

CONSERVATIVE MANAGEMENT OF GALLBLADDER PERFORATION – CASE REPORT AND LITERATURE REVIEW

KONZERVATIVNO LEČENJE PERFORACIJE ŽUČNE KESE – PRIKAZ SLUČAJA I PREGLED LITERATURE

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Case report

Prikaz slučaja

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Abstract

Introduction. Gallbladder perforation is a rare but potentially life-threatening complication of acute cholecystitis, with reported mortality rates exceeding 50%. Owing to its frequently non-specific symptoms, early diagnosis is essential. Radiological imaging – particularly contrast-enhanced computed tomography and ultrasonography – plays a key role in identifying perforation. **Case Report.** We present the case of a 62-year-old patient with Niemeier Type II gallbladder perforation. At admission, prominent clinical or laboratory indicators of acute disease were absent. Initial management included broad-spectrum antibiotics and supportive therapy. Although percutaneous drainage was considered, the procedure was deemed unfeasible due to the close proximity of the abscess to the hepatic flexure of the colon. Consequently, an open cholecystectomy with abscessotomy was performed two weeks after symptom onset. The postoperative course was uneventful, and the patient was discharged on the fifth postoperative day for continued outpatient care. **Conclusion.** While surgical intervention is mandatory in cases of generalized biliary peritonitis, the optimal treatment strategy for localized gallbladder perforations remains debated. Current literature emphasizes the advantages of open cholecystectomy despite longer hospitalization, whereas delayed surgical intervention may be beneficial in carefully selected patients.

Key words: Gallbladder Diseases; Conservative Treatment; Cholecystitis, Acute; Drainage; Cholecystectomy

Sažetak

Uvod. Perforacija žučne kese predstavlja retku, ali ozbiljnu komplikaciju akutnog holecistitisa, sa mortalitetom preko 50%. Rano postavljanje dijagnoze je ključno, s obzirom na često nespecifične simptome. Radiološka dijagnostika, naročito kontrastno pojačana kompjuterizovana tomografija i ultrazvuk, igraju ključnu ulogu u identifikaciji perforacije. **Prikaz slučaja.** U ovom radu prikazujemo slučaj 62-godišnjeg pacijenta sa *Niemeier tip II* perforacijom žučne kese, bez izraženih kliničkih i laboratorijskih znakova akutne bolesti. Po prijemu, primenjena je inicijalna terapija antibioticima i potporne mere. Iako je perkutana drenaža razmatrana, nije mogla biti sprovedena zbog blizine hepatične fleksure kolona. Zbog toga je, dve nedelje nakon početka simptoma, sprovedena otvorena holecistektomija sa apscesotomijom. **Postoperativni tok protekao je bez komplikacija,** te je pacijent otpušten na dalje ambulantno lečenje petog postoperativnog dana. **Zaključak.** Iako je hirurška intervencija standard za generalizovani bilijarni peritonitis, optimalni pristup za lokalizovane perforacije ostaje predmet rasprava. Savremena literatura ukazuje na prednost otvorene holecistektomije, uprkos dužem boravku u bolnici, dok bi odložena operacija mogla biti korisna kod odabranih pacijenata.

Ključne reči: bolesti žučne kese; konzervativno lečenje; akutni holecistitis; drenaža; holecistektomija

Introduction

Gallbladder perforation is a rare but potentially life-threatening complication of acute cholecystitis, with mortality rates reported as high as 50% [1,2]. According to Niemeier's classification, perforations are categorized into three types: Type I (acute free perforation into the peritoneal cavity), Type II (subacute perforation with localized abscess formation), and Type III (chronic perforation with cholecystoenteric fistula) (Table 1). Spontaneous perforation occurs in approximately 2–10% of patients with acute

Table 1. Niemeier classification of gallbladder perforation

Niemeier classification	
Type I	acute free perforation
Type II	subacute perforation with abscess formation
Type III	chronic perforation with cholecystoenteric fistula

cholecystitis and often presents with nonspecific symptoms, which complicates timely diagnosis. Clin-

