

What Management Strategy for Acute Stone-Like Cholecystitis?

Ouahab Ilhem

Ferhat Abbas University. Sétif 1. Faculty of Medicine. Research laboratory "Laboratory of Investigation and Specialized Research in Health, Environment and Innovations" (LIRSSEI). General surgery department; Sétif University Hospital.

***Corresponding Author:** Ouahab Ilhem, Ferhat Abbas University. Sétif 1. Faculty of Medicine. Research laboratory "Laboratory of Investigation and Specialized Research in Health, Environment and Innovations" (LIRSSEI). General surgery department; Sétif University Hospital.

Received date: August 28, 2024; **Accepted date:** September 18, 2024; **Published date:** September 28, 2024

Citation: Ouahab Ilhem, (2024), What Management Strategy for Acute Stone-Like Cholecystitis? *J. General Medicine and Clinical Practice*, 7(16); DOI:10.31579/2639-4162/220

Copyright: © 2024, Ouahab Ilhem. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Introduction: Acute cholecystitis Lithiasis is an acute inflammation of the gallbladder and its contents following obstruction of the cystic duct or gallbladder neck by a stone. The objective of this study is to study the epidemiological, diagnostic and therapeutic profile of acute stone cholecystitis by showing the management strategy.

Patients and methods: Retrospective study spread from January 2019 to July 2024 of 389 cases of acute stone cholecystitis operated on in the general surgery department, Sétif University Hospital.

Results: The female gender was predominant (78% of cases). The average age was 50 years (23-85 years). Obesity, multiparity, taking oral contraceptives and hypercholesterolemia were the risk factors for having cholelithiasis in our patients. The clinical signs found were pain in the right hypochondrium, sometimes the epigastrium (100%), fever in 80% of cases, bilious vomiting in 43% and nausea in 57% of cases. Leukocytosis was found in all patients. Abdominal ultrasound was requested in 100% of cases. Abdominal CT was requested for greater precision in 20% of cases. Comorbidities were found in elderly subjects. Regression of pain, disappearance of vomiting and fever were observed in the vast majority of patients after the start of antibiotic therapy. The patients were operated on after 72 hours of cooling for acute cholecystitis. Others underwent preparation before surgery.

Discussion: Antibiotic therapy is required for painful and febrile syndrome of the right hypochondrium. Laparoscopic cholecystectomy in the absence of a stone embedded in the infundibulum with pediculitis and signs of severity is the reference method for resecting the biliary reservoir. Conversion to the open route by laparotomy is the wisest consideration to avoid iatrogenic biliary wounds.

Conclusion: Acute cholecystitis is the most common complication of cholelithiasis. Appropriate and timely treatment can avoid complications with serious consequences.

Kew Words: acute stone cholecystitis; abdominal ultrasound; antibiotic therapy; laparoscopic cholecystectomy; laparotomy cholecystectomy

Introduction

Gallstone lithiasis is a very common pathology throughout the world [1]. Female gender, obesity, type 2 diabetes, high-protein diet, metabolic syndrome, oral contraceptives, hormonal treatments and genetic factors are risk factors for the occurrence of gallbladder lithiasis [2].

They are mainly women around 60 years old. Acute gallstone cholecystitis is the most common complication of gallstone disease. It is an acute inflammation of the gallbladder and its contents [3]. In 90% of cases, it is secondary to entrapment of the stone in the gallbladder neck or in the cystic duct [4]. This entrapment or obstruction, responsible for biliary stasis, will initiate a cascade of inflammatory, ischemic and then necrotic phenomena of the gallbladder wall responsible for bacterial translocation from the digestive type. Cholesterol is the main component of stones in 80% of cases [5].

Acute stone cholecystitis is the 3rd^{most} common cause of emergency admission to visceral surgery departments (6).

Acute stone cholecystitis is a medicosurgical emergency [7]. Acute cholecystitis is defined clinically by the sudden onset and persistence for 24 hours of hepatic colic pain with fever, accompanied by pain and guarding of the right hypochondrium on palpation during inspiration (sign of Murphy) and biological hyperleukocytosis.

It is characterized by its clinical polymorphism, the absence of anatomoclinical parallelism and above all by the unpredictability of its evolution. It can resolve spontaneously or with antibiotic therapy, or progress towards perforation. of the gallbladder in free or septate peritoneum. Surgery is the standard treatment accompanied by effective antibiotic therapy. The problem lies in the choice of the moment of surgical intervention due to the perivesicular inflammatory phenomena which can be the cause of iatrogenic wounds of the common bile duct. The objective of this study is to establish which management strategy for acute stone-like cholecystitis?

