Case Report

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Complete Neck Torsion of the Gallbladder: A Case Report

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Citation Mohammadi Arbati M, YariQoli F, Daryabari SN, Molseghi MH. Complete Neck Torsion of the Gallbladder: A Case Report. Case Reports in Clinical Practice. 2021; 6(5):192-196.

Running Title Complete Neck Torsion of the Gallbladder

Article info:

Received: 11 Sep 2021

Revised: 20 Sep 2021

Accepted: 15 Oct 2021

Keywords:

Gallbladder; Cholangiography; Cholecystectomy

ABSTRACT

Volvulus of the gallbladder is among infrequent diseases ranked among acute abdomen conditions. The disease presents with acute biliary ailments, often reminiscent of acute cholecystitis. It is more common in frail elderly women. Its preoperative diagnosis is complicated; therefore, this finding is intraoperatively encountered in most cases. In our case report, we present the case of a female patient where the volvulus of the gallbladder was found as a surprising discovery during surgery. Gallbladder volvulus is a rare disease that presents as acute abdomen. It is most often diagnosed intraoperatively. Cholecystectomy is the most appropriate therapeutic method for this condition.

Introduction

Sudden abdominal discomforts are among serious illnesses that may endanger the patient's life. The volvulus or torus of the gallbladder is among sporadic diseases. As in the small intestine, the gallbladder is rotated around its axis, causing the arterial supply and venous drainage to become occluded, then to the gallbladder ischemia. For the first time, the volvulus of the gallbladder was described by Wendel in 1898 [1]. It mainly affects the elderly and lean patients, more often women (approximately 84%), aged 65-75 years. Since the first mention, approximately 500 cases of this rare disease have been published globally [2].

Acute cholecystitis is most often caused by cholecystolithiasis. It is a form of phlegmonous inflammation [3]; however, the relationship between cholecystolithiasis

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and gallbladder volvulus remains unclear; no specific link has been established in this respect. It occurs in only 25%-50% of patients. Preoperative diagnosis is challenging. In case of acute patient problems, the gallbladder volvulus is not very thoughtful. That is why we find the torus of the gallbladder most often until preoperatively. The most suitable treatment modalities are cholecystectomy.

Case Presentation

A 73-year-old female was referred to the Emergency Department of Mousavi Hospital (Zanjan City, Iran) with a two-day history of sudden onset colicky abdominal pain associated with vomiting. Clinically, the patient was pyrexic without acute distress. She was dehydrated at presentation with the following vital signs: HR 92 b/min, BP 135/100 mmHg, T 38.5°C, oxygen saturation-97% on air abdomen was soft, mildly distended, and tenderness in abdominal right upper and lower quadrant. She had hypertension and a history of biliary disease, i.e., managed by Endoscopic Retrograde Cholangiopancreatography (ERCP), sphincterotomy, and stenting. In the laboratory data, she presented leukocytosis with shift to left (neutrophil: 89.2%). Her liver enzymes were normal with healthy serum amylase (Table 1).

In an upright chest X-ray, free air under the diaphragm was not detected, while abdominal X-ray indicated a typical small bowel gas pattern. The Ultrasonographic (US) examination demonstrated a distended gallbladder with size 51×137mm; dilated extra and intra hepatic bile ducts. Besides, there was a 10mm stone in gallbladder. Serum therapy, as well as analgesic and antibiotic therapy were performed for the patient. Her abdominal pain increased, the leukocytosis increased to 11.5/lit with 91.5% neutrophils; a CT scan performed was for patient, suggesting dilated gallbladder (Figure 1). Based on the progression of the clinical condition and laboratory findings, the patient was indicated for cholecystectomy.

We performed a mid-line laparotomy surgery. We found a huge, distended gallbladder intraoperatively. The gallbladder was revolved in the longitudinal axis by 360 degrees. It was a complete volvulus with strangulation. There was a long hinge of the gallbladder. Following the derotation and identification of significant structures, we performed cholecystectomy in a standard ligation of the cystic artery and cystic duct. Because of a dilated Common Bile Duct (CBD) (3cm diameter) with a vast stone and stent in CBD, we decided to explore the CBD and extract the stone with the stent. Next, we placed a T-Tube in the common bile duct, and a cholangiography was taken, i.e., normal (Figure 2). An abdominal drain was inducted into the subjacent space, i.e., extracted on the second postoperative day. The patient managed to receive oral intake without difficulty from the third postoperative day. We removed the stitches on the eighth postoperative day. The patient was discharged on the 10th postoperative day in a stabilized state. Histologically, it was gangrenous cholecystitis. Outpatient control a week from discharge was a patient without complications, with wounds healed primarily.

