MAGNETIC-ASSISTED SINGLE-SURGEON ROBOTIC LAPAROSCOPIC SURGERIES USING MARS

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INTRODUCTION

- Magnetic-Assisted Robotic Surgery (MARS) is a novel platform designed to increase the benefits of minimally invasive surgery for patients, while enhancing surgeon control and visualization
- This technology allows the surgeon full control of the instruments, eliminating the need for an assistant
- Previous studies have shown promising results in various laparoscopic surgeries, such as cholecystectomy, bariatric, and renal procedures.

OBJECTIVE

- To evaluate the feasibility and efficacy of MARS when used by a single surgeon during reduced-port laparoscopic surgery.

METHODS

- A retrospective, single-center study with local IRP approval was conducted using electronic medical records from 59 patients who underwent reduced-port laparoscopic surgery assisted by MARS from February 2024 to August 2024
- All procedures were performed by a single surgeon
- Outcomes: surgical time, 30-day postoperative complications, hospital readmission rates, and deviations from hospital protocol
- Continuous data were expressed as the mean and standard deviation for normally distributed data, or as the median and range for non-normally distributed data and categorical variables were reported as frequencies and percentages.

RESULTS

- Fifty-nine patients were included in this analysis. The cohort included 53 females and 6 males, with a mean age of 46.6 years (SD = 13.5).

Table 1. Outcomes disaggregated by surgery

Variable	Laparoscopic Cholecystectomy (n =51)	Laparoscopic Cholecystectomy + hernia repair (n =1)	Laparoscopic gynecologic procedures (n=7)
Operative time (min), median (range)	47.0 (27.0- 95.0)	90.0 (90.0- 90.0)	79.0 (45.0 – 120.0)
30-day postoperative complications (%)	0	0	0
30-day hospital readmissions (%)	0	0	0
Deviation from hospital protocol (%)	0	0	0
Reduced port technique (%)	100	100	100

CONCLUSION

- This study shows that the MARS system is feasible, safe, and effective when used by a single surgeon in reduced-port robotic laparoscopic procedures. These results confirm previous findings on the efficacy, safety, and feasibility of MARS in robotic laparoscopic procedures, while also providing new insights into its use in inguinal hernia repair and laparoscopic gynecologic procedures.