Patients And Methods:

This is a retrospective study from January 2019 to July 2024 of 389 cases of acute stone cholecystitis operated on in the general surgery department, Sétif University Hospital. The history took into account the age, sex, history, existence of gallstone disease or hepatic colic before the acute episode of acute stone cholecystitis. Determine the onset of symptoms to assess the risk of operating difficulties. Additional examinations have been requested. Blood work, ultrasound and/or CT scan confirmed the clinical diagnosis of cholecystitis. Antibiotic therapy was started upon admission with the placement of an ice pack on the right hypochondrium. Cholecystectomy is the standard treatment. In the event of operational difficulty, conversion is the rule.

Results:

The study included 389 cases of acute stone cholecystitis operated on in the general surgery department, Sétif University Hospital. There are 302 women and 87 men with a F/M sex ratio of 3.47. The average age of our patients was 50 years (23-80 years). Patients were divided according to Tokyo Guidelines grade into: -Grade 1: 51% (n = 197); -Grade 2: 39% (n = 153); - Grade 3: 10% (n = 39).

Cholecystectomy by laparoscopy was performed in 80% (n = 310) and by laparotomy in 20% (n = 79), including 11% converted. The intraoperative findings showed: - A gallbladder with a thickened wall in 46% (n = 180). - A hydrocholecyst in 33% with embedded stone(s) (n = 130); - A Pyocholecyst with embedded stone(s) in 19% (n = 72). - Gallbladder necrosis in 1% (n = 5). - Biliary peritonitis localized in 1% (n = 2).

Conversion from laparoscopy to laparotomy was done in 11% (n = 40).

The duration of postoperative hospitalization was 2 to 4 days in the case of laparoscopy and 5 to 8 days in the case of laparotomy for patients with mainly cardiac morbidity. The postoperative course was simple for all patients except ten patients (3%) who presented with an infection of the surgical site. No cases of death were observed in our series.

Discussion:

The frequency of acute stone-like cholecystitis is parallel to that of vesicular stone disease. A very common pathology throughout the world, cholelithiasis is 4 times more common in women than in men [8]. This frequency is explained by female sex hormones, pregnancies, hypercholesterolemia, obesity, oral contraceptives, etc. Twenty percent of cholelithiasis is complicated by acute gallstone cholecystitis [9]. Serious complications can occur that are life-threatening, especially in elderly people. Therefore, acute stone cholecystitis is a medico-surgical emergency. Acute cholecystitis is acute inflammation of the gallbladder due to transient or permanent entrapment of a stone in the cystic infundibulum. This results in edema and thickening of the gallbladder wall due to a toxic effect of bile acids and phospholipids [10]. Clinical signs appear such as pain in the right hypochondrium and/or epigastrium radiating towards the right shoulder with fever at 38.5°C. Bile pain is due to the sudden distension of the bile walls following the increase in pressure in the bile ducts resulting from the entrapment of a stone in the cystic duct [11].

The questioning specifies the start of the symptoms which is a very important element for predicting operating difficulties beyond the 7th day. It looks for the persistence of painful symptoms for more than 6 hours with the appearance of a clinical infectious syndrome (fever > 38.5°C and tachycardia).

The clinical examination reveals a defense of the right hypochondrium with a positive Murphy's sign (inhibition of deep inspiration) because it is the sensory receptors of the pre-vesicular parietal peritoneum which are

involved. All our patients had this clinical picture. On the biological level, an inflammatory syndrome appears (hyperleukocytosis with neutrophil polynucleosis, elevated sedimentation rate (ESR) and C-reactive protein (CRP)) [12] but there is no biological cholestasis (conjugated bilirubin, gamma GT, phosphatases normal alkalines). The white blood cell count can be normal in a third of cases [13].

Ultrasound performed in all our emergency patients visualized enclosed cholelithiasis, thickening of the gallbladder wall with sometimes a perivesicular collection. The ultrasound probe, passing at the level of the gallbladder, causes pain, we therefore speak of Murphy ultrasound. These signs are very sensitive and specific [14].

Ultrasound is considered the reference, first-line examination for gallbladder lithiasis and for the positive diagnosis of acute cholecystitis by showing significant thickening of the gallbladder wall (> 4 mm) and/or a peri-abscess. gallbladder and, almost always, a stone embedded in the gallbladder neck or in the cystic duct and more rarely in the common bile duct. It can also show infection of the vesicular bile which is the consequence of stasis in relation to the stone obstacle of the cystic duct [15].

