laparoscopic TAPP repair in elderly patients. The advantages of minimal access surgery—reduced postoperative discomfort, faster return to activity, and decreased wound-related morbidity—are particularly meaningful in the older population, where prolonged immobilization may carry additional risks.

The purpose of our study was therefore to examine and compare postoperative outcomes between younger and elderly patients undergoing TAPP repair, and to contribute to the accumulating body of evidence debunking the misconception that TAPP repair is unsafe in elderly individuals**.** Through systematic evaluation of operative parameters, complication profiles, and recovery metrics, this study aims to provide clarity and reinforce confidence in the use of TAPP as a safe and effective procedure across age groups.

MATERIALS AND METHODS

This is a retrospective study conducted at a tertiary care hospital with advanced facilities for minimal access surgeries. At first the standardized TAPP repair description was made. We reviewed our experience from January 2019 to December 2023 by comparing the clinical outcomes of TAPP inguinal repair between young (<60 years) (TAPP-y) and elderly (>60 years) (TAPP-e). We have excluded the patients refusing general anesthesia, Chronic Obstructive Pulmonary Disorder (COPD), glaucoma.

The sample size for our study consisted of 60 patients with inguinal hernia who underwent TAPP repair, they were further subdivided into 30 younger (TAPP-y) group and 30 elder (TAPP-e) group. Data including gender, age, mean duration of surgery, mean hospital stay, hernia laterality, recurrence, chronic pain, mesh infection, surgical site infection (SSI), scrotal swelling, urinary retention were analyzed.

SURGICAL TECHNIQUE

Informed consents were duly obtained from all patients one day prior to the surgical procedures. Patients were transported into the operating theatre.

The patient was positioned in a supine orientation. Subsequent to the administration of general anesthesia, patients underwent catheterization, with Povidone Iodine applied from the epigastrium to mid-thigh, and were draped in accordance with stringent aseptic protocols. The creation of pneumoperitoneum was achieved through an open technique. A 10mm camera port was inserted subumbilically, accompanied by two 5mm working ports positioned laterally, each spaced four finger breadths apart, aligned in a straight line with the umbilical port. The patient has been positioned in the Trendelenburg orientation. A peritoneal flap was elevated from the anterior superior iliac spine extending to the medial umbilical ligament. Blunt dissection was performed medially until reaching Cooper's ligament, with a 2 cm crossover to the contralateral side. Dissection extending to the superior aspect of the Psoas muscle. Visualization of the triangle of doom and the triangle of pain. The site of mesh placement was meticulously measured utilizing a sterile scale. The deployment of polypropylene lightweight mesh is conducted subsequent to the completion of sac dissection. Absorbable tack employed for the fixation of mesh to the Cooper's ligament. The peritoneal flap was meticulously closed utilizing the residual absorbable tacks, all conducted under the regulated deflation of the pneumoperitoneum. The everted sac serves as a valuable adjunct in the closure of any peritoneal

buttonholes that may have been established during the dissection process. All ports have been excised. Dressings for the port sites have been applied. The Foley catheter has been successfully removed. The patient has been extubated and subsequently transferred to the recovery area for meticulous observation.

ETHICAL CONSIDERATIONS

Approval was obtained from the Institutional Ethics Committee of our hospital. Patient documents accessed via hospital medical records department electronic data system. Patient confidentiality was strictly maintained during the study, data analysis and reporting.

RESULTS

The current study assessed the TAPP (Transabdominal Preperitoneal) approach's postoperative results in two age-stratified groups: TAPP-e (elderly patients) and TAPP-y (younger adults). In order to determine the link between age, hernia features, and postoperative morbidity, a total of sixty male patients, evenly split into two groups (n = 30 each), were examined.

There was a substantial difference in the mean age between the groups: the older patients were 63 ± 8.4 years old, while the younger group was 44 ± 6.2 years old. Given the strong correlation between age and the etiology of inguinal hernia, this difference is significant. Younger patients had a higher prevalence of indirect hernias, which were linked to congenital causes and a patent processus vaginalis, which is consistent with global epidemiology. On the other hand, the older group showed a much larger burden of direct hernias, which was consistent with age-related collagen attenuation, increased intra-abdominal pressure, and weakening of the inguinal canal's posterior wall.

