

A Series of Five Complicated Cases with Gallbladder Perforation due to Acute Cholecystitis

Akut Kolesistit Tablosu Sonucu Safra Kesesi Perforasyonu Gelişen Komplike Beş Olgu Serisi

© Eyüp Murat Yılmaz, © Aykut Soyder, © Ethem Bilgiç, © Erkan Karacan

Adnan Menderes University Faculty of Medicine, Department of General Surgery, Aydın, Turkey



Abstract

Gallbladder perforation is one of the rarely feared complications of acute cholecystitis. It is usually not seen very often, but it is seen in 10% (2-20). Despite radiological progresses, morbidity and mortality are high due to late diagnosis. The time of diagnosis and the general condition of the patient during diagnosis are very likely to affect mortality, so you have to be careful in these cases. Because it is a rare complication, it is not the first diagnosis that comes to mind in the preliminary diagnoses in the case of acute abdomen in cases of emergency.

In this article we will present a series of complicated cases from the emergency department with gallbladder perforation. We would like to emphasize that gallbladder perforation with this case series presentation should be one of the diagnoses that should be kept in mind in emergency patients.

Keywords

Gallbladder, perforation, cholecystitis

Anahtar Kelimeler

Safra kesesi, perforasyon, kolesistit

Received/Geliş Tarihi : 16.01.2015

Accepted/Kabul Tarihi : 15.04.2015

doi:10.4274/meandros.2062

Address for Correspondence/Yazışma Adresi:

Eyüp Murat Yılmaz MD,

Adnan Menderes University Faculty of
Medicine, Department of General Surgery,
Aydın, Turkey

Phone : +90 256 444 12 56

E-mail : drmyilmaz80@gmail.com

ORCID ID: orcid.org/0000-0002-0808-5067

©Meandros Medical and Dental Journal, Published by
Galenos Publishing House.

This is article distributed under the terms of the
Creative Commons Attribution NonCommercial 4.0
International Licence (CC BY-NC 4.0).

Öz

Safra kesesi perforasyonu akut kolesistitin çok korkulan, nadir komplikasyonlarından birisidir. Genellikle çok sık görülmemekle birlikte %10 (2-20) oranında görülmektedir. Radyolojik ilerlemelere rağmen geç tanı konması nedeniyle morbidite ve mortalitesi yüksektir. Tanı konma zamanı ve tanı konma sırasında hastanın genel durumu mortaliteyi çok etkilemektedir. Bu yüzden bu olgularda dikkatli olunmalıdır. Nadir görülen bir komplikasyon olduğu için genellikle acil servise gelen olgularda akut batın tanılarında ön tanılarda ilk akla gelen tanılardan olmamaktadır. Bu makalemizde safra kesesi perforasyonu ile acil servise gelen komplike 5 olgu serisini sunacağız. Bu olgu serisi sunumumuz ile safra kesesi perforasyonunun acil servise gelen hastalarda akıldaki tutulması gereken tanılardan birisi olması gerektiğine vurgu yapmak istedik.

Introduction

Gallbladder perforation is a life-threatening complication which occurs in approximately 2 to 11% of patients with acute cholecystitis. It has high morbidity and mortality rates due to the difficulty of early diagnosis (1). While the management of acute cholecystitis is easy in case of early diagnosis and intervention, it can evolve to a much more complicated condition such as perforation of gallbladder if the diagnosis is missed and the intervention is delayed. In such cases,

the treatment involves much more complicated interventions than a simple cholecystectomy, and this situation can result in morbidity and even mortality. In this case series, we presented five complicated cases diagnosed with gallbladder perforation, who were referred to our hospital in various forms within a 10-day period.

