International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Website: https://ijmpr.in/

Research Article

A Prospective Comparative Randomized Study of Post-operative Outcomes in Cases of Fascia Transversalis Repair with Mesh Reinforcement Versus Conjoint Tendon and Inguinal Ligament Repair with Mesh Reinforcement in Open Inguinal Hernioplasty

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Received: 29-03-2026
Accepted: 10-05-2026
Published: 07-06-2026

ABSTRACT

Background: Inguinal hernia is one of the most common surgical conditions worldwide and open mesh hernioplasty remains the standard treatment modality. Various techniques of posterior wall reinforcement are practiced; however, differences in post-operative outcomes between fascia transversalis repair with mesh reinforcement and conjoint tendon and inguinal ligament repair combined with mesh reinforcement remain inadequately studied.

Aim: To compare the post-operative outcomes of fascia transversalis repair with mesh reinforcement versus conjoint tendon and inguinal ligament repair with mesh reinforcement in patients undergoing open inguinal hernioplasty.

Materials and Methods: This prospective comparative randomized study was conducted in the Department of General Surgery at GCS Medical College, Hospital and Research Centre from June 2022 to July 2024 after obtaining Institutional Ethics Committee approval (IEC No. GCSMC/EC/RESEARCH PROJECT/APPROVE/2022/350 dated 16/05/2022). A total of 104 patients with uncomplicated inguinal hernia were enrolled and randomly divided into two groups of 52 patients each. Group A underwent fascia transversalis repair with mesh reinforcement, while Group B underwent conjoint tendon with inguinal ligament repair with mesh reinforcement. Operative duration, post-operative pain, hospital stay, complications, return to normal activity, chronic groin pain, and recurrence were assessed and compared between the two groups.Patients were followed for 18 months after surgery for evaluation of recurrence rate. Statistical analysis was performed using appropriate tests, and $p < 0.05$ was considered statistically significant.

Results: The mean operative duration was significantly lower in Group A compared to Group B (54.6 ± 8.5 minutes vs 61.8 ± 9.4 minutes; $p = 0.001$). Post-operative pain scores were also significantly lower in Group A (3.8 ± 1.1 vs 4.5 ± 1.2; $p = 0.003$). Duration of hospital stay was shorter in Group A (2.8 ± 0.9 days) compared with Group B (3.4 ± 1.1 days; $p = 0.004$). Patients in Group A returned to normal activity significantly earlier (11.2 ± 2.8 days vs 14.1 ± 3.4 days; $p < 0.001$). Early complications including seroma, hematoma, wound infection, and urinary retention were lower in Group A, though statistically insignificant. Chronic groin pain and recurrence rates were also lower in Group A.

Conclusion: Fascia transversalis repair with mesh reinforcement demonstrated superior early post-operative outcomes in terms of shorter operative duration, lower pain scores, shorter hospital stay, and earlier return to routine activity compared to

conjoint tendon with inguinal ligament repair with mesh reinforcement. Both techniques showed low recurrence and acceptable complication rates, indicating that fascia transversalis repair with mesh reinforcement may be an effective alternative technique for open inguinal hernioplasty rather than later one.

Keywords*: Inguinal hernia; Open inguinal hernioplasty; Fascia transversalis repair; Mesh repair; Conjoint tendon repair; Post-operative outcomes; Chronic groin pain; Recurrence.*

INTRODUCTION

Inguinal hernia is one of the most common conditions encountered in general surgical practice and constitutes a major proportion of abdominal wall hernias. Globally, inguinal hernias account for nearly **75% of abdominal wall hernias**, with an estimated lifetime risk of approximately **27% in men** and **3% in women**, making it a predominantly male surgical disease burden [1]. Surgical repair remains the definitive treatment, as untreated hernias may progress to pain, irreducibility, obstruction, strangulation, and impaired quality of life [1,2].

