Concurrent Ventral Hernia Repair during Conversional Sleeve Gastrectomy : Insights from 30,664 Patients in the MBSAQIP Registry

Sol Lee, MD[1]; Valentin Mocanu, MD,PhD[2]; Melissa V. Wills, MD[2]; Juan S. Barajas-Gamboa, MD[3]; Thomas H Shin, MD, PhD[4]; Gustavo Romero-Velez, MD[2]; Andrew T. Strong, MD[2]; Salvador Navarrete, MD[2]; Ricard Corcelles, MD, PhD[2]; John Rodriguez[3], MD; Matthew Kroh, MD[2]; Jerry T. Dang, MD, PhD[2].

[1] Department of General Surgery, Seoul Medical Center, Seoul, Republic of Korea, [2]Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, OH, [3]Cleveland Clinic Abu Dhabi, Abu Dhabi, UAE, [4]University of Virginia, Charlottesville, VA

Background & Objectives

- Ventral hernias(VH) affect up to 20-32% of patients with obesity undergoing metabolic and bariatric surgery (MBS).
- Combined VH repair (VHR) with MBS remains controversial due to timing uncertainties, potential complications, recurrence risk, and safety concerns.
- This study evaluates 30-day serious complications and prolonged hospital stay associated with concomitant VHR during conversional sleeve gastrectomy (CSG).

Methods

- Analysis of MBSAQIP database (2020-2022) for patients undergoing CSG with or without VHR.
- Conversions included SG to RYGB (89.3%), BPD (6.3%), and SADI (4.4%).
- Primary outcomes: Prolonged length of stay (>2 SD above mean) and 30-day serious complications.
- Secondary outcomes: Specific surgical profiles and postoperative complications.
- Multivariable logistic regression identified independent predictors.

Key Outcomes

- 690/30,664 (2.3%) underwent concurrent VHR.
- VHR associated with older age, higher BMI, higher ASA scores, and increased comorbidities (diabetes, hypertension, COPD, prior VTE; all p<0.0001).
- At 30 days, concurrent VHR was associated with higher rates of reoperation (5.1% vs 2.8%, p<0.0001), reintervention (3.6% vs 2.2%, p=0.01), readmission (9.0% vs 7.1%, p=0.05), and serious complications (10.0% vs 6.6%, p<0.0001).
- Multivariable analysis identified VTE history as an independent predictor of serious complications, while African American race/ethnicity, VTE, COPD, hypertension, and therapeutic anticoagulation were all independent predictors of prolonged LOS; conversely, lower BMI and SG to SADI conversion compared to SG to RYGB were independently associated with reduced risk of prolonged hospitalization.

Results

Table I. Baseline demographics, procedural data, and outcomes.

Characteristic	CSG	CSG + VHR	*P*-Value
Age (years)	45.8±10.4	50.1±10.5	***<0.0001***
BMI	40.3±8.1	42.3±8.8	***<0.0001***
Comorbidities			
Diabetes			***<0.0001***
Non-diabetic & diet control	88.2	82.9	
Non-insulin dependent	2.8	4.4	
Insulin dependent	9.0	12.8	
Hypertension	34.4	53.5	***<0.0001***
COPD	1.1	2.8	***<0.0001***
Prior VTE	3.5	7.1	***<0.0001***
Mean operation time (minutes)	143.8±66.5	174.3±71.8	***<0.0001***
Type of conversion			***0.041***
SG to RYGB	89.4	86.8	
SG to SADI	4.4	6.2	
SG to BPD	6.3	7.0	
Complications			
Reoperation	2.8	5.1	***<0.0001***
Reintervention	2.2	3.6	***0.01***
Readmission	7.1	9.0	***0.05***
Serious complication	6.6	10.0	***<0.0001***

Categorical data are presented as percentage (%) and continuous data are presented as mean (±standard deviation). *BMI, body mass index. COPD, chronic obstructive pulmonary disease. VTE, venous thromboembolism. SG, sleeve gastrectomy. RYGB,* Roux-en-Y gastric bypass. *SADI, single anastomosis duodeno-ileal bypass. BPD, biliopancreatic diversion.*

Table II. Predictors of serious complications and length of stay.

Characteristic	Adjusted OR	95% CI	*P*-Value
Serious complications			
VTE	**1.64**	1.07-2.51	***0.022***
Length of stay			
Lower BMI (per 5kg/m^2)	**0.90**	0.86-0.94	***<0.0001***
Race/Ethnicity	**1.29**	1.10-1.51	***0.001***
VTE	**1.55**	1.10-2.17	***0.011***
COPD	**1.88**	1.13-3.11	***0.014***
Hypertension	**1.27**	1.09-1.48	***0.002***
Therapeutic anticoagulation	**1.92**	1.34-2.75	***<0.0001***
Type of conversion			
SADI vs RYGB	**0.53**	0.35-0.82	***0.004***
BPD vs RYGB	1.21	0.92-1.58	*0.162*

OR, odds ratio. CI, confidence interval. VTE, venous thromboembolism. BMI, body mass index. COPD, chronic obstructive pulmonary disease. SG, sleeve gastrectomy. SADI, single anastomosis duodeno-ileal bypass. RYGB, Roux-en-Y gastric bypass. BPD, biliopancreatic diversion.

Conclusions

- Concurrent VHR during CSG significantly increases complication risks, with VTE history as a key indicator.
- Rigorous patient selection and tailored risk mitigation strategies are crucial for those considering this combined approach.
- Further investigation is needed to better characterize hernia types and their associated factors that may lead to increased complications.

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