Case Reports

Case 1

A seventy-nine-year-old male patient was admitted to the emergency room with the complaint of abdominal pain for the last three days. Physical examination revealed tenderness and defense in the right subcostal region and the rebound was positive. On abdominal tomography, free fluid around the stomach antrum and free air around the gallbladder were detected. The patient had Systemic Inflammatory Response syndrome (SIRS). After informing the patient and his relatives and obtaining the written consent, the patient was taken into operation. Necrosis of the gallbladder was observed as an operative finding (Figure 1). The omentum and the transverse colon were adherent to the gallbladder, and a fistula formation was observed between the transverse colon and the gallbladder (Mirizzi syndrome, type 5). Perforation of the colon was observed, together with the perforation of the gallbladder at the site of the fistulized Hartmann's pouch. It was decided to perform cholecystectomy together with right hemicolectomy. Since anastomosis was not considered as safe due to the presence of peritonitis and extensive amount of

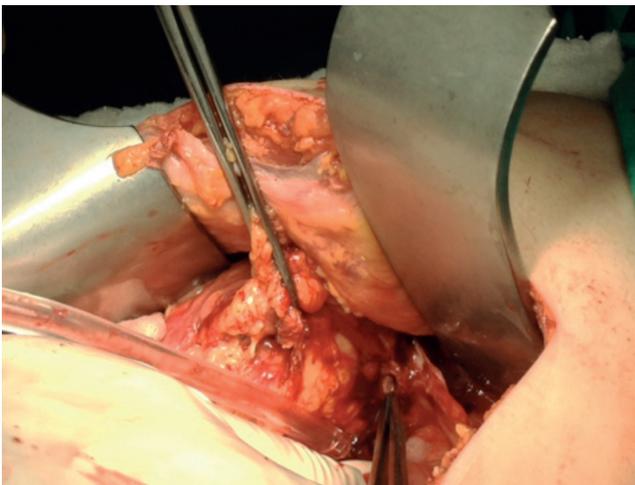


Figure 1. Necrotized gallbladder

bile in the abdomen, an ileostomy was performed. The patient was transferred to the postoperative intensive care unit in an intubated state. Administration of positive inotropic agents was initiated, and septic shock developed. The patient died on the fifth postoperative day.

Case 2

A thirty-three-year-old male patient, who was treated with analgesics in three different hospitals due to the complaint of abdominal pain for ten days, was admitted to the emergency department when his complaint became intensified. His physical examination revealed rigidity of the abdominal wall. Abdominal tomography showed free fluid in the right paracolic space. The patient was transferred to the operation room urgently, following informing the patient and his relatives and obtaining written consent. In operation, the gallbladder was found distended, inflamed and covered with omentum. The gallbladder was found to be perforated at the site of Hartmann's pouch, and cholecystectomy was performed. The patient was discharged on the 4th postoperative day.

Case 3

A seventy-three-year-old male patient with a one-week history of abdominal pain, who had been hospitalized, treated with analgesics and discharged in another healthcare center, was admitted to the emergency department due to his persistent abdominal pain. His physical examination revealed defense on palpation of the epigastrium and the right subcostal region. The patient had comorbidities such as congestive heart failure and chronic obstructive pulmonary disease. His abdominal tomography revealed an extremely thickened gallbladder wall together with free fluid surrounding it. After informing the patient and his relatives and then, obtaining the written consent, the patient was transferred to the operation room due to the findings of acute abdomen. The gallbladder was found to be perforated at the level of the infundibulum. The omentum was adherent to the transverse colon, and the colon was fistulized (Mirizzi syndrome, type 5). Cholecystectomy and right hemicolectomy were performed. Anastomosis was performed since the amount of bile inside the abdominal cavity was not extensive. The patient developed postoperative ileus together with pneumonia of the lower right

pulmonary lobe. Antibiotherapy was initiated due to the recommendations of the departments of pulmonary diseases and infectious diseases. However, the patient had a persistent cough despite antibiotic treatment; evisceration developed, and the patient was re-operated. Bridectomy was performed in order to get rid of the extensive adhesions. The anastomosis was evaluated as intact. Following the period of postoperative intensive care, the patient was discharged on the 12th day when pneumonia regressed.

Case 3

A seventy-four-year-old male patient with a three-day history of severe abdominal pain had been admitted to another healthcare center. The patient was admitted to our emergency service since his complaints had not regressed despite analgesic use. His physical examination revealed extensive tenderness and rebound. Abdominal computed tomography was performed; the gallbladder was found to be distended, and the thickness of gallbladder wall was determined as 9 mm. The patient was diagnosed as acute abdomen and was taken into operation urgently after informing the patient, his relatives and obtaining the written consent. In operation, the omentum was observed to be extensively adherent to the gallbladder. A perforation was observed at the site which was estimated as the Hartmann pouch (Figure 2). The adhesions were dissected carefully. Calot's triangle could not be exposed due to the suboptimal exposure. After performing partial cholecystectomy and placing a drain, the procedure was terminated.