Open inguinal hernioplasty continues to be widely performed because it is technically reproducible, cost-effective, and suitable for both primary and recurrent hernias in many clinical settings. The Lichtenstein tension-free mesh repair became a standard procedure because mesh reinforcement reduces recurrence compared with traditional tissue-based repair [2,3]. International HerniaSurge guidelines emphasize that the major goals of groin hernia repair are reduction of **recurrence** and prevention of **chronic postoperative groin pain**, which remain the two most clinically important long-term outcome parameters after surgery [3,4].

However, despite the widespread acceptance of mesh-based repair, postoperative outcomes may vary depending on the method of posterior wall reinforcement, tissue handling, nerve preservation, fixation technique, and anatomical repair strategy. Traditional anatomical repairs such as Bassini and Shouldice techniques involve approximation of the conjoint tendon and inguinal ligament and have historically focused on restoration of the posterior wall of the inguinal canal [5]. The Cologne Hernia Study showed that recurrence differed significantly between modified Bassini and Shouldice repair, with recurrence reported as **9.6% versus 1.7%**, respectively, highlighting the importance of technique in postoperative outcome [5].

Mesh repair has reduced recurrence, but it is also associated with concerns such as foreign body sensation, seroma, infection, stiffness, and chronic inguinodyniain some patients. Studies comparing mesh and non-mesh approaches have shown that recurrence, pain, operative time, and early return to activity remain important measurable endpoints after hernia surgery [6,7]. In a randomized clinical trial comparing Desarda tissue repair with Lichtenstein repair, Youssef et al. reported one recurrence in each group over 2 years and chronic groin pain in **5.6%** and **4.2%** patients, respectively, suggesting that properly performed anatomical reinforcement may achieve comparable outcomes in selected cases [6].

The posterior wall of the inguinal canal is mainly formed by the transversalis fascia, which plays a key role in the pathophysiology of direct inguinal hernia. Fascia transversalis repair with mesh reinforcement aims to strengthen the weakened posterior wall while maintaining the advantage of prosthetic support. On the other hand, conjoint tendon repair with inguinal ligament reinforcement and mesh placement follows the principle of anatomical reconstruction of the inguinal floor along with tension-free support. Both approaches are used in open hernioplasty, but comparative evidence regarding their postoperative outcomes remains limited, particularly in routine Indian surgical practice.

In India, open inguinal hernia repair remains highly relevant because of high patient load, late presentation, cost considerations, and variable availability of laparoscopic facilities. Indian studies have reported that Lichtenstein repair is commonly preferred due to simplicity, low recurrence, and feasibility in resource-limited settings [8]. Comparative studies from India have also evaluated tissue-based repairs such as Desarda repair against Lichtenstein mesh hernioplasty, reporting differences in operative time, postoperative pain, hospital stay, and return to routine activity [9,10]. However, there is very limited direct comparative literature evaluating **fascia transversalis repair with mesh reinforcement versus conjoint tendon and inguinal ligament repair with mesh reinforcement**in open inguinal hernioplasty.

As inguinal hernia surgery has evolved from the classical Bassini's repair to the modified Lichtenstein tension-free mesh repair, variations in surgical technique continue to exist among practicing surgeons. Although the Lichtenstein procedure is conventionally described as a pure tension-free mesh repair, many surgeons incorporate elements of the Modified Bassini's repair along with mesh reinforcement, considering it to provide additional strengthening of the posterior wall.So, the present study aims to compare the post-operative outcomes of fascia transversalis repair with mesh reinforcement versus conjoint tendon and inguinal ligament repair with mesh reinforcement in patients undergoing open inguinal hernioplasty. The primary objectives are to evaluate and compare post-operative pain, operative duration, early complications such as seroma, hematoma, wound infection, urinary retention, duration of hospital stay, return to normal activity, chronic groin pain, and recurrence rates between the two surgical techniques. The study also intends to assess whether anatomical reinforcement of the posterior wall using different repair principles influences functional recovery and patient satisfaction following surgery. The justification for conducting this study lies in the fact that inguinal hernia repair