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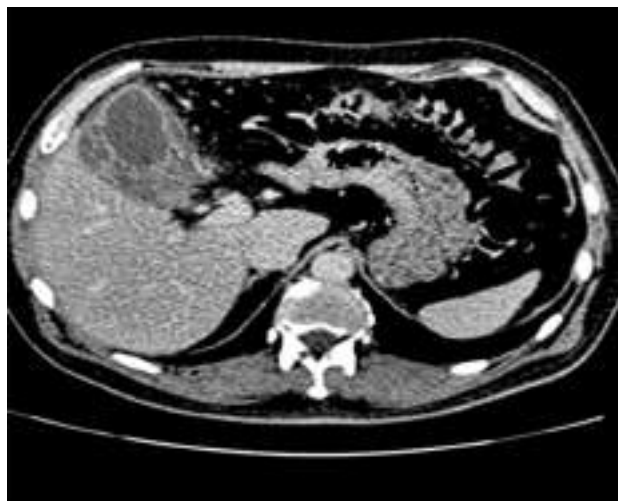


Figure 1. Contrast-enhanced abdominal CT scan showing a localized pericholecystic abscess

ical deterioration accompanied by fever, localized abdominal pain, and signs of sepsis should raise suspicion of perforation. The fundus of the gallbladder is most commonly affected site due to its relatively poor vascular supply. Comorbidities such as diabetes mellitus, hypertension, and immunosuppression significantly increase the risk of gallbladder perforation [6,7]. Contrast-enhanced computed tomography (CT) (**Figure 1**) is considered the gold standard for early detection, particularly in patients with atypical clinical presentations. While generalized biliary peritonitis (Type I) requires urgent surgical intervention, the optimal therapeutic approach for localized perforations (Type II) remains a matter of ongoing discussion. Over the past decade, increasing evidence has highlighted the potential role of conservative management in carefully selected patients, particularly when clinical stability is preserved and anatomical or systemic factors render surgery high-risk [9–13]. Conservative treatment typically includes broad-spectrum antibiotics, intravenous fluid therapy, ulcer and anticoagulation prophylaxis, and continuous clinical monitoring. When percutaneous drainage of the abscess is technically unfeasible or contraindicated, such non-operative management may provide a safe alternative to immediate surgery. In chronic perforations with fistula formation (Type III), conservative therapy may also serve as a temporary measure until elective surgical correction is feasible.

A growing body of case reports and review articles supports this strategy, demonstrating lower complication rates and shorter recovery periods in selected patients managed non-operatively compared to those undergoing emergency cholecystectomy [9–11]. Consequently, conservative management of gallbladder perforation has emerged as a valuable option in con-

temporary clinical practice, requiring careful assessment of patient-specific risk factors, overall clinical status, and the availability of interventional resources.

Case Report

A 62-year-old male patient was hospitalized without evident signs of acute illness. Two weeks prior to admission, he had experienced epigastric pain and nausea, which resolved spontaneously. On presentation, laboratory findings did not indicate acute inflammation, while abdominal ultrasonography revealed gallbladder wall thickening and pericholecystic fluid.

Radiological evaluation consisted of ultrasonography and contrast-enhanced CT of the abdomen, which demonstrated gallbladder distension, wall thickening, inflammatory changes, and a pericholecystic abscess measuring 17×14×10 mm located within liver segment S4b (**Figure 1**). Further imaging assessment showed that the abscess was in close proximity to the hepatic flexure of the colon, complicating the possibility of a safe percutaneous drainage approach.

Interventional radiology was consulted; however, percutaneous abscess drainage was deemed contraindicated due to the high-risk anatomical location and the significant risk of injuring the adjacent colon.

Therapeutic Approach

In the absence of clinical signs consistent with an acute abdomen, the patient was initially managed conservatively. The therapeutic regimen included: **broad-spectrum intravenous antibiotics** to cover potential polymicrobial infection, intravenous **crystalloid therapy** to ensure adequate hydration and hemodynamic stability, **prophylactic anti-ulcer treatment** to prevent stress-related gastrointestinal complications, **anticoagulation therapy** to reduce the risk of thromboembolic events.

