Characterizing the Risk Factors for Conversion to Laparoscopic Subtotal Cholecystectomy on Humanitarian Assistance Missions

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INTRODUCTION

The USNS COMFORT Deployment 2019 conducted surgical missions in 12 countries over 5 months. Each mission performed was approximately six days of operating. The bulk of elective operationg performed were intended as outpatient surgeries, of which laparoscopic cholecystectomy is a common procedure.

We sought to identify patient factors that were predictive of previously unrecognized chronic gallbladder disease to assist surgeons in operative decision making and resource management during a short-term surgical mission.

Specifically, we look at preoperative and intraoperative findings that are predictive of need to convert to subtotal

METHODS

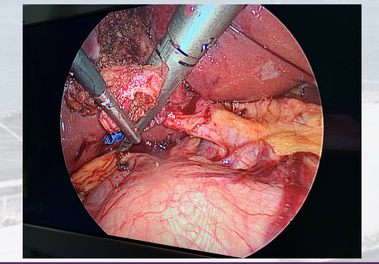
- All patients undergoing a laparoscopic cholecystectomy during USNS COMFORT Deployment 2019 were included in analysis. Data collected included patient demographics, PMH/PSH, laboratory values, and preoperative imaging results if available. Intraoperative evaluation of the difficulty of dissection was also performed using a standard scoring system (2018 Tokyo Guidelines)[1].
- The standardized scoring system evaluated the appearance and noted abnormalities around the gallbladder, Calot's triangle, gallbladder fossa and in the surrounding area. Difficulty associated with each of the findings was assigned a point value of 1-6.

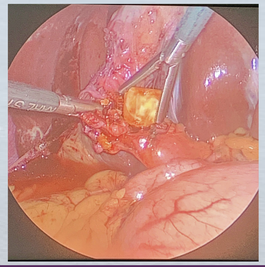
DATA

	All	Laparoscopic Cholecystectomy	Subtotal Cholecystectomy	P-Value
Demographics	N=87	N=83	N=4	
Female Sex	84 (96.5%)	79 (95.2%)	4 (100%)	1
Age (years)	37	37	40	0.59
Duration of symptoms (months)	29	28	29	0.97
Presently in Pain	5 (5.7%s)	5 (6.0%)	0	1
PMH/PSH				
Previous abdominal surgery	46 (55.4%)	43 (51.8%)	3 (75%)	0.62
Diabetes	4 (4.6%)	4 (4.8%)	0	1
Obesity (BMI>35)	19 (21.8%)	18 (21.7%)	1 (25%)	1
H/o gastritis	8 (9.2%)	8 (9.6%)	0	1
H/o pancreatitis	3 (3.4%)	3 (3.6%)	0	1
Operative Characteristics				
Planned Intraoperative Cholangiogram	4 (4.6%)	4 (4.8%)	0	1
Unplanned IOC	2 (2.3%)	2 (2.4%)	0	1
Operative Time (minutes)	46	45	78	*<0.01*
Difficulty Scoring (Tokyo Criteria)				
Total difficulty score	5.6	5.1	16	*<0.01*
Highest single score	2.4	2.3	4.8	*<0.01*

RESULTS

- 87 patients were included in analysis, of which 4 underwent subtotal cholecystectomy.
- No preoperatively identifiable criteria were predictive of increased risk of conversion to subtotal cholecystectomy.
- Increased total difficulty score and the highest difficulty score were both predictive of increased risk of conversion to subtotal cholecystectomy. The single most predictive factor was diffuse scarring in Calot's triangle.





CONCLUSION

- Age, gender, BMI, and length of symptoms are not reliable predictors of disease severity on humanitarian assistance missions.
- Intraoperative evaluation of severity, using a standardized scoring system, may help surgeons identify cases in which subtotal cholecystectomy may be necessary.

1. Wakabayashi, G et al. (2018). Tokyo Guidelines 2018: surgical management of acute cholecystitis: safe steps in laparoscopic cholecystectomy for acute cholecystitis (with videos). *Journal of hepato-biliary-pancreatic sciences*, *25*(1), 73–86. https://doi.org/10.1002/jhbp.517.

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