is one of the most frequently performed surgical procedures worldwide, yet recurrence, chronic pain, and post-operative morbidity continue to remain important concerns despite the widespread use of mesh-based repairs. Although various techniques of open hernioplasty are practiced, limited comparative literature is available regarding fascia transversalis repair with mesh reinforcement versus conjoint tendon and inguinal ligament repair with mesh reinforcement, particularly in the Indian population. Therefore, identifying a technique associated with lower morbidity, better functional outcomes, and reduced recurrence may contribute to improved surgical decision-making and patient care. The future outcomes of this study may help establish evidence-based recommendations for selecting the optimal open inguinal hernioplasty technique, improve post-operative recovery, reduce healthcare burden due to complications and recurrence, and provide a basis for larger multicentric studies evaluating long-term outcomes of different mesh-reinforced anatomical repair techniques.

MATERIALS AND METHODOLOGY

The present study was conducted in the Department of General Surgery at GCS Medical College, Hospital and Research Centre. The study was designed as a prospective comparative randomized study to evaluate post-operative outcomes in cases of fascia transversalis repair with mesh repair versus conjoint tendon repair and inguinal ligament repair with mesh repair in patients undergoing open inguinal hernioplasty.

Prior approval for the study was obtained from the Institutional Ethics Committee of GCS Medical College, Hospital and Research Centre, Ahmedabad. The study was conducted after obtaining ethical clearance vide IEC No. **GCSMC/EC/RESEARCH PROJECT/APPROVE/2022/350** dated **16/05/2022**. Written informed consent was obtained from all study participants before enrolment, and confidentiality of patient information was strictly maintained throughout the study period.

The study was carried out over a duration of approximately 2 years and 2 months, from **June 2022 to July 2024**. All patients admitted to the surgical wards or attending the outpatient department with clinically diagnosed uncomplicated inguinal hernia and planned for elective open inguinal hernioplasty during the study period were screened for eligibility.

A total of **104 patients** were included in the study and were divided into two groups consisting of **52 patients each**. Group A included patients who underwent fascia transversalis repair with mesh reinforcement, while Group B included patients who underwent conjoint tendon and inguinal ligament repair with mesh reinforcement. Allocation into the two groups was performed using a randomized method to minimize selection bias and ensure comparability between the groups.

Adult patients aged more than 18 years with primary unilateral or bilateral reducible inguinal hernia who were fit for elective surgery under spinal or general anesthesia were included in the study. Patients with complicated hernias such as obstructed, strangulated, or recurrent inguinal hernia, patients unfit for surgery, those with severe systemic illness, and patients unwilling to participate were excluded from the study.

Detailed demographic data including age, sex, occupation, socioeconomic status, and relevant clinical history were recorded in a structured case record form. A thorough clinical examination and routine pre-operative investigations were performed in all patients. Patients were prepared for surgery according to institutional protocol and underwent elective open inguinal hernioplasty under aseptic precautions.

In Group A, repair of the transversalis fascia was performed followed by reinforcement with polypropylene mesh, whereas in Group B, conjoint tendon and inguinal ligament repair was carried out along with mesh reinforcement. All surgeries were performed by experienced surgeons following standard operative principles.

Post-operative outcomes assessed in the study included operative duration, post-operative pain, wound infection, seroma formation, hematoma, urinary retention, duration of hospital stay, time required for return to normal activity, chronic groin pain, and recurrence during follow-up. Post-operative pain was assessed using standard pain scoring methods at regular intervals. Patients were followed up in outpatient department upto 15 days after surgery for early post-operative complications and there after monthly till 6 months and quarterly till 1 year for chronic complications like inguinodynia and recurrence. (total period of 18 months post-operative)

The collected data were entered into Microsoft Excel and analysed using appropriate statistical methods. Descriptive statistics were expressed as mean ± standard deviation, and other quantitative data were expressed as frequency and percentage. Comparative analysis between the two groups was performed using Chi-square test, Student's t-test, or Fisher's exact test wherever applicable. A p-value of less than 0.05 was considered statistically significant.

