Robotic SP General Surgery Experience in Single Center Institution

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BACKGROUND:

Single-port robotic surgery marks a significant advancement in minimally invasive techniques, offering notable advantages over traditional multi-port single site robotic and laparoscopic single-port approaches.
The da Vinci SP robotic surgical system was specifically developed to address the challenges of single-incision laparoscopic surgery. In this study, we aim to share our initial experience with robotic single-port surgeries using the da Vinci® SP system across a range of general surgical procedures.

METHODS:

A retrospective series of robotic single-port (SP) transabdominal procedures was analyzed, including Trans abdominal pre-peritoneal inguinal hernia repair, cholecystectomy, appendectomy, sleeve gastrectomy, Nissen fundoplication, gastric resection, Iliopsoas lipoma resection, ventral hernia repair, liver cyst resection, and hiatal hernia repair, all performed using the Da Vinci SP robotic platform.
The primary endpoints were safety and feasibility, defined by the need for conversion and the incidence of perioperative complications. The study period extended from July 2019 to February 2025

Surgical access time	4.7 min
Mean BMI	34
System docking time	2.5 min

RESULTS:

During the period of the study, 478 patients underwent robotic single port surgery. The majority of the cases represent single port robotic cholecystectomies (n=300), followed by inguinal hernia repair (n=156) and other procedures (n=22). All the procedures took place in the main OR of UI Health (n=407) as well as the Specialty Care Building Outpatient Facility located in the same institution (n=71). The complications rate represented 3.9% (n=19).
A total of 8 cases presented incisional hernia after the index surgery (1.6 %), noted in up to 487 days (mean) follow up.

Incisional hernia rate Pin-Q questionnaire	0.6% (3/478)
Mean Follow up (months)	16.8 (2-57)
Port incisional hernia	1.6% (8/478)
Umbilical hernia at the time of surgery	3
Previous umbilical hernia repair	2

Procedure	n=478
Cholecystectomy	300
Inguinal hernia	156
Hiatal hernia	7
Sleeve gastrectomy	6
Appendectomy	3
Ventral hernia	2
Ileopsoas lipoma	1
Partial gastrectomy	1
Incisional hernia	1
Hepatic cyst	1

CONCLUSION

Robotic single port platform is a safe and feasible approach with good future potentials for most general surgery procedures and more evidence is needed.

	Cholecystectomy operative time	Inguinal hernia operative time
Docking time	2.4 min	2.4 min
Console time	18 min	34.6 min Unilateral: 31.9 min Bilateral 50 min

Conversion	0
Accessory port	0
Morbidity	19/478 (3.9%)
Mortality	0





