

Introduction

- Robotic cholecystectomies (CCY) represent a growing number of CCY.
- Increasing need for complex elective cholecystectomy (CEC): CCY after prior percutaneous cholecystostomy tube placement, aborted prior CCY, or in the setting of known severe inflammation.
- While robotic surgery has been studied in standard CCY, without demonstrated benefits in cost or complications, this has not been compared for the subgroup of CEC.

Methods

- Single-center retrospective cohort study (2018-2024) of adults undergoing robotic (R-CEC) or laparoscopic (L-CEC) complex elective cholecystectomy by a hepatobiliary surgeon
- **Primary outcome:** Unplanned additional procedure (endoscopic or percutaneous) due to complication from cholecystectomy.

	L-CEC (n=168)	R-CEC (n=62)	p value
Required subtotal cholecystectomy	78 (46.4%)	30 (48.4%)	0.88
Use of Fluorescent cholangiography	37 (22.8%)	55 (88.7%)	<0.01
Conversion to open	23 (13.7%)	0 (0%)	<0.01
EBL	57.2 (80.9)	25.2 (24.7)	<0.01
OR time	130.9 (62.2)	112 (35.4)	0.05
LOS	2.1 (5.9)	1.4 (1.6)	0.15
Any complication	48 (28.6%)	9 (14.5%)	0.04
Readmission	21 (12.5%)	5 (8.1%)	0.48
Unplanned Endoscopic or Percutaneous Procedure	30 (17.9%)	3 (4.8%)	0.01
ERCP	27 (16.1%)	2 (3.2%)	
IR drain	9 (5.4%)	1 (1.6%)	

Results

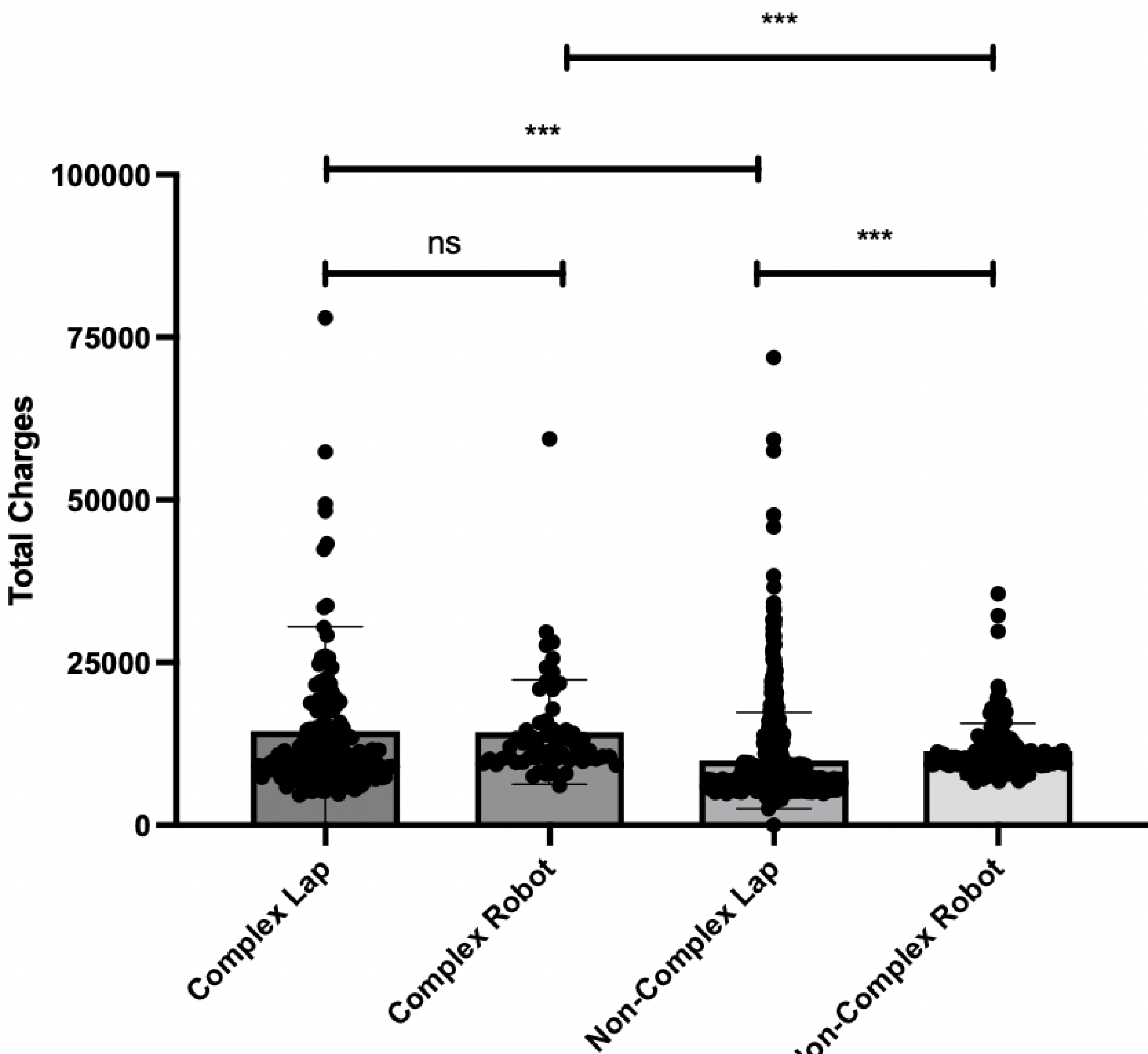


Figure 1: Comparison of Total Hospital Charges for Laparoscopic and Robotic CEC and non-CEC Cholecystectomies

Conclusions

- For CEC, robotic approach reduces unplanned interventions, complications, conversion, and EBL.
- Total hospital costs are comparable once postoperative resource utilization is considered.
- These findings support a role for robotic cholecystectomy in CEC with equivalent total cost and improved clinical outcomes.