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ACUTE CHOLECYSTITIS AND GALLBLADDER DISEASE DURING THE COVID-19 PANDEMIC: MANAGEMENT GUIDELINES

Guiding Principles and Summary of Goals of Management[1]

- Provide the best possible and timely surgical care for all patients with Gallbladder Disease
- Limit exposure of all patients and healthcare workers to the coronavirus
- Properly allot and preserve resources to the care for coronavirus patients

General Considerations [2,4]

Symptomatic Cholelithiasis

- Pain management for patients with symptomatic cholelithiasis and chronic cholecystitis

- Surgery should be delayed and performed electively

- For patients with progressive symptoms and with pain refractory to medical management, consider laparoscopic cholecystectomy.

Choledocholithiasis

- choledocholithiasis without signs of cholangitis may be observed and managed expectantly
- For those with larger stones and those who fail to spontaneously pass their stone, an ERCP with sphincterotomy may be done, followed by elective cholecystectomy.
- Note that appropriate precautions should be taken for ERCP in patients with COVID-19 infection as it should be considered an aerosolizing procedure.

Cholangitis

- Patients with ascending cholangitis often respond to broad spectrum antibiotics and appropriate resuscitation.
- For patients that fail to clinically improve and those with sepsis, ERCP and sphincterotomy are indicated.

- For concomitant cholecystitis, percutaneous cholecystostomy may be appropriate.
- Note that appropriate precautions should be taken for ERCP in patients with COVID-19 infection as it should be considered an aerosolizing procedure.
- Cholecystectomy should be performed in a delayed fashion.

Table 1 Examples of surgical case types stratified by indication and urgency

Indication	Urgency	Case examples
Emergent	< 1 h	• Life-threating emergencies • Acute exsanguination / hemorrhagic shock • Trauma level 1 activations • Acute vascular injury or occlusion • Aortic dissection • Emergency C-section • Acute compartment syndrome • Necrotizing fasciitis • Peritonitis • Bowel obstruction / perforation
Urgent	< 24 h	• Appendicitis / cholecystitis • Septic arthritis • Open fractures • Bleeding pelvic fractures • Femur shaft fractures & hip fractures • Acute nerve injuries / spinal cord injuries • Surgical infections
Urgent-elective	< 2 weeks	• Cardiothoracic / cardiovascular procedures • Cerebral aneurysm repair • Vascular access devices • Skin grafts / flaps / wound closures • Scheduled C-section • Closed fractures • Spinal fractures & acetabular fractures
Elective (essential)	1–3 months	• Cancer surgery & biopsies • Subacute cardiac valve procedures • Hernia repair • Hysterectomy • Reconstructive surgery
Elective (discretionary)	> 3 months	• Cosmetic surgery • Bariatric surgery • Joint replacement • Sports surgery • Vasectomy / tubal ligation • Infertility procedures

Acute Cholecystitis

- Healthy and low risk patients with acute cholecystitis should undergo laparoscopic cholecystectomy to minimize hospital stay. Table 1 shows that Cholecystitis is considered an urgent case and decision on surgical management should be done in < 24hrs[4].
- For elderly and high risk patients, or an operating room is not available, or resources are scarce, consider IV antibiotics.
- Patients who fail to clinically improve on antibiotics, and those with signs of sepsis should undergo percutaneous cholecystostomy in addition to the administration of IV antibiotics.

Management Of Symptomatic Gallbladder Disease And Acute Cholecystitis During The Coronavirus Pandemic [3]

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.

I. Symptomatic Gallbladder disease WITHOUT Acute Cholecystitis

A. Patients with mild biliary colic. Patients with biliary dyskinesia will also fall into this category. These patients should be placed on a gallbladder suppression diet (low fat, low cholesterol). ***RECOMMENDATION 2 (NO OPERATION)***

B. Patients with severe biliary colic. Generally seen in ER. Ultrasound examination shows gallstones without evidence of acute cholecystitis. There is a spectrum of severity in this group of patients.

1. Mild end of the spectrum. These are patients having 1st attack of pain and whose pain is readily controlled or disappears spontaneously. ***RECOMMENDATION 1 (OPERATION) when resources are ample and RECOMMENDATION 2 (NO OPERATION) when they are scarce.***

2. Severe end of the spectrum. These are patients who are having recurrent attacks of biliary colic at short intervals or in some cases constant pain. ***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.

3. Middle of the spectrum. ***RECOMMENDATION 1 or RECOMMENDATION 2*** may be indicated depending upon the local circumstances in regard to the COVID-19 and available resources.

II. Acute Cholecystitis (AC)

Diagnosis: The Tokyo Guidelines (TG) established the first standard diagnostic criteria for AC.

A. Mild Acute Cholecystitis (WBC count <18K, AND time from onset < 72hr AND no RUQ mass, evidence of abscess or gangrene or systemic organ failure)

RECOMMENDATION 1 (OPERATION) when resources are ample and RECOMMENDATION 2 (NO OPERATION) when they are scarce.

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 in a pandemic. Therefore, RECOMMENDATION 1 (OPERATION) when resources are ample and RECOMMENDATION 2 (NO OPERATION) when they are scarce.

Elderly patients, frail patients and others who are not operative candidates treated by diet and/or percutaneous cholecystostomy[5].

