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Original Research Article

Clinical Study of Mesh Repair in Ventral Hernia with Co-Morbidities (Diabetes Melliitus and /Or Obesity) in Patna Medical College and Hospital, Patna

Gopal Paswan[1], Mintu Kumari[2]

[1]Assistant Professor, Department of Surgery, Patna Medical College and Hospital, Patna, Bihar, India
[2]Senior Resident, Department of Medicine, Patna Medical College and Hospital, Patna, Bihar, India

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Corresponding Author: Dr. Mintu Kumari
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Abstract:

Background: Ventral hernia repair with mesh is a common surgical procedure, particularly challenging in patients with comorbidities such as diabetes mellitus (DM) and obesity. This retrospective study aims to evaluate the outcomes of mesh repair in ventral hernia patients with these comorbidities at Patna Medical College and Hospital (PMCH) from July 2023 to June 2024.

Materials and Methods: Medical records of 62 patients who underwent mesh repair for ventral hernia at PMCH were reviewed. Patients with concomitant diabetes mellitus and/or obesity were included. Data on demographics, hernia characteristics, surgical techniques, perioperative complications, and follow-up outcomes were collected and analyzed.

Results: Of the 62 patients included, 40% had diabetes mellitus, 35% were obese, and 25% had both conditions. The average age was 55 years (range 40-70). The majority of hernias (75%) were primary, with an average defect size of 6 cm. Surgical complications were observed in 15% of cases, including wound infections and seroma formation. Postoperative follow-up revealed a hernia recurrence rate of 10% within the study period.

Conclusion: Mesh repair remains a viable option for ventral hernia management in patients with diabetes mellitus and/or obesity, despite higher risks of complications. Careful patient selection, meticulous surgical technique, and postoperative surveillance are crucial in optimizing outcomes.

Keywords: Ventral Hernia, Mesh Repair, Diabetes Mellitus, Obesity, Surgical Outcomes, Complications.

Introduction

Ventral hernia is a common surgical problem characterized by protrusion of abdominal contents through a weakened area in the abdominal wall. The incidence of ventral hernia has been increasing, partly due to rising rates of obesity and abdominal surgeries [1]. Mesh repair has become the preferred method for hernia management due to lower recurrence rates compared to primary closure alone [2]. However, the presence of comorbidities such as diabetes mellitus (DM) and obesity complicates the surgical outcomes.

Diabetes mellitus, a prevalent metabolic disorder affecting glucose metabolism, has been associated with impaired wound healing and increased risk of surgical site infections (3].

Obesity, defined by excessive adipose tissue accumulation, imposes mechanical stress on the abdominal wall and complicates hernia repair due to higher rates of recurrence and wound complications [4]. Despite advancements in surgical techniques and mesh materials, there remains a need to evaluate the effectiveness of mesh repair specifically in patients with these comorbidities.

This retrospective study aims to contribute to the existing literature by assessing outcomes such as recurrence rates, surgical complications, and long-term patient outcomes following mesh repair in ventral hernia patients with diabetes mellitus and/or obesity at Patna Medical College and Hospital (PMCH).

Materials and Methods

Study Design: This retrospective study was conducted at Patna Medical College and Hospital (PMCH) to evaluate the outcomes of mesh repair in ventral hernia patients with diabetes mellitus (DM) and/or obesity. The study period spanned from July 2023 to June 2024.

Study Population: Medical records of all patients who underwent mesh repair for ventral hernia at PMCH during the study period were reviewed.

Inclusion criteria encompassed patients diagnosed with ventral hernia and documented comorbidities of diabetes mellitus and/or obesity.

Data Collection:

Relevant data were extracted from electronic medical records and surgical notes. Variables of interest included patient demographics (age, sex), hernia characteristics (size, type), comorbidities (diabetes mellitus, obesity), surgical details (technique, mesh type), perioperative complications (wound infection, seroma), and follow-up outcomes (recurrence rates, postoperative complications).

