NewYork-Presbyterian Queens

# Does Gallbladder Empyema Tip the Scale? Bile Leak Risk After Subtotal Cholecystectomy

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Alyssa Greenwood Francis, MD, MPH, Victoria Ende, MD, Gabriela Dincheva, DO, William Davis, MD, Amber Chen-Goodspeed, MD, Julie Hong, MD, Veronica Layrisse-Landeta, MD, Jason Sample, MD, Miroslav Kopp, DO

Department of Surgery, New York-Presbyterian Queens, Flushing, NY

## Introduction

Gallbladder (GB) empyema occurs in 5-15% of acute cholecystitis cases due to progressive inflammation and bile stasis secondary to cystic duct obstruction.

**Hypothesis:** GB empyema is associated with lower risk of bile leak following subtotal cholecystectomy

## Methods

**Type of study:** Retrospective chart review of single hospital system data

**Inclusion criteria**

- Adult patients (≥18 years)
- Subtotal cholecystectomy
- January 2018 to December 2023

**Primary outcome**

- Postoperative bile leak

**Secondary outcomes**

- ERCP, IR drainage, ICU admission, operative time, length of stay

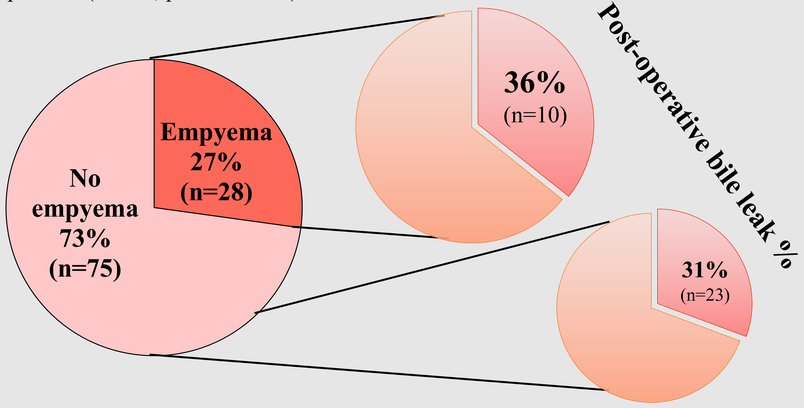
## Results

**Table:** Patient characteristics for those undergoing subtotal cholecystectomy (n=103)

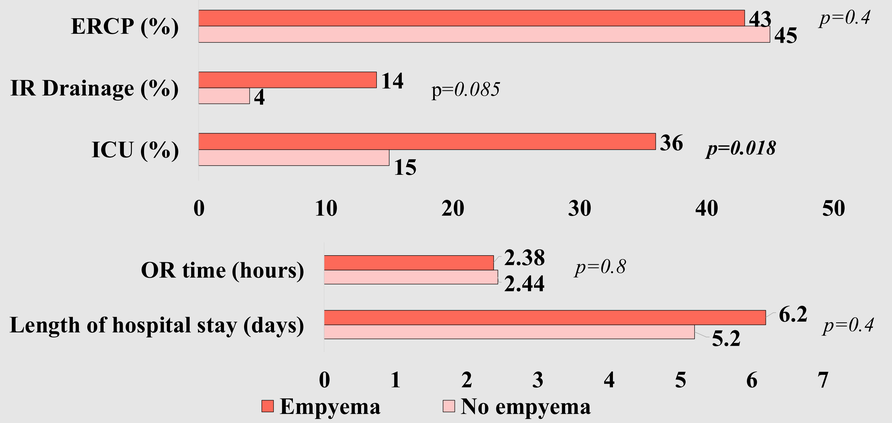
| | Empyema (n=28) | No empyema (n=75) | p-value[1] |
|---|---|---|---|
| **Age, mean (SD)** | 64 (14) | 61 (15) | 0.2 |
| **Male gender, n (%)** | 21 (75) | 50 (67) | 0.4 |
| **BMI, mean (SD)** | 28.7 (6) | 26.8 (5.8) | 0.11 |
| **Functionally independent, n (%)** | 24 (86) | 72 (96) | **0.005** |
| **Tokyo grade ≥ 2, n (%)** | 25 (89) | 41 (55) | **0.003** |
| **Sepsis, n (%)** | 13 (46) | 13 (17) | **0.003** |

[1]**p-value ≤ 0.05:** Wilcoxon rank sum test, Pearson's Chi-squared test, Fisher's exact test

**Graph 1.** Gallbladder empyema and bile leak amongst subtotal cholecystectomy patients (n=103, p-value = 0.6)




**Graph 2:** Perioperative events for subtotal cholecystectomy patients stratified by presence of empyema (n=103)




## Discussion

- Patients with GB empyema had similar bile leak rates as compared to non-empyema patients.
- Subtotal cholecystectomy remains a safe "bail out" maneuver for GB empyema with similar outcomes (OR time, ERCP).
- GB empyema patients are more likely to be functionally dependent, present with sepsis, and have >> severity of illness. Close post-operative monitoring should be considered for this high-risk population as they were 2.4x more likely to require ICU admission without GB empyema.