

BRIEF Outline of Management of Symptomatic Gallbladder Disease and Acute Cholecystitis During the COVID -19 Pan Epidemic

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Summary of Goals of Management

1. Provide the best surgical care possible for non coronavirus patients with gallbladder disease.
2. Limit exposure of all patients to the corona virus.
3. Limit exposure of healthcare workers to the corona virus.
4. Preserve resources to care for coronavirus patients.

Recommendations are arrived at by balancing goal 1 against goals 2-4 and lead to 2 types of recommendations.

Overall hospital resources including personnel, supplies, and facilities, will be described in a gross simplification as “ample” or “scarce”.

RECOMMENDATION 1 (OPERATION) Performance of surgery is still recommended taking into account the severity of the gallbladder disease, other patient factors, and the availability and resources.

RECOMMENDATION 2 (NO OPERATION) Performance of surgery is NOT recommended taking into account the severity of the gallbladder disease, other patients factors, and the availability of resources.

These recommendations must be considered to constitute a “WEAK” guideline since there is virtually no data on COVID-19 and surgery and as found and recent consensus Conference STRONG recommendations cannot even be made in the absence of other factors such as COVID-19 pandemic. (see www.preventbdi.org)

Management Of Symptomatic Gallbladder Disease And Acute Cholecystitis During The Coronavirus Pandemic.

Symptomatic Gallbladder disease **WITHOUT** Acute Cholecystitis.

Patients with mild biliary colic. Generally referred to surgeon by PCP. Diagnosis by confirming that biliary colic is a symptom and that gallstones are present in the gallbladder. Normally this problem is an indication for short interval **elective cholecystectomy**. At present elective surgery is canceled. These patients should be placed on a gallbladder suppression diet, which reduces fat content and gastric distension. These reduce gallbladder contraction. See [English](#) and [Spanish](#) (Mexican) versions.

RECOMMENDATION 2 (NO OPERATION) Patients with biliary dyskinesia will also fall into this category.

Patients with severe biliary colic Generally seen in ER. Ultrasound examination shows gallstones without evidence of acute cholecystitis. Nor are there significant systemic signs of inflammation. There is a spectrum of severity in this group of patients.

At the mild end of the spectrum are patients having 1st attack of pain and whose pain is readily controlled or disappears spontaneously in the ER. Such patients would normally undergo elective cholecystectomy promptly after the ER visit but might be tried on a on GB suppression diet. The decision will be heavily based on circumstances related to Coronavirus. RECOMMENDATION 1 (OPERATION) when resources are ample and RECOMMENDATION 2 (NO OPERATION) when they are scarce.

At the severe end of the spectrum are patients who are having recurrent attacks of biliary colic at short intervals or in some cases constant pain. Cholecystectomy in such patients is no longer elective and should be advised during the COVID-19 pandemic if at all possible ie hospital not overwhelmed - RECOMMENDATION 1 (OPERATION). In the event that resources do not allow performance of cholecystectomy in this group of patients gallbladder suppression diet should be attempted.

There also will be patients in the middle of the spectrum. Either cholecystectomy or dietary control may be indicated depending upon the local circumstances in regard to the COVID-19 and available resources.

Acute Cholecystitis

Diagnosis: The Tokyo Guidelines (TG) established the first standard diagnostic criteria for AC consisting of one symptom, one sign, and a confirming radiologic finding ([attachment](#)). AC is an indication for cholecystectomy (1). See also severity grading ([attachment](#))

Risk of bile duct injury The rate of bile duct injury is doubled when operations are performed in patients who have moderate acute cholecystitis. They are not increased in operations are performed in patients with mild acute cholecystitis (1).

Timing of Surgery A key question in AC is when to operate and the most important outcome measure is bile duct injury. Early operation and delayed cholecystectomy have been used.

Mild Acute Cholecystitis Mild acute cholecystitis (WBC count <18K, AND time from onset < 72hr AND no RUQ mass, evidence of abscess or gangrene or systemic organ failure) Cholecystectomy is not associated with an increase in bile duct injuries in this group and it has the advantages of decreased overall length of stay and fewer complications. While immediate use of operating room resource are increased with early surgery, non operative treatment normally requires several days in hospital and some patients return with symptoms before the delayed elective cholecystectomy can be done. Therefore, it is not clear that fewer resources are used with non operative treatment in the 1st month after presentation.

Under normal circumstances early cholecystectomy is advisable if patient is operative candidate. However non operative treatment (antibiotics/ diet) is usually successful with interval cholecystectomy at 3 months. This is a close call. RECOMMENDATION 1 (OPERATION) when resources are ample and RECOMMENDATION 2 (NO OPERATION) when they are scarce. Failure of control treated by

percutaneous cholecystostomy . Elderly patients, frail patients and others who are not operative candidates treated by diet and/or percutaneous cholecystostomy.

Moderate Acute Cholecystitis (WBC count $\geq 18K$, OR time from onset $> 72hr$ OR RUQ mass OR evidence of abscess or gangrene AND no systemic organ failure) A definitive recommendation in regard to early versus delayed cholecystectomy in moderate acute cholecystitis cannot be made even in normal times without further population studies so how does one go about deciding about timing during the pandemic?

Factors include disease severity, and the fitness of patients for an operation under general anesthetic with a possible duration of 2-3 hours and with a low but real chance for open surgery. Tokyo Guidelines emphasize importance of the experience of the surgical team and the site facilities such as availability of ICU and non surgical specialist care. As site facilities have increased importance in this stage of the disease, gallbladder suppression diet, antibiotics and percutaneous cholecystostomy for treatment failure are recommended for all except hospitals not affected by or minimally affected by Coronavirus
RECOMMENDATION 2 (NO OPERATION)

Severe acute cholecystitis Such patients have organ system failure and normally require intensive care. After resuscitation usually in an ICU these patients usually have percutaneous cholecystostomy for source control. Recent studies have pointed out that some patients who have acute renal or cardiovascular organ system failure due to acute cholecystitis but who normally have a unimpaired renal and cardiovascular systems can undergo fluid resuscitation and have early cholecystectomy. However in pandemic circumstances RECOMMENDATION 2 (NO OPERATION) is advised

1. Törnqvist B Waage A, Zheng Z, Ye W, Nilsson M. Severity of Acute Cholecystitis and Risk of Iatrogenic Bile Duct Injury During Cholecystectomy, a Population-Based Case-Control Study. Severity of Acute Cholecystitis and Risk of Iatrogenic Bile Duct Injury During Cholecystectomy, a Population-Based Case-Control Study. World J Surg. 2016;40:1060-7.