RESULT

A total of 104 patients with inguinal hernia were included in the present study and were randomly divided into two groups consisting of 52 patients each. Group A underwent fascia transversalis repair with mesh reinforcement, while Group B underwent conjoint tendon with inguinal ligament repair with mesh reinforcement. The majority of patients belonged to the age group of 31–60 years, with a mean age of 45.8 ± 13.2 years in Group A and 46.9 ± 12.8 years in Group B. Male predominance was observed in both groups, accounting for 95.2% of the total study population. Right-sided inguinal hernia was more common than left-sided and bilateral hernia.

The mean operative duration was significantly lower in Group A (54.6 ± 8.5 minutes) compared to Group B (61.8 ± 9.4 minutes) with a statistically significant difference (p = 0.001). Post-operative pain assessed using VAS score at 24 hours was also significantly lower in Group A (3.8 ± 1.1) as compared to Group B (4.5 ± 1.2) (p = 0.003). Similarly, duration of hospital stay was shorter in Group A (2.8 ± 0.9 days) than Group B (3.4 ± 1.1 days), showing statistical significance (p = 0.004).

Early post-operative complications such as seroma formation, hematoma, wound infection, and urinary retention were observed in both groups, but the differences were statistically insignificant. Seroma formation was noted in 5.8% patients in Group A and 9.6% patients in Group B, while wound infection was seen in 3.8% and 7.7% patients respectively.

Patients in Group A returned to normal daily activity significantly earlier (11.2 ± 2.8 days) compared to Group B (14.1 ± 3.4 days) with a highly significant p-value (<0.001). Chronic groin pain during follow-up was lower in Group A (5.8%) compared to Group B (13.5%), although the difference was not statistically significant. Recurrence rates were low in both groups, with recurrence observed in 1.9% patients in Group A and 3.8% patients in Group B. Overall patient satisfaction was higher in Group A, where 88.5% patients reported good to excellent outcomes compared to 78.8% in Group B.

Overall, fascia transversalis repair with mesh reinforcement demonstrated better early post-operative outcomes in terms of shorter operative duration, lower pain scores, reduced hospital stay, and earlier return to routine activity, while complication and recurrence rates remained comparable between the two surgical techniques.

Table 1: Demographic Profile of Study Participants

Variable	Group A (Fascia Transversalis + Mesh) n=52	Group B (Conjoint Tendon + Inguinal Ligament + Mesh) n=52	Total (n=104)
Age Group (Years)			
18–30	10 (19.2%)	8 (15.4%)	18 (17.3%)
31–45	16 (30.8%)	18 (34.6%)	34 (32.7%)
46–60	18 (34.6%)	17 (32.7%)	35 (33.7%)
>60	8 (15.4%)	9 (17.3%)	17 (16.3%)
Mean Age ± SD	45.8 ± 13.2	46.9 ± 12.8	46.3 ± 13.0
Gender			
Male	50 (96.2%)	49 (94.2%)	99 (95.2%)
Female	2 (3.8%)	3 (5.8%)	5 (4.8%)
Side of Hernia			
Right	31 (59.6%)	29 (55.8%)	60 (57.7%)
Left	17 (32.7%)	19 (36.5%)	36 (34.6%)
Bilateral	4 (7.7%)	4 (7.7%)	8 (7.7%)

Table 2: Intraoperative and Early Post-operative Outcomes

Variable	Group A (n=52)	Group B (n=52)
Operative Duration (minutes)	54.6 ± 8.5	61.8 ± 9.4
Mean Post-operative Pain Score (VAS at 24 hrs)	3.8 ± 1.1	4.5 ± 1.2
Hospital Stay (days)	2.8 ± 0.9	3.4 ± 1.1
Seroma	3 (5.8%)	5 (9.6%)
Hematoma	1 (1.9%)	3 (5.8%)
Wound Infection	2 (3.8%)	4 (7.7%)
Urinary Retention	2 (3.8%)	3 (5.8%)