Discussion

Volvulus of the gallbladder is a very rare disease. The incidence of this disease, according to various sources, is 1/365520 hospitalized patients [4]. Although most elderly patients, mainly females, have been reported, several cases have been reported in young and pediatric patients. In 1997, Kitagawa reported two cases of gallbladder disease in males aged 4 and 5 years [5].

The cause of gallbladder disease remains undiscovered. Different reasons are discussed. The most common cause is anatomical abnormalities of the gallbladder (e.g., a long gallbladder hinge, called the “mesenterium” of the gallbladder in the area of the cystic duct and cystic artery, when the gallbladder is loosely in the abdominal cavity,” called “floating gallbladder”) [6]. In elderly patients, the loss of body fat and liver parenchyma atrophy may prolong the gallbladder [7]. Volvulus may be complete with a 360° reversal, resulting in reduced vascular supply to the gallbladder and the development of ischemia to wall gangrene. Similarly, this was also the case in our patient. Incomplete volvulus manifests as the intermittent biliary problems of the character of biliary colic.

Preoperative diagnosis is difficult in this condition. The standard screening method is an ultrasonographic exam, which may not be specified in the diagnosis of gallbladder disease. In most cases, the gallbladder is enlarged with edema of the gallbladder wall. In case of an unclear finding, a CT abdomen can be filled. CT signs of the gallbladder can signal its torsion [8, 9-12]. Other CT signs of the gallbladder can be the horizontal gall axis, the localization of the cystic duct to the right of the gallbladder, the signs of gallbladder inflammation, and the enlargement and edema of the wall [5]. In our case, the patient was examined by ultrasound. The torsion diagnosis was not preoperatively determined; the signs of an enlarged gallbladder with the wall widening were reported in the CT scan. Due to the clinical picture, leukocytosis, and US finding, CT tests were indicated.

Table 1. Laboratory findings in the patient

Test	Value	Test	Value
WBC	10.7x10^3/µL	ALKP	200 mg/dL
Neutrophils	89.2%	Bill T	0.9 mg/dL
HB	12.3	Bill D	0.4 mg/dL
PLT	248x10^3/µL	Serum Amylase	71 mg/dL
AST	27 mg/dL		
ALT	17 mg/dL		

WBC: White blood cell; HB: Hemoglobin; PLT: platelet; AST: aspartate aminotransferase; ALT: Alanine transaminase; ALKP: Alkaline phosphatase; Bill: bilirubin; T: Total; D: Direct.

Laboratory examination is nonspecific; the elevation of CRP and leukocytosis indicate the inflammatory process, and hepatic tests, including bilirubin, tend to be standard. Symptomatology is nonspecific. It usually manifests abrupt pains, sometimes with vomiting. Clinically, tenderness in the right upper quadrant of the abdomen can be felt in an enlarged and inflamed gallbladder. Our patient experienced pain in the right upper quadrant of her abdomen, and the gallbladder was not palpable. Laboratory test data indicated leukocytosis and other test results were normal. Clinical images typically resemble acute cholecystitis; thus, the operation and torsion of the gallbladder is often a surprising finding during surgery. Some authors describe the triad to diagnose the gallbladder. This includes specific symptoms (a short history of problems, abdominal pain, & vomiting), clinical symptoms (palpable gallbladder, discrepancy between body temperature & heart rate), and

