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INTRODUCTION:

Robotic technology has significantly improved minimally invasive surgery, offering potential benefits over open and laparoscopic methods. The DaVinci™ system held a monopoly for two decades, but with patent expiration, affordable alternatives like SSI Mantra™, Versius, Hugo, and others have emerged.

Developed by SS Innovations, the SSI Mantra™ 2.0 has the advantages of having a modular design and open console. Further, there is a potential for making Robotic surgery cost effective than other platforms. After initial trials and refinements, SSI Mantra™ received ISO and CDSO approvals, for use in India.

While well-established in Urology, robotic GI surgery is still growing. This series presents our experience with first 100 cases by a single surgeon using SSI Mantra™ 2.0 at Kaizen Hospital, Ahmedabad, India

AIM

To share a single surgeon's initial experience of 100 cases of GI Surgery with the indigenous, newly developed modular open console robotic platform, The SSI Mantra™ 2.0

METHOD

Prospective data collection done of initial 100 cases from June 2024 up to march 2025 & included in this study, at kaizen Hospital, GI specialty clinic in Ahmedabad, India.

The 100 surgeries covered almost entire GI system and were as follows:

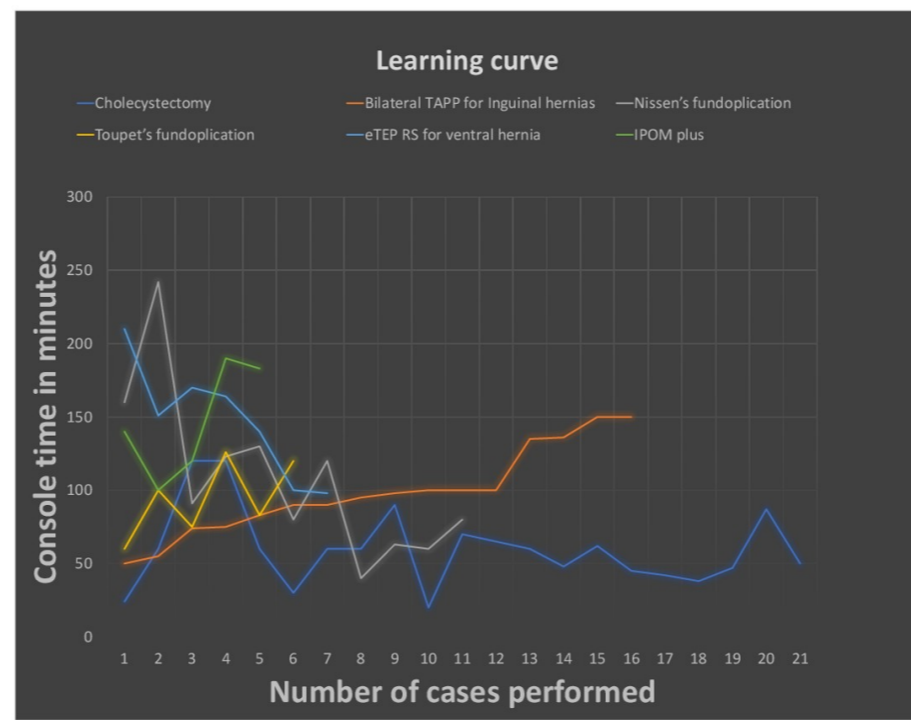
Upper GI (23)	HPB (31)	Colorectal (09)	Hernia (33)	Misc. (04)
Fundoplication (17) [Nissen's- 11; Toupet's- 6]	Cholecystectomy (21) Whipple's (3)	Abdomino-perineal resection (2) Anterior Resection (1) Rectopexy (2)	TAPP Inguinal hernia (20) (Bilateral- 16, Unilateral- 2, Umbilical-1, Parastomal-1)	Mesenteric cyst excision (1) Splenic cyst excision (1)
Sleeve gastrectomy (3)	CBD exploration (2) LPJ (2)	Hemicolectomy (Right-2, left- 1)	eTEP RS ventral hernia (7) IPOM plus (5) eTEP inguinal hernia (1)	Median arcuate ligament release (1) Splenectomy (1)
Esophagectomy (1) Gastrectomy (1) Cardiomyotomy (1)	Cysto-gastrostomy (1) Posterior RAMPS (1) Hydatid cyst (1)			

time, intraoperative events, postoperative morbidity and mortality for each procedure were documented.



RESULTS

- **Total Cases Analysed:** 100
- **Conversions:** 6 cases were converted to laparoscopy and 2 to open, none due to system failure or technical issues, but were due to disease factors.
- **Complications:** Surgical site infections was seen in 2 cases (graded using South Hampton SSI score).
- **Morbidity:** 6 cases (graded with Clavien-Dindo classification), and there were 2 mortalities.
- **Technical Issues:** There were total 6 incidents, out of which 4 were minor and 2 were major. Troubleshooting was readily done without compromising the patient safety or leading to conversions. But it increased the total OR time.



Surgery	No. of cases	Docking time (min)	Console time(min)	OR time (min)
Cholecystectomy	21	2-10 (5.7)	20-120 (62.3)	70-270 (120.9)
Bilateral TAPP for Inguinal hernias	16	3-12 (6.3)	50-150 (98.8)	120- 390 (191.3)
Nissen's fundoplication	11	2-13 (6.2)	40-242 (119.0)	121-360 (212.2)
Toupet's fundoplication	6	2-8 (5.3)	60-126 (109.5)	120-210 (180.8)
eTEP RS for ventral hernia	7	3-9 (6.3)	100-200 (119.5)	180-330 (233.3)
IPOM plus	5	2-5 (6.0)	60-210 (131.5)	200-330 (214.5)

CONCLUSIONS

Robotic surgery is rapidly emerging as a transformative modality in the management of gastrointestinal disorders, offering enhanced precision and dexterity. The SSI Mantra™, a novel indigenous robotic platform, has demonstrated encouraging results in the early phases of adoption, particularly by significantly shortening the learning curve for surgeons with prior experience in advanced laparoscopic procedures. Notably, technical failures with this platform are minimal and appear to have no discernible impact on clinical outcomes. Furthermore, complex and technically demanding maneuvers that often pose challenges in conventional laparoscopy can be executed with remarkable ease and efficiency through robotic assistance, reinforcing its potential to redefine the surgical landscape.

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