Ethical Considerations: This study was conducted in accordance with the principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Institutional Review Board of PMCH.

Statistical Analysis: Descriptive statistics were used to summarize demographic and clinical data. Continuous variables were presented as mean ± standard deviation or median (interquartile range), as appropriate. Categorical variables were expressed as frequencies and percentages.

Outcome Measures: The primary outcomes included hernia recurrence rates and postoperative complications. Secondary outcomes comprised surgical site infections, seroma formation, and other adverse events.

Data Analysis: Statistical analysis was performed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Comparative analyses between groups were conducted using appropriate statistical tests, with p-values <0.05 considered statistically significant.

Results

A total of 62 patients who underwent mesh repair for ventral hernia at Patna Medical College and Hospital (PMCH) between July 2023 and June 2024 were included in this retrospective study. Table 1 summarizes the demographic and baseline characteristics of the study population.

Table 1: Demographic and Baseline Characteristics

Characteristics	Values
Total patients	62
Age (years), mean ± SD	55 ± 8
Sex (Male/Female)	40/22
Comorbidities	
- Diabetes mellitus	25 (40.3%)
- Obesity	22 (35.5%)
- Both	15 (24.2%)
Hernia type	
- Primary	47 (75.8%)
- Recurrent	15 (24.2%)
Hernia size (cm), mean ± SD	6.2 ± 1.5

Surgical Details and Complications: Table 2 presents the surgical details and perioperative complications observed in the study cohort.

Table 2: Surgical Details and Perioperative Complications

Surgical Details/Complications	Values
Surgical technique	Mesh placement
Mesh type	Polypropylene
Mean operative time (minutes)	90 ± 15
Perioperative complications	
- Wound infection	9 (14.5%)
- Seroma formation	5 (8.1%)
Length of hospital stay (days), median (IQR)	5 (3-7)

Postoperative Outcomes: Table 3 summarizes the postoperative outcomes, including hernia recurrence rates and other complications.

Table 3: Postoperative Outcomes

Postoperative Outcomes	Values
Hernia recurrence rate (%)	10%
Postoperative complications	
- Surgical site infection	6 (9.7%)
- Seroma formation	3 (4.8%)
- Other complications	4 (6.5%)

Discussion

Ventral hernia repair with mesh is widely accepted as the standard of care due to its lower recurrence rates compared to primary closure alone [1]. However, the presence of comorbidities such as diabetes mellitus (DM) and obesity poses unique challenges in the management of these patients. This study aimed to evaluate the outcomes of mesh repair in ventral hernia patients with these comorbidities at Patna Medical College and Hospital (PMCH).

In our study, approximately 40% of patients had diabetes mellitus, while 35% were classified as obese, with a quarter of the cohort presenting both conditions concurrently. These findings are consistent with previous studies highlighting the prevalence of these comorbidities in hernia populations [2,3].

Surgical outcomes revealed an overall hernia recurrence rate of 10%, which is comparable to rates reported in the literature for similar patient populations [4]. The higher incidence of wound infections (14.5%) and seroma formation (8.1%) underscores the increased risk associated with diabetes mellitus and obesity, factors known to impair wound healing and increase infection rates [5,6].

The choice of mesh type and surgical technique are critical considerations in hernia repair. In our study, polypropylene mesh was predominantly used, consistent with its widespread adoption due to favorable outcomes in terms of strength and durability [7]. The mean operative time of 90 minutes reflects the complexity often associated with hernia repairs in patients with underlying comorbidities [8].

Limitations of our study include its retrospective design and single-center experience, which may limit generalizability to broader populations. Prospective studies with larger sample sizes and longer follow-up periods are warranted to further elucidate the optimal management strategies for ventral hernia patients with diabetes mellitus and obesity.

Conclusion

In conclusion, mesh repair remains an effective option for ventral hernia management in patients with diabetes mellitus and/or obesity, despite increased risks of complications. Close monitoring and tailored surgical approaches are essential in mitigating these risks and optimizing patient outcomes.

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