



Gallbladder Perforation with Abscess Formation Presenting as a Liver Mass

Ilhan Bali¹, Bunyamin Cuneyt Turan², Onur Sakalli¹, Umit Gecgel¹ and Selim Sozen^{1*}

¹Department of General Surgery, Namik Kemal University, Turkey

²Department of Anesthesiology and Reanimation, Namik Kemal University, Turkey

Abstract

Gallbladder Perforation (GBP) is a rare, but life threatening complication of acute cholecystitis. It is usually a complication of acute cholecystitis with or without gallstones. We present a case of 50 year old female with abdominal pain and fever. Abdominal examination revealed tenderness and palpable mass in the right upper quadrant. Laboratory investigations were unremarkable including serum alpha-fetoprotein, carcinoembryonic antigen and carbohydrate antigen 19 to 9. Abdominal sonography showed a hypodense mass in gallbladder fossa and adjacent liver. Computed tomography scan of the abdomen detected that a multilobulated thin-walled cystic mass lesion with solid components from segments 4 and 5 of the liver. Intra-operatively, she was found to have a perforated gallbladder with abscess formation.

Keywords: Gallbladder perforation; Abscess; Acute cholecystitis; Malignancy

Introduction

Gallbladder Perforation (GBP) is a rare, but life threatening complication of acute cholecystitis [1,2]. Cystic duct obstruction leads to increased intraluminal pressure due to retained intraluminal secretion. This raised intraluminal pressure (distention of the gallbladder) in turn impedes venous and lymphatic drainage causing vascular compromise and therefore leads to necrosis and finally gallbladder perforation [3]. Liver abscess caused by gallbladder perforation can be potentially fatal disease (5.6% mortality) [4].

Case Presentation

A 50-year-old female presented with upper abdominal pain of one month's duration. Her weight dropped from 90 kg to 74.3 kg within 1 month. The patient had a temperature of 38.5°C, blood pressure of 90/40 mmHg, and a heart rate of 110 to 140 beats per minute. Abdominal examination revealed tenderness and palpable mass in the right upper quadrant. Laboratory investigations were unremarkable including serum alpha-fetoprotein, carcinoembryonic antigen and carbohydrate antigen 19 to 9. Abdominal sonography showed a hypodense mass in gallbladder fossa and adjacent liver. A contrast-enhanced Computed Tomography (CT) scan of the abdomen showed multilobulated thin-walled cystic mass lesion with solid components from segments 4 and 5 of the liver (Figure 1). An abdominal MRI scan confirmed similar findings with a suspected "hole sign" defect (Figure 2). According to this clinical and radiologic presentation, the patient was offered open surgery in the form of mass and abscess excision. On laparotomy, Kocher maneuver and resection of the omental adhesions was performed. It revealed an abscess involving the gallbladder, liver, great omentum and duodenum. The abscess cavity was filled with debris, stones and pus. Because of dense adhesion, a partial cholecystectomy was performed (Figure 3). After haemostasis, the peritoneal cavity was washed with copious amounts of normal saline. A non suction latex drain was placed in the subhepatic area pathological examination of the cut specimen showed an inflamed wall with chronic inflammatory cell infiltrates. As there were no postoperative complications, the patient was discharged from the hospital after 10 days. At 2 month follow-up, the patient was feeling well. Her clinical examination and laboratory findings were normal.

Discussion

Spontaneous and non-traumatic perforation of the gallbladder is a relatively uncommon complication of gallstone disease [5].

Niemeier in 1934 classified free Gallbladder Perforation (GBP) into 3 types.

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*Correspondence:

Selim Sozen, Department of General Surgery, Namik Kemal University, Tekirdag, Turkey,
E-mail: selimsozen63@yahoo.com

Received Date: 03 Dec 2018

Accepted Date: 16 Jan 2019

Published Date: 21 Jan 2019

Citation:

Bali I, Cuneyt Turan B, Sakalli O, Gecgel U, Sozen S. Gallbladder Perforation with Abscess Formation Presenting as a Liver Mass. *J Res Notes*. 2019; 2(1): 1008.

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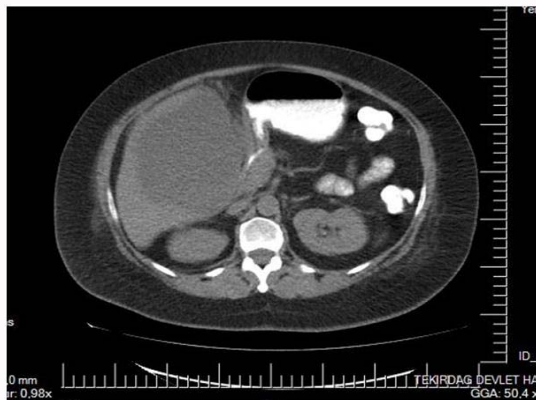


Figure 1: Gallbladder margins were not very clearly identifiable; there was multilobulated thin-walled cystic mass lesion with solid components and enhancing septae arising from segments 4 and 5 of the liver.



Figure 2: Axial T2-weighted fat-suppressed MR image shows multiloculated hyperintense lesion in right hepatic lobe, consistent with abscess (14 cm × 9 cm) 'hole sign' (a defect in the gallbladder wall) (blue arrow).

Type I (acute): Generalized biliary peritonitis.

Type II (subacute): Localized perforation.

Type III (chronic): Cholecysto-enteric fistulas [6].

A fourth type has been suggested by Andersen et al. [7] (Type IV: chronic perforations with cholecystobiliary fistula formation). According to Niemeier's classification system, treatment strategy is changed. In type I perforations, urgent surgery (open or laparoscopic cholecystectomy) must be done [8]. In type II perforations, percutaneous drainage of both gallbladder and abscess can be the appropriate treatment strategy or used as a bridge to surgery [9]. In type III perforations, patients with gastrointestinal tract obstruction should undergo enterotomy and cholecystectomy to remove the gallstones [10].

In type 4 cases of cholecystobiliary perforations, cholecystectomy and choledocholithotomy are effected [7] (duct enterostomy or simple closure over a T tube must be done).

Ultrasound (US) is usually the initial investigation of gallbladder disease. US may show pericholecystic fluid collection(s) with layering of the gallbladder wall and distention [11]. All these sonographic appearances of gallbladder perforation are nonspecific. The specific



Figure 3: Intraoperative finding: The abscess cavity was filled with debris, stones and pus.

sonographic finding is a "hole sign" (a defect in the gallbladder wall is visualised) defect. Computed Tomography (CT) scan is the most sensitive tool to diagnose gallbladder perforation. The "hole sign" is more often visualised on CT than on US. CT can also be a useful tool for surgical planning [5]. Magnetic resonance, by its superior soft tissue resolution and multiplanar capability, is a better modality and should fare better than ultrasonography and CT [12]. Based on the clinical presentation and radiographic appearances, it may be difficult to differentiate an abscess from other cystic lesions and neoplasms of the liver [13,14]. In our case CT scan was not able to exclude a tumor in the 4th and 5th hepatic segment. On the other hand, in radiological examinations, the inability to visualize the gallbladder suggested an intrahepatic abscess [9]. Also, clinical diagnosis is mimicking a malignancy. With this clinical and radiologic presentation, open surgery was done.

Conclusion

Sometimes, clinical and radiological diagnosis of spontaneous gallbladder perforation is very difficult. Therapeutic alternatives depend on the patient's history and the clinical symptoms. Surgery remains the accepted approach in managing Gallbladder Perforation (GBP).

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