Robot-assisted approach has potential to shift paradigms in ventral hernia repair in obese population

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INTRODUCTION

The aim of this study was to show efficacy of robot-assisted surgery in obese patient populations deemed as high risk for ventral hernia repair (VHR).

METHODS AND PROCEDURES

A prospective 2-year study looked at post-operative outcomes in two obese patient populations (BMI 35-50 and BMI >50 kg/m^2) after robot-assisted VHR of all types. Primary outcomes were surgical site occurrences (SSO) and SSO-PI. Secondary outcomes included operative time, length of hospital stay, and re-admission rates. Outcomes were compared between two groups with t-test with Holm-Sidak correction for discrete values and Chi-square test for binary values.

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RESULTS

Demographics	BMI 35-50	BMI >50	*p*
n	38	7	
BMI	41.2 ± 0.5	57.2 ± 2.7	<0.001 *
Age	53.8 ± 1.8	50.7 ± 2.3	0.478
Female (%)	76	57	0.612
ASA	2.8 ± 0.1	3.0 ± -	0.400
Hernia defect (cm^2)	53.6 ± 9.2	58.4 ± 20.3	0.837
Repair type (%):			
Intraperitoneal	11	14	0.772
Preperitoneal	18	14	0.793
Retromuscular	71	71	1.000
Operative time (min)	153.6 ± 14.1	140.9 ± 21.1	0.713

Outcomes	BMI 35-50	BMI >50	*p*
SSO (%)	16	14	0.936
seroma (%)	8	14	0.586
hematoma (%)	8	-	0.442
SSO-PI (%)	3	-	0.664
LOS (days)	0.5 ± 0.1	2.0 ± 0.4	<0.001 *
Readmission (%)	3	-	0.664

ASA - American Society of Anesthesiology score (ASA); SSO - surgical site occurrence e.g. seroma, hematoma; SSO-PI - SSO requiring a Procedural Intervention; LOS - hospital length of stay. *p* -values were calculated using t-test with Holm-Sidak correction for discrete values and Chi-square for binary values. *-designates statistical significance.

The study included 45 obese patients subdivided into two groups with mean BMI 41.2±0.5 kg/m^2 (n=38) and 57.2±2.7 kg/m^2 (n=7). Both groups had comparable ASA (2.8±0.1 and 3.0±0; respectively), hernia defect size (53.6±9.2 and 58.4±20.3 cm^2), repair approaches and operative times (153.6±14.1 and 140.9±21.1 min).

RESULTS

There were comparable SSO rates (16% and 14%). Only one SSO, in the form of a rectus sheath hematoma in patient with concomitant ileostomy takedown, required takeback for washout on post-op day 1; same patient required a drain placement to evacuate abscess in the same space days later. Patients with BMI >50 tended to stay longer to regain mobility 2.2±0.4 days (vs 0.8±0.2 days for BMI 35-50 group). One patient with BMI of 40 was readmitted with acute renal failure in setting of diarrhea and colitis. There was no hernia recurrence within 30 days post VHR in either group.

CONCLUSIONS

Robot-assisted ventral hernia repair in obese patients is feasible and has a lower SSO rate compared to open VHR. Long term recurrence data needs to be further studied in this population to practice a holistic approach to obese patients with ventral hernias.