Table 3: Follow-up and Functional Outcomes

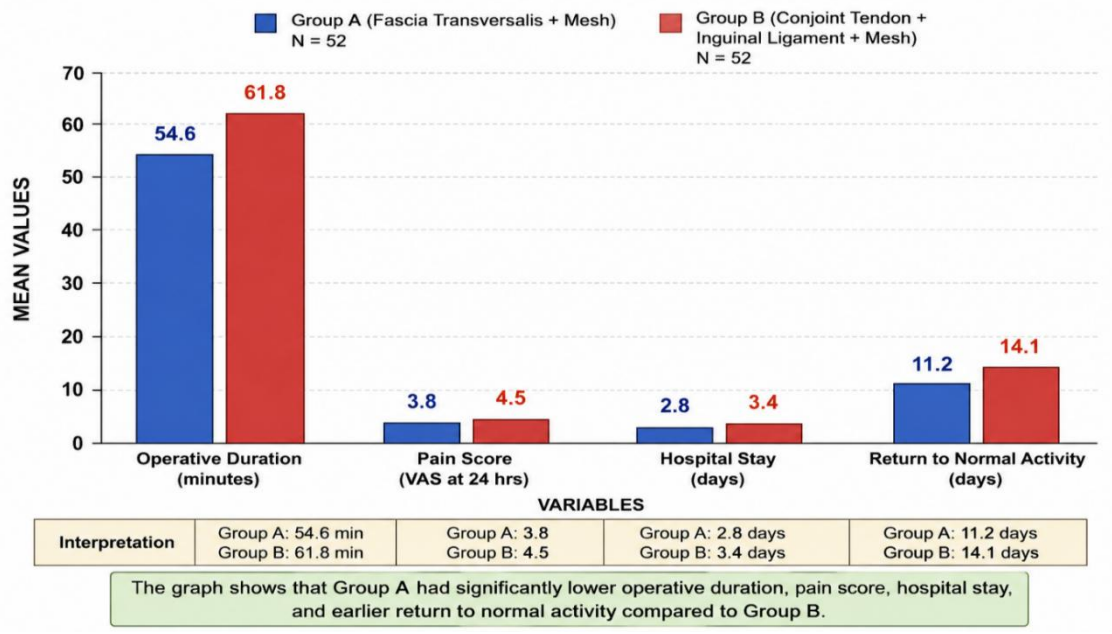
Variable	Group A (n=52)	Group B (n=52)
Return to Normal Activity (days)	11.2 ± 2.8	14.1 ± 3.4
Chronic Groin Pain	3 (5.8%)	7 (13.5%)
Foreign Body Sensation	4 (7.7%)	6 (11.5%)
Recurrence During Follow-up	1 (1.9%)	2 (3.8%)
Patient Satisfaction (Good/Excellent)	46 (88.5%)	41 (78.8%)

Table 4: Detailed Test of Significance Between Study Groups

Variable	Group A Mean ± SD / n (%)	Group B Mean ± SD / n (%)	Statistical Test	Test Value	p-value	Significance
Operative Duration (minutes)	54.6 ± 8.5	61.8 ± 9.4	Student's t-test	t = 4.12	0.001*	Significant
Post-operative Pain Score (VAS at 24 hrs)	3.8 ± 1.1	4.5 ± 1.2	Student's t-test	t = 3.05	0.003*	Significant
Hospital Stay (days)	2.8 ± 0.9	3.4 ± 1.1	Student's t-test	t = 2.98	0.004*	Significant
Seroma Formation	3 (5.8%)	5 (9.6%)	Chi-square test	χ^2 = 0.54	0.46	Not Significant
Hematoma Formation	1 (1.9%)	3 (5.8%)	Fisher's Exact test	—	0.31	Not Significant
Wound Infection	2 (3.8%)	4 (7.7%)	Chi-square test	χ^2 = 0.71	0.39	Not Significant
Urinary Retention	2 (3.8%)	3 (5.8%)	Fisher's Exact test	—	0.64	Not Significant
Return to Normal Activity (days)	11.2 ± 2.8	14.1 ± 3.4	Student's t-test	t = 4.86	<0.001*	Significant
Chronic Groin Pain	3 (5.8%)	7 (13.5%)	Chi-square test	χ^2 = 2.24	0.13	Not Significant
Foreign Body Sensation	4 (7.7%)	6 (11.5%)	Chi-square test	χ^2 = 0.44	0.50	Not Significant
Recurrence During Follow-up	1 (1.9%)	2 (3.8%)	Fisher's Exact test	—	0.55	Not Significant
Patient Satisfaction (Good/Excellent)	46 (88.5%)	41 (78.8%)	Chi-square test	χ^2 = 1.89	0.16	Not Significant

