

Long-term Radiological Follow-up of MIS Ventral Hernia Repair In Class IV Obesity Patients.

Is MIS Challenging Recurrence? A Case Series

Ahsan Ahmed BS, Ali Sadeghi MD, Faizan Khalid BS, Zoe Videlefsky BS, Cosman C Mandujano MD,
Albert Einstein College of Medicine, Montefiore Medical Center



Background

- Obesity is a well-established risk factor for ventral hernia development, affecting up to 60% of patients undergoing repair¹
- Elevated BMI is associated with higher recurrence rates, wound morbidity, and hospital stay in open approaches²
- Many surgeons defer elective surgery at BMI ≥35 despite limited consensus for patients in the BMI 30-40 range³
- With the expansion of minimally invasive techniques (MIS), the optimal BMI threshold for MIS ventral hernia repair remains unclear

Objective

- To evaluate recurrence and complications after MIS ventral hernia repair in BMI >40 with long-term radiographic follow-up

Methods

- Retrospective single-center study (2012-2024)
- Inclusion criteria was adult patients with BMI >40 who underwent MIS repair (robotic or laparoscopic) with postoperative CT or US follow-up
- Primary outcome: radiologic recurrence
- Secondary outcome: clinical recurrence, complications, time to recurrence, impact of diastasis repair

Citations

¹Maspero M, Bertoglio CL, Morini L, Alampi B, Mazzola M, Girardi V, Zirona A, Barone G, Magistro C, Ferrari G. Laparoscopic ventral hernia repair in patients with obesity: should we be scared of body mass index? Surg Endosc. 2022 Mar;36(3):2032-2041. doi: 10.1007/s00464-021-08489-9. Epub 2021 May 4. PMID: 33948716; PMCID: PMC8847270.
²Owei L, Swendiman RA, Torres-Landa S, Dempsey DT, Dumon KR. Impact of body mass index on minimally invasive ventral hernia repair: an ACS-NSQIP analysis. Hernia. 2019 Oct;23(5):899-907. doi: 10.1007/s10029-019-01944-6. Epub 2019 Apr 20. PMID: 31006062.
³Remulla D, Miles KS, Carvalho A, Maskal SM, Botsch WS, Beffa LR, Petro CC, Krupa DM, Prabhu AS, Rosen MJ, Miller BT. Preoperative weight loss for open abdominal wall reconstruction: study protocol for a randomized controlled trial. Hernia. 2025 May 28;29(1):187. doi: 10.1007/s10029-025-03375-y. PMID: 40434485.

Figure 1: Baseline demographics

Variable	Overall (N=52)
Age, years, mean ± SD	53.1 ± 13.5
Male sex, n (%)	10 (19.2)
BMI, kg/m2, mean ± SD	45.0 ± 5.4
ASA Classification, n (%)	
II	7 (13.5)
III	43 (82.7)
IV	2 (3.8)

Figure 2: Clinical characteristics

Variable	Overall (N=52)	Recurrence (n=9)	No Recurrence (n=43)	P value
Hernia classification, n (%)				
Primary	15 (28.8)	0 (0.0)	15 (34.9)	0.514
Incisional	16 (30.8)	2 (22.2)	14 (32.6)	
Recurrent Incisional	21 (40.4)	7 (77.8)	14 (32.6)	
Case Classification, n (%)				
Elective	41 (78.8)	7 (77.8)	34 (79.1)	0.819
Nonelective	11 (21.1)	2 (22.2)	2 (4.6)	
Preoperative CT hernia width	5.1 ± 2.5	5.0 ± 3.0	5.0 ± 2.4	
CT diastasis width, cm	6.4 ± 3.9	6.5 ± 2.3	6.3 ± 4.1	0.425
Technique, n (%)				
IPOM	37 (67.3)	7 (77.8)	28 (65.1)	
Primary closure	9 (17.3)	2 (22.2)	7 (16.3)	
ETEP	4 (7.7)	0 (0.0)	4 (9.3)	

Figure 3: Postoperative outcomes stratified by hernia recurrence

Variable	Overall (N=52)	Recurrence (n=9)	No Recurrence (n=43)	P value
Hernia Follow-up to CT, days, median (IQR)	793 (412-1381)	1208 (351-1694)	749 (424-1359)	0.483
30-day complications, n (%)				
Seroma	4 (7.7)	0 (0.0)	4 (9.3)	
Surgical site infection	1 (1.9)	0 (0.0)	1 (2.3)	
Abdominal wall abscess	1 (1.9)	0 (0.0)	1 (2.3)	
Radiological hernia recurrence, n (%)	9 (17.3)			

Results

Cohort Characteristics

- 52 patients with BMI ≥40 kg/m2 underwent MIS ventral hernia repair between 2012 and 2024 (figure 1)
- 80.8% were female and the mean age was 53.1 ± 13.5 years (range, 29–80)
- Preoperative BMI was 45.0 ± 5.4 kg/m²
- IPOM was the predominant technique (37, 67.3%), followed by primary closure (9, 17.3%), and ETEP (4, 7.3%) (figure 2)
- MIS repair demonstrated a recurrence of 19.2% and complication rates of 11.5% with durable radiographic outcomes (figure 3)
- Complications were seroma (n=4), abdominal wall abscess (n=1), and surgical site infection (n=1) (figure 3)

Conclusion

- In class IV obesity (BMI>40) cohort, MIS ventral hernia repair demonstrated acceptable long-term radiographic recurrence rates and low postoperative morbidity
- BMI >40 alone should not be considered an absolute contraindication to MIS ventral hernia repair in the appropriate clinical setting
- These findings underscore the need for larger prospective studies to further define efficacy of MIS approaches in high-risk cohorts