



# Advances and controversies in the management of acute cholecystitis in high-risk, critically ill, and unfit-for-surgery patients: the Italian Society of Emergency Surgery and Trauma guidelines

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There is an ongoing debate about the therapeutic strategies for acute cholecystitis in high-risk, critically ill patients, and finding the optimal management option is a work in progress. In the recent study “Acute cholecystitis management in high-risk, critically ill, and unfit-for-surgery patients: the Italian Society of Emergency Surgery and Trauma (SICUT) guidelines”, Prof. Coccolini *et al.* summarize current knowledge on treating acute cholecystitis in high risk, critically ill, and unfit for surgery patients (1). The article encompasses topics such as patient stratification, risk factors, and outcomes of non-operative gallbladder drainage and advances the knowledge of the field by proposing specific management recommendations for these patient groups.

The paper utilized a rigorous literature review and meta-analysis, following PRISMA guidelines, incorporating evidence from the past two decades and including 63 studies. They derived fifteen statements using a modified Grading of Recommendations Assessment, Development, and Evaluation model, stratifying the level of evidence to provide clear recommendations.

The SICUT statements emphasize a multidisciplinary approach regarding the management and clinical

decision-making of patients who are unfit to undergo cholecystectomy for acute cholecystitis and have no concurrent evidence of gallbladder perforation or biliary peritonitis. Specifically, the statements focus on indications for gallbladder draining, including first- *vs.* second- *vs.* third-line procedures, and any follow-up treatment needed. Coccolini *et al.* highlight the use of percutaneous cholecystostomy (PT-GBD) as a first-line intervention for patients at high risk for surgery. PT-GBD is recommended when the risk-benefit ratio for surgery is unfavorable, and antibiotics alone do not control inflammation. Early PT-GBD placement can reduce post-procedure complications and avoid the need for general anesthesia, which is particularly beneficial for critically ill patients. Pursuing PT-GBD showed a reduction in 30-day mortality as compared with laparoscopic cholecystectomy which in this population had higher chances of surgical complications and conversion to open surgery. Endoscopic ultrasound-guided gallbladder drainage (EUS-GBD) is suggested as a second-line alternative, especially in patients who have contraindications to PT-GBD (those with alteration of coagulation and issues with direct gallbladder visualization on imaging). EUS-GBD may be indicated in the presence

of altered anatomy or cystic duct obstruction. Best results of EUS-GBD are achieved at high-volume medical centers with endoscopic expertise. Trans-papillary gallbladder drainage (TPA-GBD) is reserved as a last option for those unfit for other techniques and when common bile duct lithiasis is present and can be performed simultaneously with endoscopic retrograde cholangiopancreatography (ERCP). The SICUT guidelines also recommend delaying cholecystectomy until at least 6 weeks after initial drainage in patients who stabilize, to allow recovery from and medical control of the conditions that made them high-risk surgical candidates initially.

Many societies from around the world have previously proposed and published guideline recommendations for the management of acute cholecystitis in critically ill patients. The 2020 World Society for Emergency Surgery (WSES) guidelines advocated for early laparoscopic cholecystectomy whenever possible, even in high-risk patients (including elderly, cardiac disease, renal disease, and cirrhosis) (2-4). They recommended PT-GBD only for patients with sepsis or absolute contraindications to surgery (3). The 2018 American Association for the Surgery of Trauma (AAST) and the European Association for Endoscopic Surgery (EAES) guidelines recommended aggressive resuscitation, broad-spectrum antibiotics, and consideration of PT-GBD in those deemed unfit for immediate surgery (3,5,6). Similarly, the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) and the Tokyo 2018 guidelines recommended consideration of PT-GBD as a temporizing measure prior to definitive surgery (7,8). On the other hand, the Brazilian College of Digestive Surgery 2023 position was that if available in the hospital, the EUS-GBD should be preferred over PT-GBD due to lower complication rate (9).

However, despite these comprehensive guidelines, several unresolved issues regarding this topic are still present, including lack of data on the long-term outcomes of gallbladder drainage and guidelines for timing and transition to definitive surgery after gallbladder drainage.

The article by Coccolini *et al.*, elegantly addresses some of the existing issues and concerns and provides a new comprehensive resource and analysis on the usefulness of gallbladder drainage in patients unfit for surgical intervention under general anesthesia.

While the SICUT guidelines advocate for PT-GBD, EUS-GBD, or TPA-GBD, there is limited evidence and information on the long-term outcomes of these procedures in the critically ill and unfit for surgery population.

Further research should focus on the durability of these interventions, their impact on patients' quality of life, and rates of recurrence of cholecystitis especially in those who cannot proceed to definitive surgery. One of the SICUT recommendations suggests that after gallbladder drainage, patients should wait at least 6 weeks before cholecystectomy and or until a better control of the co-morbid conditions.

Currently, it is not completely elucidated how this transition to cholecystectomy following gallbladder drainage should be approached. Further study should be explored and include more detailed criteria for determining when a patient initially managed with PT-GBD or EUS-GBD can safely undergo elective cholecystectomy if at all including timelines, risk assessments, and monitoring protocols.

Overall, the SICUT guidelines make a valuable contribution to the management of acute cholecystitis in high-risk patients by addressing some of the gaps identified by previous consensus statements and providing evidence-based recommendations. It represents a significant advancement in the field, promoting less invasive procedures that prioritize patient safety and outcomes. These guidelines offer a comprehensive framework for clinicians, balancing the urgency of treating acute cholecystitis with the need to minimize surgical risks in vulnerable patients' populations.

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