The younger cohort's average operating time was 94 ± 11.2 minutes, which was marginally longer than the senior group's (87 ± 12.6 minutes). Large indirect sacs that may need careful dissection are more common in younger people, which accounts for the slightly longer length. Operative efficiency for TAPP repair remained within established standards despite variations in hernia morphology.

The postoperative recovery profiles showed a more noticeable difference. The mean hospital stay was lower for younger patients (2.6 ± 1.2 days) than for older patients (3.8 ± 2.2 days). Age-related constraints, such as decreased ambulation, pre-existing comorbidities, and an increased risk of postoperative urine retention, are consistent with older patients' longer hospital stays. In fact, the TAPP-e group experienced urine retention eight times more frequently than younger patients (2 cases).

The , the younger group experienced scrotal edema more frequently (6 vs. 2 occurrences), which is probably due to the increased prevalence of large indirect hernial sacs. There was only one case per group for each outcome, and the incidence of chronic postoperative pain and recurrence were modest and similar across groups. Also, there were neither mesh infections nor surgical site infections (SSI)..

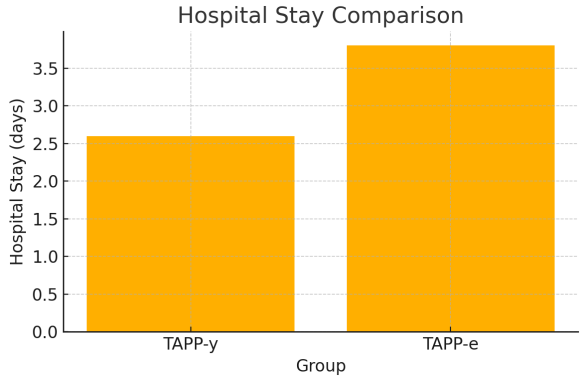
TABLE-1: Patient Characteristics

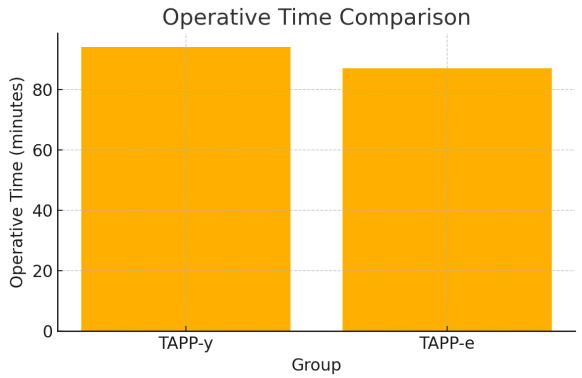
Patient characteristics	TAPP-y Group	TAPP-e Group
Male	30	30
Female	0	0
Unilateral indirect hernia	12	2
Unilateral direct hernia	3	11
Bilateral indirect hernia	12	3
Bilateral direct hernia	2	13
Recurrent hernia	1	1

TABLE-2: Post-operative complications

Complications	TAPP-y Group	TAPP-e Group	Frequency (%)
Urinary Retention	2	8	10 (16.6%)
Scrotal swelling	6	2	8 (13.3%)
Chronic pain	1	1	2(3.3%)
Mesh infection	-	-	-
SSI	-	-	-
Recurrence	1	1	2(3.3%)

1. single center series. J Minim Access Surg 2006,2:155-159.





DISCUSSION

Laparoscopic inguinal hernia repair is a safe technique as per the Cochrane center systematic reviews and meta-analysis[5]. Totally extra-peritoneal (TEP) repair and TAPP repairs are the two popular modalities in management of inguinal hernia repair. Unlike TEP repair, TAPP repair has the advantages of being beginner friendly owing to short learning curve, availability of vast intra-abdominal space with an excellent definition of myopectineal orifice of Fruchard, which is essential in an effective mesh deployment, thus preventing groin hernia recurrence[6].

In our study, 30 patients of TAPP-e group were found to have bilateral inguinal hernia owing to the weakening of the posterior abdominal wall and factors leading to increased intra-abdominal pressure such as Benign Prostatic Hyperplasia (BPH), COPD, obesity which is in accordance with the study conducted by Tolver MA[7]. Bilateral inguinal hernia is one of the main indication to undergo laparoscopic repair.

