



## CASE REPORT

# Gangrenous Nonlithiasic Cholecystitis an Extraordinary Encounter

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### Abstract

The gangrenous cholecystitis represents a rare and an important complication of the acute cholecystitis. The gallbladder distension will generate increased pressure and tension on the gallbladder wall. The local inflammatory process may evolve with ischemic phenomena and the necrosis of the gallbladder. We report the case of a 65-year-old patient with a known personal history of ischemic cardiac pathology accompanied by diabetes mellitus that was admitted to the hospital for severe abdominal pain associated with nausea and vomiting of one week's duration. The clinic diagnostic was acalculous acute cholecystitis. After the hemodynamic parameters were stabilized and the general state of the patient improved, we decided that we could proceed with the surgical management of the pathology. During laparoscopy we identified a gangrenous gallbladder that was surgically removed through a Kocher incision. The postoperative evolution of the patient was uneventful. As a serious complication of acute cholecystitis, the gangrenous cholecystitis must be taken into consideration.

Keywords: gangrenous, pathology, nonlithiasic, cholecystitis, extraordinary

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## 1 INTRODUCTION

The gangrenous cholecystitis illustrates a fierce and rare complication of the acute nonlithiasic cholecystitis (1). The significant distension of the gallbladder will generate an increased tension in the gallbladder wall. The associated inflammation determines a local ischemic

process that will evolve with the necrosis and the potential perforation of the gallbladder wall as a result of vascular dysfunction, that may or may not associate cystic artery thrombosis.

Most frequent risk factors (2) involved in this pathology are represented by:

- masculine gender

- elderly patient
- delayed presentation to the hospital
- adjournment of surgery
- elevated level of leukocytes in the blood
- associated cardiovascular diseases
- diabetes mellitus.

Compared to the acute cholecystitis, the gangrenous cholecystitis poses a significant higher mortality rate, that can reach up to 50%. This is the main reason for which once suspected, the patient with this type of distress should undergo emergency cholecystectomy, in order not to endanger their lives. Establishing the preoperative diagnosis of this pathology as well as taking the decision for surgical management are difficult tasks, especially in the absence of the cholelithiasis.

#### Case presentation:

We report the case of a 69-year-old Caucasian male patient with a known personal history of ischemic cardiac pathology accompanied by diabetes mellitus that was admitted to the hospital for severe abdominal pain associated with nausea and vomiting of one week's duration, worsened on the day of admission. The patient has been treated conservatively by hygienico-dietary and medicinal regimen, at home.

On physical examination, our patient was afebrile and hemodynamically stable. The abdominal examination revealed severe abdominal pain localized in the right hypochondrium, without muscular defense. Laboratory investigations on admission showed a WCC  $13.7 \times 10^9/L$  with marked neutrophilia, CRP 135mg/L, alkaline phosphatase 63 IU/L, alanine

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aminotransferase 42 IU/L, total bilirubin 12 mmol/L, amylase 42 IU/L, glycemia of 148mg% and oxygen saturation on air of 95%.

A FAST abdominal ultrasound was performed and it pictured a distended nonlithiasic gallbladder with slightly thickened walls, biliary sludge inside the gallbladder and also a minimal amount of perivesicular fluid.

The patient received antibiotic therapy administered intravenously three times a day along with a symptomatic therapy, for the presumed acute cholecystitis.

The day after patient admission, an unenhanced computed tomography (CT) scan of his abdominal region was performed and it confirmed the biliary pathology and mentioned no intra-hepatic or extra-hepatic duct dilatation. A small string of perivesicular fluid could be identified, suggestive for acute cholecystitis.

Our patient responded well to conservative intravenous treatment. After four days of treatment the pain syndrome had decreased significantly, his blood sugar remained below 108mg% and his blood counts had returned to normal – WCC  $7.2 \times 10^9/L$ . At that time we decided that we could perform the cholecystectomy by laparoscopic approach.

At the laparoscopy, after performing important adhesiolysis in order to reach the inferior face of the liver which was covered by the adherent omentum, we identified that the entire gallbladder up to the emergence of the cystic duct was gangrenous.

We continued the surgery by performing a right subcostal Kocher laparotomy and even so, the surgical management was quite difficult but without any notable incidents Figures 1 and 2.

We managed to dissect The Calot's triangle and after the division of the cystic duct and the cystic artery, we performed ligatures to the viable duct and artery. The surgical management was completed by the insertion of a drain tube in the gallbladder fossa.

Postoperative evolution was favorable and uneventful, the intravenous antibiotic therapy was continued for five more days and the drain was suppressed after the resumption of the intestinal transit. He was discharged uneventfully on the 10<sup>th</sup> day after the surgical intervention.



**FIGURE 1:** . Intraoperative aspect of the gangrenous gallbladder



**FIGURE 2:** Postoperative aspect of the gangrenous gallbladder

## 2 DISCUSSION

Gallbladder gangrene represents the last stage of the inflammatory process that affects the gallbladder wall. Despite the serious prognosis, the precise diagnosis along with the decision for surgery can be very difficult.

Statistical findings in the medical literature reveal a gangrenous cholecystitis incidence of 2-30% of the total number of elderly patients diagnosed with acute cholecystitis. Although several predictive factors have been implicated, it appears that only leukocytosis and comorbidities of the male patients over the age of 65 are to be taken into consideration.

We believe that the timing of surgery and prolonged conservative treatment, justified by the absence of gallstones, can be considered factors favoring the progression of the pathology to severe necrosis of the gallbladder wall.

Ultrasound is usually the first-line imagistic exploration for the evaluation of patients with clinical suspicion of acute cholecystitis. CT scan becomes necessary if the ultrasound is inconclusive, especially in the absence of lithiasis or thickening of the gallbladder wall. Biliary shaft dilatation, endoluminal presence of flaky mucous membranes and pericholecystic fluid reaction are important elements for diagnosis, but not always present.

The particularity of the reported case consists in the lack of the clinical, paraclinical and laboratory data, necessary for a positive diagnosis and an emergency surgery indication.

We suggest a reasonable surgical approach, an initial laparoscopic examination, followed by laparoscopic or classical cholecystectomy, depending on the lesion picture analyzed by the surgeon. Reported conversion rates range from 10 to 75% (3), (4) but when laparoscopic cholecystectomy is successful, it has a better postoperative outcome and, obviously, a shorter hospitalization. Although there are still some controversies regarding the best surgical approach, we consider that the surgical attitude that we have adopted is the most appropriate.

## 3 CONCLUSIONS

Clinical suspicion of gangrenous cholecystitis in the event of acute cholecystitis is essential for an early positive diagnosis and the efficient surgical management. The possibility of a patient, especially an elderly male patient, diagnosed with acute cholecystitis that may be progressing to gangrenous cholecystitis, should always be considered even in the absence of gallstones or if after the medical management we may notice an improvement of the patient's general state.

In these situations, the clinical or laboratory data along with the imagistic findings may not be conclusive.

The general consensus states the need of an early surgical management in the acute cholecystitis in order to prevent the onset of the gangrene, a rare but fierce complication that may interfere with the final surgical outcome in terms of morbidity and mortality.

#### **Consent:**

Written informed consent was obtained from the patient for publication of this paper and any accompanying images.

#### **Abbreviations:**

WCC: white cell count; CRP: C-reactive protein; CT: computed tomography

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