Emergency General Surgery: Robotic vs Laparoscopic Outcomes in a Community Setting

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Introduction

- Evidence guiding operative approach for emergency general surgery (EGS) remains limited outside tertiary centers.
- While robotics is increasingly used for elective cases, its role in emergencies such as hernia repair, acute cholecystitis, and bowel obstruction or perforation remains poorly defined.
- We evaluated short-term outcomes of emergency robotic versus laparoscopic approaches in a community setting.

Methods

- A retrospective cohort (2023–2025) at a single community hospital included patients undergoing emergent repair for incarcerated/obstructed/strangulated hernia, urgent cholecystectomy, or small bowel/colon resection.
- Robotic cases were matched with laparoscopic comparators.
- Outcomes included LOS, EBL, 24-hour opioid use, time to diet/ambulation, readmission, recurrence, and ileus.

Results

- In the hernia cohort (Robotic n=11; Laparoscopic n=11), robotic repair demonstrated a shorter LOS (3.0 vs 3.5 days, $p<0.05$), lower readmission (10% vs 30%, $p<0.05$), and no recurrences compared with 2% in laparoscopic ($p=0.02$), with consistently lower opioid requirements.
- Median EBL was reduced in robotic cases (5 mL vs 25 mL in laparoscopic $p<0.05$). In the gallbladder cohort (n=74; 90% acute cholecystitis, 2% incidental adenocarcinoma, remainder chronic cholecystitis),
- LOS was comparable between robotic and laparoscopic approaches (2.1 vs 2.4 days, $p=0.08$), but robotic patients required significantly fewer opioids (median 20 vs 35 MME, $p<0.05$).
- In the colon/small bowel cohort (n=5; three perforated sigmoid diverticulitis with sigmoidectomy and primary anastomosis, two adhesive small bowel obstruction requiring resection) and anastomosis), robotic resections showed shorter LOS (5.0 vs 6.2 days, $p<0.05$), fewer readmissions (10% vs 30%, $p<0.05$), and a lower incidence of ileus (10% vs 30%, $p=0.05$)

Figure

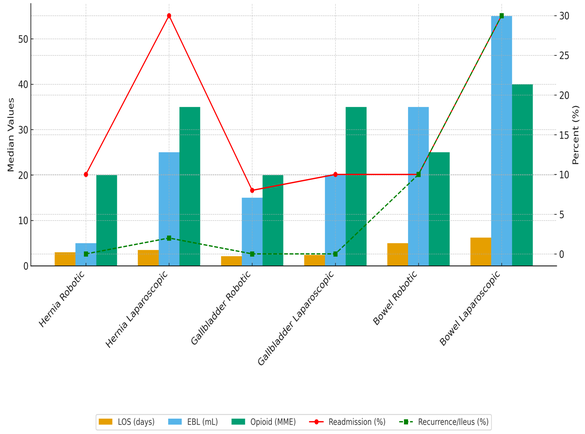

Figure 1: Composite Robotic EGS Outcomes

Conclusion and Future Directions

- Robotic emergency hernia, gallbladder, and colon/small bowel operations are feasible in a community setting, with outcomes at least comparable to laparoscopy and signals for reduced LOS, opioid use, readmissions, and blood loss at the compromise of increase anesthesia time.
- Importantly, most robotic cases were performed outside routine working hours, underscoring feasibility and adaptability in true emergencies.
- These findings support the safe use of robotics in EGS in community hospitals and highlight the need for multicenter studies to validate potential advantages