We had two recurrences in our study. Recurrences can be attributed to the steep learning curve, small mesh size, persistence of factors for raised intra-abdominal pressure in post-operative period. In a study conducted by Ahmad et al, with a sample of 60 subjects, showed no post-operative recurrence[8]. A retrospective study by Alessia MDG Ferrarese, showed cases of four chronic pain cases in younger group with four post-operative recurrences in young patients and one recurrence in elderly individual undergoing TAPP repair out of 154 participants[9].

Eight patients had post-operative urinary retention, more than compared to younger patients in similarity with the article by Zirui He et al. This can be attributed to the underlying benign prostatic hyperplasia[10].All our patients who had urinary retention were re-catheterized and drained.

Despite the limitation of our study being a retrospective study and of a smaller sample size, our findings with respect to the other global literatures support the safety and feasibility of TAPP repair in elderly as well. On reviewing the various literatures, it can be clearly understood that the complications can be reduced by repeated performance of TAPP repairs under senior supervision, gentle tissue handling, avoiding tack placement in triangle of pain, bloodless field of dissection, meticulous reduction of hernia sac, proper mesh placement and peritoneal flap coverage [11].

CONCLUSION

In conclusion, in our experience operating and studying the various post-operative morbidity factors. TAPP technique of inguinal hernia repair is as safe and as feasible as young patients when compared to older patients when done by trained hands ,which gives an added advantage of enhanced recovery, better cosmesis, reduced pain. Thus, this article will be helpful in debunking the myth of laparoscopy being unsafe in elderly.

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Nil.

CONFLICTS OF INTEREST

There are no conflicts of interest.

REFERENCES

1.Andresen K, Rosenberg J. Transabdominal pre-peritoneal (TAPP) versus totally extraperitoneal (TEP) laparoscopic techniques for inguinal hernia repair. Cochrane Database Syst Rev. 2024 Jul 4;7(7):CD004703.

2. Nyhus LM. Classification of groin hernia: milestones. Hernia 2004;8:87-8.
3. Forte A, D'Urso A, Palumbo P, Lo Storto G, Gallinaro LS, Bezzi M, Beltrami V. Inguinal hernioplasty: the gold standard of hernia repair. Hernia. 2003 Mar;7(1):35-8.
4. Li J, Wang X, Feng X, et al. Comparison of open and laparoscopic preperitoneal repair of groin hernia. Surg Endosc 2013;27:4702-10.

5. McCormack K, Wake BL, Fraser C, et al. TAPP Vs TEP laparoscopic techniques for inguinal hernia repair: a systematic review. Hernia 2005;9:109-14.
6. McCormack K. Laparoscopic techniques Vs open techniques for inguinal hernia repair. Cochrane Database Syst Rev 2003;(1):CD001785.
7. Bulyk I, Shkarban V, Vasyliuk S, Osadets V, Bitska I, Dmytruk O. The history of inguinal hernia surgery. Rozhl Chir. 2023 Spring;102(4):149-153. English. doi: 10.33699/PIS.2023.102.4.149-153.
8. Tolver MA: Early clinical outcomes following laparoscopic inguinal hernia repair. Dan Med J.2013,60:B4672.
9. Ahmad S, Aslam R, Iftikhar M, Alam M. Early Outcomes of Laparoscopic Transabdominal Preperitoneal (TAPP) Repair. Cureus. 2023 Feb 28;15(2):e35567
10. Alessia MDG Ferrarese, Stefano Enrico, Mario Solej, et al. Transabdominal pre-peritoneal mesh in inguinal hernia repair in elderly: end point of our experience. BMC Surgery 2013,13(Suppl 2):S24.
11. Zirui He, Xiaohui Hao, Jianwen Li, Yun Zhang, et al. Laparoscopic inguinal hernia repair in elderly patients: single center experience in 12 years. Ann Laparosc Endosc Surg 2017;2:88.
12. Bittner R, Leibl BJ, Jäger C, Kraft B, Ulrich M, Schwarz J. TAPP - Stuttgart technique and result of a large single center series. J Minim Access Surg. 2006 Sep;2(3):155-9.