B. Moderate Acute Cholecystitis (WBC count >18K, OR time from onset > 72hr OR RUQ mass OR evidence of abscess or gangrene AND no systemic organ failure)

RECOMMENDATION 2 (NO OPERATION)

In normal circumstances, a definitive recommendation is still a debate in regard to early versus delayed cholecystectomy in moderate acute cholecystitis. How does one go about deciding about timing during the pandemic?

Factors include severity of the disease 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

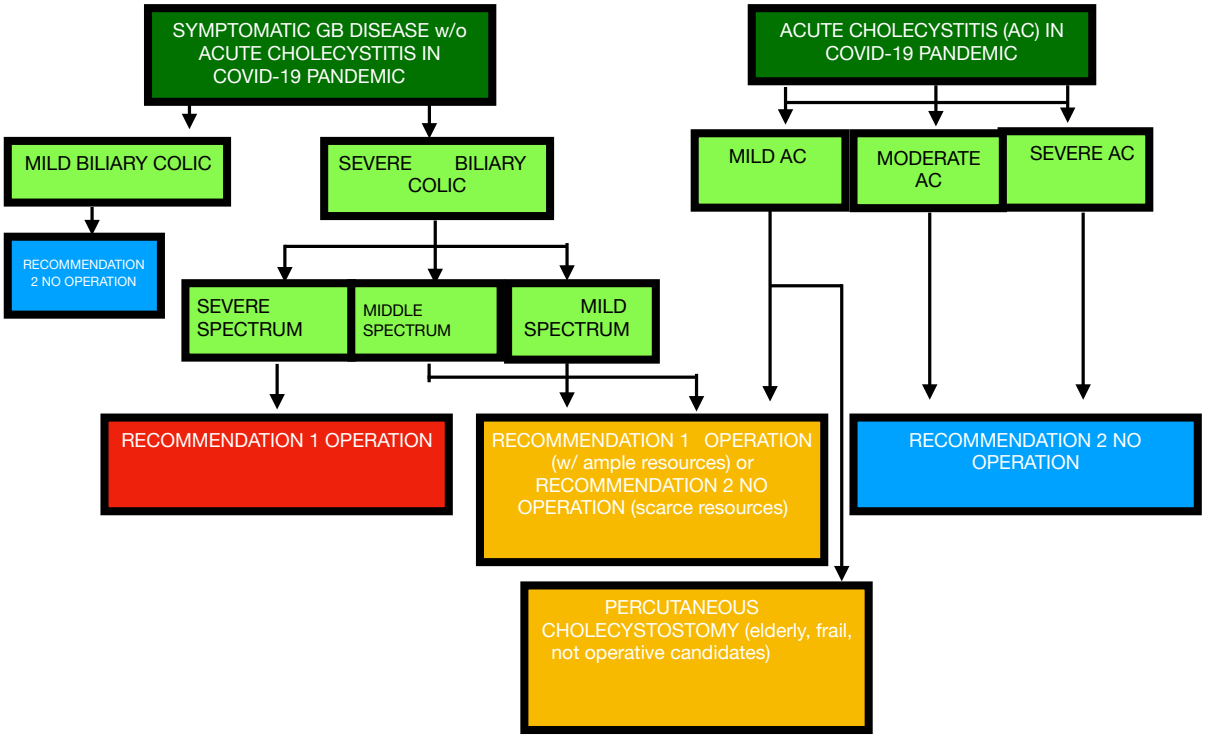

Figure 1. Algorithm for Symptomatic Gallbladder Disease and Acute Cholecystitis During Covid 19 Pandemic

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.

C. Severe acute cholecystitis. Such patients have organ system failure and normally require intensive care.

RECOMMENDATION 2 (NO OPERATION)

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.

SUMMARY

	NO OPERATION	OPERATION
Symptomatic Cholelithiasis	Pain mgt & delay Sx Ex. Mild biliary Colic	Lap Chole for pain refractory to medical mgt Ex. Severe biliary Colic
Choledocholithiasis with Cholangitis **Grade 1 - mild** **Grade 2 - Moderate** **Grade 3 - Severe**	Follow TG 18 management: Gr 1 - antibiotics & supportive care Gr 2 - antibiotics and early drainage Gr 3 - urgent biliary drainage with ERCP & sphincterotomy; and organ support	Delay surgery for cholecystectomy Surgery **only** if all measures were exhausted with no improvement and patient with a good chance to benefit from surgery.
Acute Cholecystitis	Percutaneous cholecystostomy for • High risk patients not candidate for surgery • Moderate Acute Cholecystits • Severe Acute Cholecystits	when hospital resources are ample, Cholecystectomy open or lap may be considered for Mild Cases

REFERENCES

1. *Teh, C. Et al. PAHPBS Recommendations in time of COVID-19 Pandemic. V1 March 21, 2020.*

2. *https://www.facs.org/covid-19/clinical-guidance/review-committee. COVID-19: Elective Case Triage Guidelines for Surgical Care. March 25, 2020.*

3. *Strasberg, S., Hughes, T. BRIEF Outline of Management of Symptomatic Gallbladder Disease and Acute Cholecystitis During the COVID -19 Pan Epidemic. 2020.*

4. *Stahel, P. How to risk-stratify elective surgery during the COVID-19 pandemic?. Patient Safety in Surgery. (2020) 14:8.* https://doi.org/10.1186/s13037-020-00235-9

5. *Gulaya, K et al. Percutaneous Cholecystostomy: Evidence-Based Current Clinical Practice. Semin Intervent Radiol 2016;33:291–296. DOI http://dx.doi.org/ 10.1055/s-0036-1592326. ISSN 0739-9529.*