Figure 2. The gallbladder showing adherence to the omentum and perforation at the supposed site of the Hartmann pouch

The mean daily drainage output was 500-600 cc during the postoperative follow-up. The patient developed evisceration on the 3rd postoperative day and underwent an emergency surgery. During the operation, it was observed that the anatomy was better exposed, and inflammation had regressed. The cystic duct was exposed, ligated and the operation was terminated. The patient was transferred to the postoperative intensive care unit and discharged on the 7th postoperative day.

A seventy-four-year-old male patient with a four-month history of abdominal pain was admitted to the emergency service due to his increased abdominal pain for the last one week. On physical examination, the rigidity of the abdominal wall was present. The computed tomography, performed in the emergency service, revealed irregular and thickened gallbladder wall and the presence of pericholecystic fluid. After informing the patient and his relatives and obtaining the written consent, the patient was taken into surgery. An extensive distension and necrosis of the gallbladder were present. The patient was transferred to the intensive care unit following his cholecystectomy. The patient presented somnolence during the postoperative recovery period and was consulted to the department of neurology; the cranial computed tomography scan was found as normal. The somnolence was improved, and the patient was discharged on the 5th postoperative day.

Discussion

Gallbladder perforation is one of the life-threatening complications of acute cholecystitis. Despite the advances in medical technology, there has been no significant progress yet in reducing morbidity, mortality, and early diagnosis (2). Although Glenn and Moore (2) had reported mortality rate up to 42%, this rate was reported as 12-16% in recent publications (3). Three major factors have been reported to be associated with the morbidity of gallbladder perforation. These factors are preoperative albumin level, laparoscopic surgery, and the presence of preoperative SIRS or sepsis (4). In gallbladder perforations, total cholecystectomy should be performed when possible, depending on the general condition of the patient. Otherwise, partial cholecystectomy should be performed if there is a risk of bile duct injury and the anatomy cannot

be fully exposed (5). In the case of cholecystoenteric fistula development, primary bowel repair is recommended in addition to cholecystectomy when possible; however, when primary bowel recovery is not possible, bowel resection and anastomosis or stoma is recommended (6).

Preoperative hypoalbuminemia is considered as a risk factor for in abdominal operations. Preoperative hypoalbuminemia was present in two of our cases, and it could have been considered as a risk factor (albumin levels were 2.4 g/dL and 2.2 g/dL, respectively). While the presence of an association between the inflammation and albumin was not accepted previously, hepatic proteins, especially albumin, have recently been considered to play a significant role in the inflammatory response. Therefore, hypoalbuminemia can be named as an important risk factor for episodes of acute cholecystitis and gallbladder perforations (7). Köksal et al. (8) indicated that the level of modified albumin was an important factor in determining the hemodynamic alterations and they emphasized the importance of maintaining high albumin level in this condition.

The laparoscopic approach is much more advantageous in terms of both the operation time and postoperative wound healing when compared to conventional surgery. In patients with gallbladder perforation and poor general condition, completing the surgery with the laparoscopic approach is a positive prognostic factor for the patient (9). However, studies have indicated that completing the surgery with the laparoscopic approach is rather difficult and less frequent due to delayed diagnosis and anatomic difficulties, as a consequence of inflammatory processes, in patients admitted to emergency services with gallbladder perforation (9). Furthermore, decreased splanchnic blood flow, as a result of increased intraabdominal and intrathoracic pressure derived from pneumoperitoneum formation during the laparoscopic approach, can lead to additional morbidity in patients with poor hemodynamic status. Therefore, in such complicated patients, possible profits of the laparoscopic approach, estimated time of the perforation, age and general condition of the patient, presence or absence of the history of previous surgeries, and the severity of the inflammation should be evaluated and the most appropriate surgical

method should be chosen, based on these factors. In our cases, we decided to perform the open surgery technique since all cases had severe inflammation and some had necrosis together with the risk of bile duct injury in the laparoscopic approach. Even in one of our cases, we preferred the development of fistulization; since we could not find the cystic duct, we placed a drain even in the open surgery in order to prevent any biliary tract damage. This suggests that we had to take into consideration the risk factors of the open surgery.

