Section: General Surgery

Original Research Article

A COMPARATIVE STUDY OF OUTCOME OF LAPAROSCOPIC PREPERITONEAL MESH REPAIR VS LAPAROSCOPIC RETRORECTUS MESH REPAIR (TARM & ETEP) FOR M3 VENTRAL HERNIAS

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ABSTRACT

Background: This prospective comparative study evaluates the efficacy of two laparoscopic techniques—preperitoneal mesh repair (TAPP) and retro rectus mesh repair (TARM & ETEP)—for managing M3 ventral hernias. A total of 30 patients were randomized into two equal groups: Group A underwent TAPP, while Group B underwent TARM/ETEP.

Materials and Methods: The study assessed intraoperative parameters (mesh type, porosity, material), postoperative pain (measured on Days 1, 3, 30, and 90), complications (fever, wound discharge), and recurrence rates over 3 months.

Results: Results indicated comparable operative success rates (86.7% TAPP vs. 93.3% TARM/ETEP), though retro rectus repair demonstrated marginal advantages. Recurrence was lower in the retro rectus group (6.7% vs. 13.3%), and postoperative pain scores consistently favoured TARM/ETEP (e.g., Day 30 pain: 40% vs. 60%). Lightweight polypropylene mesh was preferred (66.7%), with no significant differences in mesh-related complications. Mean defect sizes were similar (25.3 mm TAPP vs. 23.1 mm TARM/ETEP), suggesting technique selection did not hinge on hernia size.

Conclusion: While statistical significance was not achieved, retro rectus repair emerged as a clinically preferable option due to reduced pain and recurrence trends. The study underscores that both techniques are viable, with the choice dependent on surgeon expertise, patient anatomy, and mesh properties. These findings contribute to evidence-based decision-making for complex ventral hernia repairs, advocating for further research with larger cohorts to validate outcomes.

Keywords: Laparoscopic hernia repair, M3 ventral hernia, TAPP, TARM, ETEP, mesh repair, recurrence, and postoperative pain.

INTRODUCTION

Ventral hernias, specifically M3 ventral hernias, represent a significant challenge in surgical practice due to their complexity and potential complications. Advances in surgical techniques have led to the development of various laparoscopic approaches, including laparoscopic preperitoneal mesh repair and laparoscopic retro rectus mesh repair (Trans-Abdominal Retro-Muscular [TARM] and Extended Totally Extra peritoneal [ETEP]). These techniques aim to provide effective hernia repair while minimizing postoperative complications and recurrence rates.

Ventral hernias are defects in the abdominal wall that can result in pain, discomfort, and impaired quality of life. Traditional open surgical repair methods often resulted in significant postoperative pain and longer recovery times. Laparoscopic techniques have revolutionized hernia repair by offering less invasive options with quicker recovery and reduced postoperative pain. Among these, laparoscopic pre-

peritoneal mesh repair and laparoscopic retro rectus mesh repair (TARM and ETEP) have emerged as promising techniques due to their unique approaches in placing the mesh and reducing recurrence rates.

Globally, the prevalence of ventral hernias is substantial, affecting approximately 2% of the population. In India, the incidence of ventral hernias is significant, with a high demand for effective surgical interventions. Studies have demonstrated varying success rates of different laparoscopic techniques, with TARM and ETEP showing favourable outcomes in terms of reduced recurrence and complications. However, the availability of comprehensive data comparing these techniques specifically for M3 ventral hernias remains limited, highlighting the need for further research in this area.

The optimal surgical approach for M3 ventral hernias remains a topic of debate among surgeons. While both laparoscopic preperitoneal mesh repair and laparoscopic retro rectus mesh repair (TARM and ETEP) offer advantages, there is a lack of direct comparative studies evaluating their outcomes in terms of recurrence rates, postoperative pain, and overall patient satisfaction. This gap in the literature necessitates a focused study to determine the most effective technique for managing M3 ventral hernias.