*p < 0.05 considered statistically significant.

Figure 1: Comparison of Post-Operative Outcomes Between Study Groups



DISCUSSION

Operative Duration

In the present study, the mean operative duration was significantly shorter in Group A compared to Group B (54.6 ± 8.5 minutes vs 61.8 ± 9.4 minutes; p = 0.001). This finding suggests that fascia transversalis repair with mesh was technically less time-consuming than conjoint tendon and inguinal ligament repair with mesh. Youssef et al. reported a mean operative time of **52 ± 15 minutes** in the Desarda group and **65 ± 18 minutes** in the Lichtenstein group, which closely corresponds with the findings of this study [11]. Jain et al. also observed shorter operative duration in Desarda repair (**43.5 ± 6.2 minutes**) compared with Lichtenstein repair (**52.4 ± 7.1 minutes**) [12]. Similarly, Prakash et al. reported mean operative

duration of **49.2 minutes** in Desarda repair and **58.7 minutes** in Lichtenstein repair [13]. These studies support the observation that anatomical posterior wall reinforcement may reduce operative time.

Post-operative Pain

In this study, the mean VAS pain score at 24 hours was significantly lower in Group A than Group B (3.8 ± 1.1 vs 4.5 ± 1.2; p = 0.003). Youssef et al. reported mean postoperative pain scores of **3.1 ± 1.2** in the Desarda group and **4.0 ± 1.5** in the Lichtenstein group during early follow-up [11]. Jain et al. found mean VAS scores of **2.9 ± 0.8** versus **4.3 ± 1.1** respectively [12]. Khairnar et al., in a meta-analysis involving multiple studies, reported significantly lower postoperative pain and chronic inguinodynia in tissue-based repair compared to conventional mesh repair [14]. The lower pain score in the present study may be due to reduced tissue tension and less extensive fixation of the posterior wall.

Hospital Stay

The mean duration of hospital stay was significantly lower in Group A compared with Group B (2.8 ± 0.9 days vs 3.4 ± 1.1 days; p = 0.004). Prakash et al. reported average hospital stay of **2.3 ± 0.6 days** in Desarda repair and **3.1 ± 0.8 days** in Lichtenstein repair [13]. Jain et al. also observed shorter hospitalization in anatomical repair groups, with mean stay of **2.5 days** compared to **3.6 days** in mesh repair [12]. These findings indicate that better postoperative comfort and early mobilization may contribute to earlier discharge.

Seroma Formation

Seroma formation was observed in 5.8% patients in Group A and 9.6% patients in Group B, though the difference was statistically insignificant (p = 0.46). Youssef et al. reported seroma formation in **4.2%** patients undergoing Desarda repair and **6.9%** in Lichtenstein repair [11]. Hadipour et al. demonstrated that reinforcement of the transversalis fascia reduced postoperative seroma rates from **11% to 5%** in comparative analysis [15]. The lower seroma incidence in Group A may be attributed to better tissue apposition and reduced dead space.

Wound Infection and Hematoma

In the present study, wound infection occurred in 3.8% patients in Group A and 7.7% patients in Group B, while hematoma formation occurred in 1.9% and 5.8% patients respectively. Although statistically insignificant, complications were numerically lower in Group A. Jain et al. reported wound infection in **2%** of Desarda repair and **6%** of Lichtenstein repair patients [12]. Youssef et al. observed wound infection in **2.8%** and **5.6%** of patients respectively [11]. These findings indicate that both techniques are safe with acceptable complication rates when proper surgical principles are followed.