The existence of preoperative sepsis or SIRS is also a criterion for the mortality and morbidity risk for abdominal surgery, and it is also an important risk factor in patients with gallbladder perforation (10). While the surgery and anesthesia-related complications increase in patients with preoperative sepsis or SIRS, the need for postoperative broad-spectrum antibiotic use and postoperative complications such as organ failure, shock, and even mortality can also occur due to the delay in diagnosis. Patients with preoperative sepsis or SIRS should receive an appropriate antibiotherapy following rapid resuscitation. In the presence of organ failure, this condition should be corrected if possible, and if there is an adequate time, the patient should be prepared for the operation, and taken urgently into operation. Despite such multidisciplinary approach, the postoperative results are often dissatisfying in these patients. As a matter of fact, one of our cases had preoperative SIRS, and the patient died on the fifth postoperative day due to septic shock.

Preliminary diagnosis of gallbladder perforation should be kept in mind in patients who were admitted to the emergency department with the symptoms of acute cholecystitis, and the associations of all risk factors with the patient and the disorder should be evaluated.

Gallbladder perforation is one of the complications of acute cholecystitis with high morbidity and mortality rates. Although the availability of the radiological examination methods is increasing at the present time, the diagnosis can be delayed, and this can lead to a worsened prognosis. The complication of gallbladder perforation should be kept in mind as a preliminary diagnosis in patients diagnosed with acute cholecystitis, and these patients should be evaluated within this perspective.

Ethics

Informed Consent: It received from the patients.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: E.M.Y., E.K., Concept: E.M.Y., A.S., Design: A.S., Data Collection or Processing: E.B., E.K., Analysis or Interpretation: A.S., Literature Search: E.M.Y., Writing: E.M.Y.

Conflict of Interest: There is no conflict of interest between authors

Financial Disclosure: No financial support was received from anywhere.

References

1. Ausania F, Guzman Suarez S, Alvarez Garcia H, Senra del Rio P, Casal Nunes E. Gallbladder perforation: morbidity, mortality and preoperative risk prediction. *Surg Endosc* 2015; 29: 955-60.
2. Glenn F, Moore SW. Gangrene and perforation of the Wall of the gallbladder. A sequele of acute cholecystitis. *Arch Surg* 1942; 44: 677-86.
3. Date RS, Thrumurthy SG, Whiteside S, Umer MA, Pursnani KG, Ward JB, et al. Gallbladder perforation: caseseries and systematic review. *Int J Surg* 2012; 10: 63-8.
4. Gibbs J, Cull W, Henderson W, Daley J, Hur K, Khuri SF. Preoperative serum albumin level as a predictor of operative mortality and morbidity: results from the National VA Surgical Risk Study. *Arch Surg* 1999; 134: 36-42.
5. Prakash K, Jacob G, Lekha V, Venugopal A, Venugopal B, Ramesh H. Laparoscopic cholecystectomy in acute cholecystitis. *Surg Endosc* 2002; 16: 180-3.
6. Yılmaz EM, Ergin AS, Özçiftci Yılmaz P, Menderes VM. Type 2 Mirizzi syndrome:case report. *Journal of Clinical and Analytical Medicine* 2014; 32-4.
7. Fuhrman MP, Charney P, Mueller CM. Hepatic proteins and nutrition assessment. *J Am Diet Assoc* 2004; 104: 1258-64.
8. Köksal H, Kurban S, Şahin M. Laparoskopik kolesistektomi süresince splanknik sahadaki hemodidamik değişikliklerin değerlendirilmesinde iskemi modifiye albüminin rolü. *Ulusal Cerrahi Dergisi* 2010; 26: 91-4.
9. Suter M, Meyer A. A 10 year experience with the use of laparoscopic cholecystectomy for acute cholecystitis:is it safe? *Surg Endosc* 2001; 15:1187-92.
10. Gupta H, Gupta PK, Schuller D, Fang X, Miller WJ, Modrykamien A, et al. Development and validation of a risk calculator for predicting postoperative pneumonia. *Mayo Clin Proc* 2013; 88: 1241-9.