Robotic vs. Laparoscopic Hiatal Hernia Repair: A Year in Review

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Introduction

Hiatal hernias (HH) have long been repaired laparoscopically with excellent outcomes. The purported value of robotic surgery in HH repairs has been more realized for its three-dimensional view, better access to the mediastinum and wide range of motions. Studies have not been able to demonstrate a clear benefit of one approach over the other.

Our primary outcome included post-operative symptom resolution following laparoscopic (LHR) and robotic (RHR) repair at a single quaternary academic center over one year.

Secondary outcomes included peri-operative complications, operative time, hospital length of stay (LOS), recurrence, and re-admission.

Methods

We performed a retrospective review of patients who underwent LHR or RHR from January 1, 2022 to December 31, 2022. Inclusion criteria included patients with symptomatic HH. Patients younger than 18, emergent repair, and recurrent repair were excluded. 101 patients met criteria, 59 with LHR and 42 with RHR. 51 patients had a type 1 HH, 45 had a type 3 paraesophageal hernia (PEH), and 1 had a type 4 PEH. Post-op symptoms were obtained via 14-point questionnaire at patients' 2-week follow-up visit. Outcomes were entered into a generalized linear model.

Results

Outcomes	LHR (mean)	RHR (mean)	OR [95% CI]	p
LOS	1.43±.97	1.21±.61	2.22 [.98-6.17]	0.096
Post-op symptom count	0.847±1.01	0.64±0.85	0.57[0.28-1.02]	0.083
Procedure length (min)	121±62.1	103±36.5	0.99[.09+1.00]	0.092

Outcomes	LHR (mean)	RHR (mean)	OR [95% CI]	p
30 days readmission	1.7%	5%	3.74 [0.20-104.5]	0.365
Intra-op complications	7.2%	2.3%	0.16 [0.01-1.55]	0.168
Post-op complications	3.5%	5%	1.29 [0.09-19.53]	0.847
HH recurrence	5.3%	2.4%	0.09 [0.00-1.36]	0.120

Results

At our institution, we found no significant difference in outcomes between laparoscopic and robotic HH repair.

Self-reported post-op symptom improvement, decreased operative time, and shorter hospital LOS trended favoring RHR without reaching statistical significance.

Conversely, post-op complication rate and 30 days readmission favored LHR.

Discussion

Our study ultimately supports the use of both minimally invasive platforms as preferred by the operating surgeon. The unclear statistical variance may be due different levels of robotic experience of our surgeons and early adoption of robotic hiatal hernia repairs in our department. Furthermore, our sample sizes were mismatched, which could have affected our statistical outcomes.

A larger sample group with a longer follow up series may demonstrate more statistical significance to our trends.