Because no safe non-operative drainage option was available and abscess control was required, surgical treatment was planned. The patient underwent a surgery two weeks after symptom onset and ten days after admission. Intraoperatively, a chronically inflamed gallbladder containing a gallstone and a small subhepatic abscess collection were observed. Open cholecystectomy with abscess drainage was performed.

The postoperative course was uneventful. At follow-up seven days after discharge, the patient was asymptomatic, pain-free, and laboratory and clinical parameters remained within reference ranges. At the time of manuscript preparation – one year after hospitalization – the patient remained clinically stable, without signs of medical or surgical complications. The case illus-

trates that in selected patients with gallbladder perforation who present without acute abdominal signs, initial conservative management with close clinical monitoring may be appropriate. Nevertheless, surgical intervention becomes necessary when anatomical constraints preclude minimally invasive procedures.

Discussion

In the study by Petaković et al., *Acute cholecystitis – early or delayed cholecystectomy*, the authors confirmed the advantages of early cholecystectomy in the management of acute cholecystitis. Whether these benefits can be extrapolated to cases of gallbladder perforation, however, remains an open question [16].

Gallbladder perforation occurs in approximately 2–10% of patients with acute cholecystitis. While Type I perforations necessitate urgent surgical intervention, optimal treatment strategies for Type II and III perforations continue to be debated.

An expanding body of evidence supports the role of conservative management in selected cases of gallbladder perforation, particularly in patients presenting with localized disease and preserved clinical stability. In a retrospective study from 2006, Derici et al. [5] analyzed 13 cases of gallbladder perforation and reported favorable outcomes with non-operative treatment in patients with Type II perforation (localized abscess), provided that signs of diffuse peritonitis were absent. Similarly, Date et al. (2012) [15], in a prospective study involving 50 patients, demonstrated that early diagnosis combined with individualized therapeutic strategies – including conservative management in clinically stable patients – can significantly reduce morbidity. Although older, the study by Roslyn et al. (1987) [2] provides important insight into the natural history of cholecystitis and gallbladder perforation, showing that patients with mild symptoms and no systemic signs of infection may be safely managed with close monitoring and supportive care.

These studies collectively reinforce the concept that conservative treatment may serve as a viable and safe alternative to immediate surgical intervention in carefully selected individuals, particularly when invasive procedures carry elevated risk.

Recent literature highlights the relevance of conservative strategies. In Type II perforations, antibiotic therapy combined with vigilant clinical monitor-

ing has proven effective, especially when anatomical constraints preclude percutaneous drainage (An Overview of the Management of Gallbladder Perforations, GJSCR) [12]. In Type III perforations with fistula formation, successful conservative management until elective surgical has been reported, demonstrating the safety of this approach in stable patients. Moreover, recent studies indicate that non-operative management may achieve short-term outcomes comparable to laparoscopic surgery in selected cases (Effectiveness of Conservative Management Versus Laparoscopic Surgery, BMJ, 2023) [13,14].

A systematic review by Quiroga-Garza et al. [8], including 122 patients with Type II perforation, concluded that although open cholecystectomy is associated with a lower likelihood of requiring additional procedures, it is also linked to longer hospitalization. Consistent with this, Krecko et al. [9], analyzing 654 patients, found that open cholecystectomy resulted in prolonged postoperative recovery and higher complication rates.

Further support for conservative treatment comes from clinical experience describing successful non-operative management in patients lacking signs of diffuse peritonitis. Intravenous antibiotic therapy, fluid resuscitation, and close clinical monitoring were sufficient to ensure clinical improvement without the need for surgical intervention. This emphasizes the potential safety of conservative therapy in well-selected, clinically stable patients, particularly when invasive procedures pose increased risk.

According to the Tokyo Guidelines for the management of acute cholecystitis [10], therapeutic decisions should be tailored to disease severity. While laparoscopic cholecystectomy remains the preferred treatment when feasible, conservative therapy is an acceptable option in high-risk patients or when surgery is contraindicated.

Conclusion

Early diagnosis and appropriate therapeutic decision-making are essential for optimizing outcomes in gallbladder perforation. While immediate surgical intervention is mandatory in Type I perforations, Type II and III perforations may initially be managed conservatively, with delayed surgery based on clinical indications.

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