CT can show lithiasis and thickened gallbladder wall. This examination is less sensitive than ultrasound but it should be performed preoperatively just to assess the importance of gallbladder changes and the presence of a gallstone embedded in the gallbladder infundibulum in order to optimize therapeutic management, in particular the choice between an immediate laparotomy, or an immediate laparotomy (stone embedded in the gallbladder infundibulum and pediculitis) or a delayed cholecystectomy six to eight weeks after cooling by medical treatment with antibiotics (simple thickening of the gallbladder wall).

The treatment strategy and time frame will be adapted to the severity of the cholecystitis and essentially depends on the appearance of general septic signs. Indeed, acute stone-like cholecystitis is classified according to its severity into 3 grades according to the Tokyo recommendations [16]. Patients with grade 1 or mild acute gallstone cholecystitis have only moderate inflammation of the gallbladder without multi-organ failure. Patients with moderate severity (grade 2) have leukocytosis greater than 18,000/mm³, a palpable mass in the right hypochondrium, clinical signs lasting more than 72 hours or a local infection (perivesicular abscess or hepatic abscess or gangrenous cholecystitis). or emphysematous cholecystitis or localized biliary peritonitis). Patients with severe acute stone cholecystitis (grade 3) have one or more signs of cardiovascular, respiratory, renal, neurological, hepatic or hematological failure. The study of our population classified our patients into 3 categories of acute cholecystitis after hospitalization: 51% of patients with acute stone-like cholecystitis in grade 1, 39% in grade 2 and 10% in grade 3. Subjects aged over 75 years old have more severe comorbidities (respiratory or cardiac or renal failure with type 2 diabetes and arterial hypertension) in addition to severe acute stone-like cholecystitis (gangrenous sometimes perforated). Patients under 75 and over 45 were classified in severity category 2 while their younger counterparts (under 45 years) were classified in severity category 1.

Antibiotic treatment, targeted at intestinal germs, is prescribed in the event of fever, an increase in white blood cells (leukocytosis) or on imaging evidence in favor of a superinfection [17]. The germs responsible for acute stone cholecystitis are aerobes of digestive origin (*E. Coli*, *Klebsiella*, *Streptococcus faecalis*, enterococci or anaerobes (*B. fragilis*). Urgent parenteral antibiotic therapy was initially probabilistic established for the two other categories of cholecystitis (broad-spectrum antibiotics, particularly in combination broadening the spectrum of activity (Gram +, certain Gram - and anaerobes) with the implementation of an ice pack on the right hypochondrium in a hospital setting. The main treatment remains laparoscopic cholecystectomy (laparoscopy) or laparotomy. The question that has generated much controversy has been when should one operate on a patient with acute cholecystitis?

The first reason against urgent surgical intervention is the presence of perivesicular inflammatory phenomena with pediculitis, thus making

dissection of the callot triangle difficult and even dangerous with the risk of iatrogenic lesions of the common bile duct. The second reason is to improve operating conditions after the initiation of antibiotics. For a long time, surgical treatment was delayed and by laparotomy. The optimal timing of cholecystectomy has long been a matter of controversy [18]. At present and unanimously, the intervention must be carried out at best within 48 to 72 hours after the onset of symptoms and prescription of broad-spectrum antibiotics, to avoid complications, sores of the common bile duct and so as not to extend the duration of the post-operative stay. Laparoscopic cholecystectomy is a preferred surgical technique for treating acute cholecystitis [19]. In case of operating difficulty, laparoscopy must be converted to laparotomy. The patient must be informed of a risk of conversion [20]. The conversion rate from laparoscopy to laparotomy ranges from 10 to 25% (21). It depends on the experience of the operator and the difficulties encountered intraoperatively. For our population, conversion was made in 11% (n = 40) because of operational difficulties (pediculitis, adhesions, uncontrolled hemorrhage, the existence of another unrecognized biliary element and iatrogenic wound of the common bile duct).

In cases of acute cholecystitis, without visceral failure, cholecystectomy is recommended as early as possible. Ideally within the first 72 hours of development. Any other treatment (deadline, temporary contraindication, modalities) must be a concerted and planned decision. Treatment depends on the patient's anesthetic preparation and operability. Six percent (n=22) of patients were operated on after 10 to 15 days of hospitalization due to their inaccessibility to the surgical procedure. Medical treatment is a valid option to defer surgical management in patients with significant anesthetic risk. The decision for cholecystectomy must be discussed in a multidisciplinary manner. Morbidity was marked by surgical site infection in 3%. Mortality was zero. Acute stone cholecystitis has a good prognosis if caught on time and in a suitable manner.