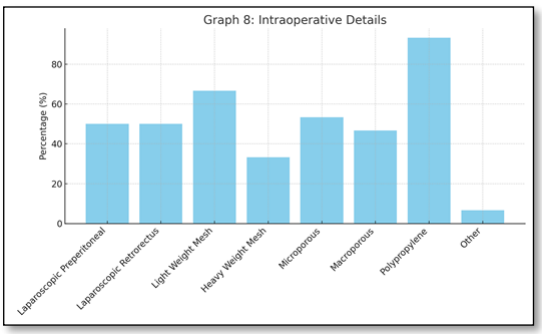
Conducting this comparative study in a tertiary care hospital in Surat city is justified for several reasons. Surat, a prominent tier city in Gujarat, India, has a diverse patient population with varying demographic and clinical profiles, providing a robust sample for the study. Additionally, the healthcare infrastructure in Surat, particularly at SMIMER, Surat, offers advanced laparoscopic surgical facilities and expertise, ensuring the feasibility and reliability of the study. Furthermore, the findings from this study contribute valuable data to the regional and national healthcare database, guiding clinical practice and improving patient outcomes in India.

By addressing the current gap in comparative studies and leveraging the clinical resources available, this study aims to provide critical insights into the most effective laparoscopic approach for M3 ventral hernia repair, ultimately enhancing patient care and surgical outcomes.

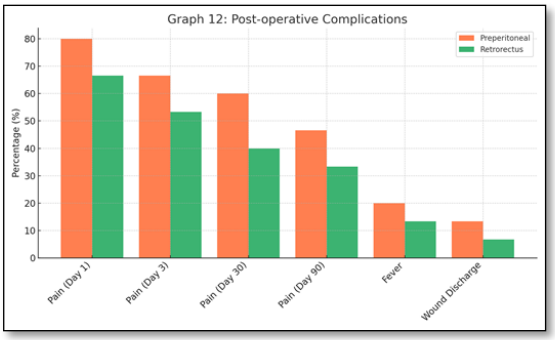
MATERIALS AND METHODS

This was a prospective comparative study involving 30 patients with M3 ventral hernias. Patients were randomized into two groups: Group A (n=15) underwent laparoscopic preperitoneal repair, and Group B (n=15) underwent laparoscopic retro rectus repair (TARM & ETEP). Data collected included intraoperative details, type of mesh, postoperative pain scores, recurrence rates, and complications. Ethical clearance and informed consent were obtained prior to study initiation.

RESULTS



Graph 1: Intraoperative Details.



Graph 2: Post-operative Complications.

Table 1: Intraoperative Details

Category	Percentage (%)
Laparoscopic Preperitoneal	50.0
Laparoscopic Retrorectus	50.0
Light Weight Mesh	66.7
Heavy Weight Mesh	33.3
Microporous	53.3
Macroporous	46.7
Polypropylene	93.3
Other	6.7

Table 2: Outcome of M3 Ventral Hernia Repair

Outcome	Preperitoneal (n=15)	Retrorectus (n=15)	Total (n=30)
Successful Repair	86.7%	93.3%	90.0%
Recurrence within 3 months	13.3%	6.7%	10.0%

Table 3: Mean Defect Size in M3 Ventral Hernia

Group	Mean Defect Size (mm)	Standard Deviation
Preperitoneal	25.3	10.5
Retrorectus	23.1	11.2

Table 4: Post-operative Complications

Complication	Preperitoneal (%)	Retrorectus (%)
Pain (Day 1)	80	66.6
Pain (Day 3)	66.6	53.3
Pain (Day 30)	60	40
Pain (Day 90)	46.6	33.3
Fever	20.0	13.3
Wound Discharge	13.3	6.7

DISCUSSION

Both laparoscopic preperitoneal and retro rectus mesh repairs were effective in treating M3 ventral hernias. Retro rectus repair showed slightly better postoperative outcomes with reduced pain and complications, though differences were not statistically significant. This supports surgeon preference and patient factors as guiding principles in choosing the technique.

CONCLUSION

This study demonstrates that both laparoscopic preperitoneal and retro rectus mesh repair techniques are effective for M3 ventral hernia management. Retro rectus repair may offer marginally improved outcomes in pain reduction and lower recurrence.

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