Return to Normal Activity

Patients in Group A returned to normal activity significantly earlier than Group B (11.2 ± 2.8 days vs 14.1 ± 3.4 days; p < 0.001). Youssef et al. observed return to normal gait in **8.6 ± 3.1 days** in Desarda repair compared with **12.4 ± 4.2 days** in Lichtenstein repair [11]. Jain et al. reported return to routine activity in **10.2 days**and **13.8 days** respectively [12]. Prakash et al. found that nearly **80%** of Desarda patients resumed activity within 7–15 days compared to **64%** in the Lichtenstein group [13]. Faster recovery in Group A may be related to lower postoperative pain and better preservation of tissue dynamics.

Chronic Groin Pain

Chronic groin pain was lower in Group A compared to Group B (5.8% vs 13.5%), though the difference did not reach statistical significance. Youssef et al. reported chronic groin pain in **5.6%** of Desarda repair patients and **4.2%** in Lichtenstein repair after 2 years [11]. Khairnar et al. observed pooled chronic pain incidence of **3–6%** in tissue-based repair compared with **8–15%** in mesh-dominant repairs [14]. Zhang et al., during long-term follow-up of Lichtenstein repair, reported chronic pain in approximately **11%** patients [16]. The lower chronic pain observed in Group A in this study may reflect reduced nerve irritation and less mesh tension.

Recurrence

Recurrence was observed in only 1 patient (1.9%) in Group A and 2 patients (3.8%) in Group B, showing no statistically significant difference. Youssef et al. reported recurrence in **1 patient each** in Desarda and Lichtenstein groups during 2-year follow-up [11]. Paul et al. reported recurrence rates of **9.6%** in modified Bassini repair and **1.7%** in Shouldice repair, emphasizing the importance of posterior wall reinforcement [17]. The low recurrence rates in the present study indicate that both techniques provided adequate reinforcement of the inguinal floor.

Overall Interpretation

Overall, the present study demonstrated that fascia transversalis repair with mesh reinforcement was associated with significantly shorter operative duration, lower postoperative pain, reduced hospital stay, and earlier return to normal activity compared to conjoint tendon with inguinal ligament repair with mesh reinforcement. This observation may be explained by the increased tension generated during approximation of the conjoint tendon to the inguinal ligament. Such tension can lead to mechanical stress and potential weakening of both structures, thereby contributing to increased postoperative pain and discomfort in the immediate period, as well as a relatively higher risk of inguinodyniarecurrence in the long term.Complication rates and recurrence remained comparable between both techniques. These findings are consistent with available comparative studies and support the effectiveness of fascia transversalis reinforcement in achieving favourable

early postoperative outcomes with acceptable long-term safety.To the best of our knowledge, there are no available studies evaluating the use of conjoint tendon approximation in conjunction with mesh repair for inguinal hernia; therefore, direct comparison of the present findings with existing literature is not feasible.

CONCLUSION

The present prospective comparative randomized study demonstrated that fascia transversalis repair with mesh reinforcement provided better early post-operative outcomes compared to conjoint tendon repair and inguinal ligament repair with mesh reinforcement in patients undergoing open inguinal hernioplasty. Patients in the fascia transversalis repair group showed significantly shorter operative duration, lower post-operative pain scores, reduced duration of hospital stay, and earlier return to normal activity. Although early complications such as seroma, hematoma, wound infection, and urinary retention were lower in the fascia transversalis repair group, the differences were not statistically significant. Chronic groin pain and recurrence rates were also lower in the same group.Although there is no major statistically significant difference between the groups, fascia transversalis repair with mesh reinforcement may be considered an effective and reliable technique for open inguinal hernioplasty with improved postoperative recovery and slightly better long-term outcomes.