Conclusion:

The diagnosis of acute cholecystitis must be suspected based on clinical and/or biological signs and confirmed by abdominal ultrasound. The preoperative abdominal scan can help in choosing the surgical intervention from the outset. The management strategy for acute stone-like cholecystitis must be well codified according to its severity and the patient's condition. The surgical timing must be short, 48 to 72 hours, in order to avoid complications or even mortality. Laparoscopy is immediately indicated for grade 1 and 2 of the Tokyo recommendations. Subjects at major risk (grade 3) must be well prepared and operated on by laparotomy.

Declaration of conflicts of interest: The authors declare no conflicts of interest.

References:

1. Herman. R.E. (1989). The spectrum of biliary stone disease. *AM. JS*; 158:171-173
2. Yokoe M, Takada T, Strasberg SM, et al. (2013). TG13 diagnostic criteria and severity grading of acute cholecystitis (with videos). *J Hepatobiliary Pancreat Sci*.
3. Storm J. (2000). Benign Diseases of the gallbladder and Bile ducts *Surgeon*; 71: 1530-1551.

4. Regent D, Laurent V et al: (2006). **Biliary** pain: how to recognize it? How to explore it? *J Radiol*; 87:413-429.
5. Bortoff GA, Chen MY et al. (2000). Gallbladder stones: imaging and intervention. *Radiographics* 20: pp. 751-766.
6. Bouvet B, Bretter. Symptoms and complications of cholelithiasis. EMC; Paris-France), Liver - pancreas, 7047B, 7.10 p
7. Alan A, Einstein A. College of Medicine. Department of Gastroenterology, Veterans Affairs Hospital, Acute Stone Cholecystitis Course.
8. Baroli E, Capron JP. (2000). Epidemiology and natural history of lithiasis bile. *Rev Prat*, 80: 2112-2116.
9. Erlinger S: (2002). Cholelithiasis. *Gastroenterol Clin Biol*; 26:1018-1025
10. Cushieri A. (2000). Cholecystitis In: surgery of the liver and biliary tract. Edited by *Blumgart LH. London. Saunders*, - 665-74.
11. Gouillat C. (1996). Complication de la lithiase biliaire. Etiologie, diagnostic, traitement. *Rev Prat*; 46: 1157-1162.
12. Juvonen T, Kiviniemi H, Niemelä O, Kairaluoma MI, (1992). Diagnostic accuracy of ultrasonography and C reactive protein concentration in acute cholecystitis: a prospective clinical study, *Eur J Surg*; 158: 365-369.
13. Gruber PJ, Silverman RA, Gottesfeld S, Flaster E, (1996). Presence of fever and leukocytosis in acute cholecystitis, *Ann Emerg Med*; 28:273-277.
14. Ralls PW, Colletti PM, Lapin SA, et (1985). also. Real-time sonography in suspected acute cholecystitis: prospective evaluation of primary and secondary signs, *Radiology*; 155: 767-771.
15. Goleal A, Badea2 R, Suteu2 T. (2010). Role of ultrasonography for acute cholecystic conditions in the emergency room. *Medical Ultrasonography*, Vol 12, no. 4, 271 - 279.
16. Yamashita Y, Takada T, Kawarada Y, et als. (2007). Surgical treatment of patients with acute cholecystitis: Tokyo guidelines, *J Hepatobiliary Pancreat Surg*; 14:91-97.
17. Solomkin JS, Mazuski JE, Baron EJ et al. (2003). Guidelines for the selection of anti-infective agents for complicated intra-abdominal infections » *Clin Infect Dis*; 37: 997- 1005.
18. Johansson .M, Thune. A, Blomqvist. L. (2004). Management of acute cholecystitis in the laparoscopic.
19. Cassillas R A, Md, Yegiyants, Md, J, Collins C, Md, Mba. (2008). Early laparoscopic cholecystectomy is the preferred management of acute cholecystitis. *Arch Surg*; 143(6):533-537.
20. Gurusamy KS, Samraj K, (2006). Early versus delayed laparoscopic cholecystectomy for acute cholecystitis » *Cochrane Database Syst Rev*. 4 CD 005440
21. Robert P, Marianne H, James H. (2016). Preoperative risk factors for the conversion of laparoscopy to open cholecystectomy: A validated risk score derived from prospective data base in the United Kingdom of 8820 patients.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here: [Submit Manuscript](#)

DOI:[10.31579/2639-4162/220](https://doi.org/10.31579/2639-4162/220)

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://www.auctoresonline.org/journals/general-medicine-and-clinical-practice>