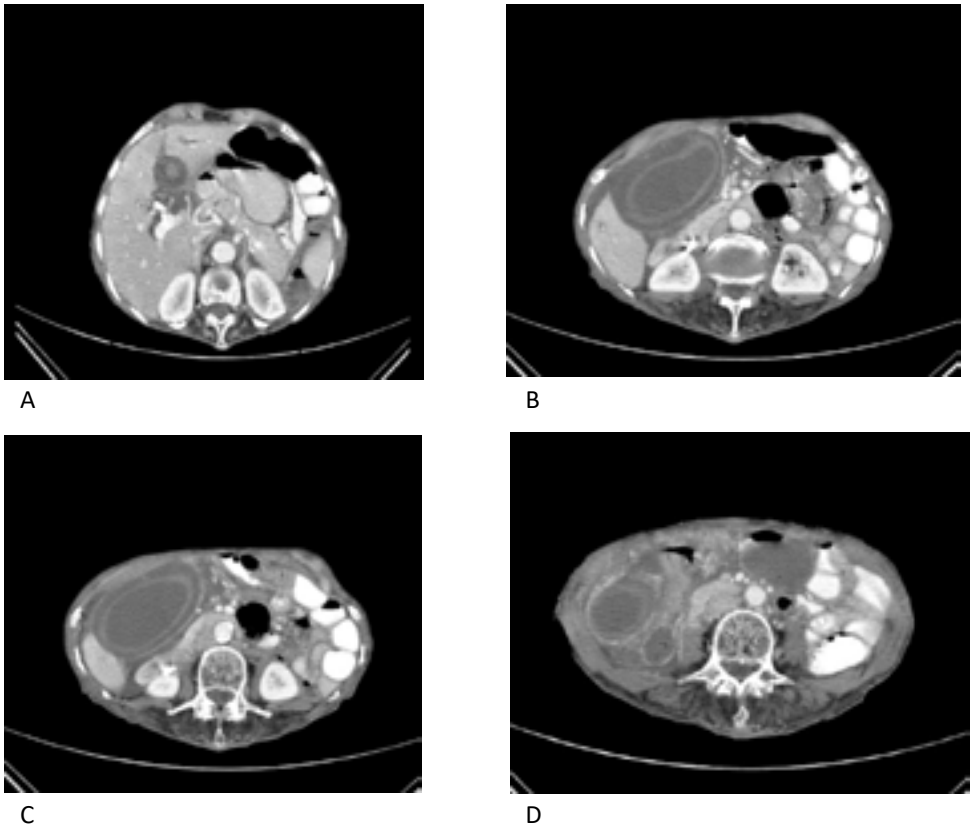

Figure 1. Computed Tomography Scan of the abdomen in axial section indicating a hyperdense lesion (A, B, C, D)

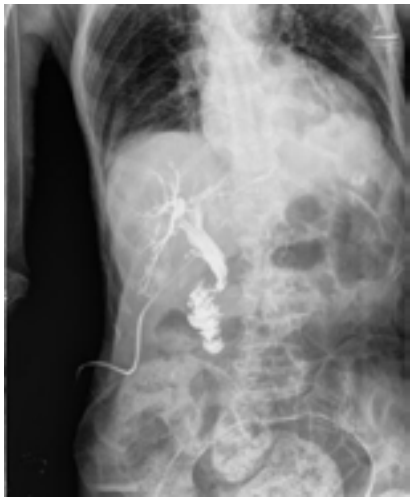

Figure 2. Cholangiography through T-tube during surgery

patients' physical status (cachectic elderly patient with spinal deformity) [10-13]. The management of this disease is surgical. Early diagnosis and surgery are the prevention of complications, such as gallbladder perforation and biliary peritonitis. Typically, in elderly patients, these complications may significantly increase morbidity and mortality in the early postoperative period. A classical, laparotomic approach can perform the operation, or laparoscopically, i.e., currently the method of choice. The biggest trick, in this case, is the changed anatomical proportions in the area of the Callot's triangle. Therefore, a careful review of the gallbladder area during surgery is necessary.

Conclusion

Gallbladder torsion is rare; therefore, it requires a high index of suspicion for early preoperative diagnosis and prompt surgical intervention. Typically, older, leaner women are affected. Preoperative diagnosis is difficult; patients are primarily indicated for surgery under the image of acute cholecystitis. The volvulus of the gallbladder is a surprising finding on the operation. The most suitable therapeutic method is acute cholecystectomy, whether by the conventional or laparoscopic route.

Ethical Considerations

Compliance with ethical guidelines

All ethical principles are considered in this article. The participants were informed of the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information and were free to leave the study whenever they wished, and if desired, the research results would be available to them. Written consent has been obtained from the subjects. principles of the Helsinki Convention were also observed.

Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

Conflict of interest

The authors declared no conflict of interest.

Acknowledgements

We would like to express our special thanks of gratitude to the Department of General Surgery at Zanjan University of Medical Sciences as well as our principal who gave us the golden opportunity to do this wonderful case report.

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