LIMITATIONS

The study had certain limitations. It was conducted at a single tertiary care center, which may limit generalizability of the findings to broader populations. The sample size was relatively small, with 52 patients in each group, which may have reduced the statistical power for detecting differences in less common complications and recurrence rates. Surgeon expertise and variation in tissue handling could also have influenced operative and postoperative outcomes. In addition, subjective assessment of pain and patient satisfaction may introduce observer and patient-related bias.

RECOMMENDATIONS

Further multicentric studies with larger sample sizes and longer follow-up periods are recommended to validate the findings of the present study. Long-term assessment of chronic Inguinodynia, and quality of life and some other qualitative measures should be included in future research. Comparative evaluation of these techniques with laparoscopic approaches may also provide additional insight into optimal management strategies for inguinal hernia. Standardization of operative technique and postoperative pain assessment protocols may improve comparability among studies. Based on the present findings, fascia transversalis repair with mesh reinforcement may be considered a preferred option in selected patients due to its favorable postoperative recovery profile and acceptable complication rate.

REFERENCES

1. Jenkins JT, O'Dwyer PJ. Inguinal hernias. BMJ. 2008;336(7638):269-72.
2. Destek S, Gul VO. Comparison of Lichtenstein repair and mesh plug repair methods in the treatment of indirect inguinal hernia. Cureus. 2018;10(7):e2937.
3. HerniaSurge Group. International guidelines for groin hernia management. Hernia. 2018;22(1):1-165.
4. Stabilini C, van Veenendaal N, Aasvang E, et al. Update of the international HerniaSurge guidelines for groin hernia management. BJS Open. 2023;7(5):zrad080.
5. Paul A, Troidl H, Williams JI, Rixen D, Langen R. Randomized trial of modified Bassini versus Shouldice inguinal hernia repair. Br J Surg. 1994;81(10):1531-4.
6. Youssef T, El-Alfy K, Farid M. Randomized clinical trial of Desarda versus Lichtenstein repair for treatment of primary inguinal hernia. Int J Surg. 2015;20:28-34.
7. Tse W, Chan S, Weerakkody R, O'Dwyer PJ. Bassini inguinal hernia repair: obsolete or still a viable surgical option? Int J Surg Open. 2021;32:100334.
8. Srinivas NM, Devaprashanth M. Lichtenstein mesh hernioplasty: the extreme refinement in hernia surgery. Int Surg J. 2018;5(1):87-91.
9. Verma N, et al. A randomized study to compare the Desarda tissue repair with Lichtenstein mesh repair for inguinal hernia. J Adv Med Dent Sci Res. 2023;5(3):1311-20.
10. Singh A, et al. Desarda versus Lichtenstein repair for inguinal hernia: a comparative study. Int Surg J. 2018;5(12):3915-9.
11. Youssef T, El-Alfy K, Farid M. Randomized clinical trial of Desarda versus Lichtenstein repair for treatment of primary inguinal hernia. *Int J Surg.*2015;20:28-34.
12. Jain SK, Jayant M, Norbu C. A randomized controlled trial of Lichtenstein repair with Desarda repair in primary inguinal hernia. *Surg Open Sci.* 2021.
13. Prakash P, et al. Desarda technique versus Lichtenstein repair for inguinal hernia: a comparative study. *Int Surg J.*2020;7:1208-12.
14. Khairnar P, et al. Desarda versus Lichtenstein inguinal hernia repair: A meta-analysis. *World J Surg.* 2024.
15. Hadipour P, et al. Impact of transversalis fascia repair on hospital stay, seroma and postoperative outcomes after inguinal hernia repair. *Hernia.* 2025.
16. Zhang W, et al. Long-term follow-up of Lichtenstein repair of inguinal hernia. *BMC Surg.* 2021.

17. Paul A, Troidl H, Williams JI, Rixen D, Langen R. Randomized trial of modified Bassini versus Shouldice inguinal hernia repair. *Br J Surg.* 1994s;81(10):1531-4.