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Case Study

Liver Abscess Caused by Acute Cholecystitis Treated Laparoscopic with or without Cholecystectomy Category: Case Study

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Abstract

Acute cholecystitis is an inflammation of gallbladder due to gallstones which is one of the most common causes of admission in surgical department, liver abscess is the pus collection caused from bacterial infection in liver parenchyma, developed in rare cases in acute cholecystitis with 0.8-3.2% incidence. Liver abscess caused by gallbladder perforation (pericholecystic abscess) it can be a disastrous complication with mortality rate 5.6%. we reported four cases of liver abscess caused by acute cholecystitis with different approach, first two cases drainage laparoscopic approach and IV antibiotics, after that they become as elective laparoscopic cholecystectomy, the third one drainage and started laparoscopic approach then converted to open approach due to adhesions and bleeding, the fourth one antibiotics IV, cholecystectomy and drainage of the abscess laparoscopic approach. The best method to treat the liver abscess depends on the clinical situation, the site of the abscess and experience of the surgeon.

Keywords: Liver Abscess; Cholecystitis; Laparoscopy Cholecystectomy

Introduction

Hepatic abscess is rare presentation synchronous with acute cholecystitis which is classified as pyogenic abscess caused by bacteria 80% *E. Coli*. 4.6 - 15% of patient with acute cholecystitis and 21.9% with biliary disease have liver abscess [1,2]. There are limited cases in literature, and the treatment depends on severity of acute cholecystitis and the experience of surgeon in laparoscopy. Niemeir's classification system likely categorized gallbladder perforations based on certain criteria, possibly including factors such as the direction or extent of the perforation (1934) then to Fletcher and Radvein 1951: Type I: Perforation into the peritoneal cavity, Type II: Perforation involving the pericholecystic area, which may extend into the liver parenchyma, Types IV and V: Mention of specific segments (IV and V) being commonly involved in liver, Type III perforation leading to the formation of a fistula between the biliary system and the gastrointestinal tract, associated with chronic cholecystitis, Anderson Classification (1987) sowed Type IV: Cholecysto-biliary fistula, which involves a fistulous connection between the gallbladder and the biliary system.. Symptoms of acute cholecystitis with liver abscess are abdominal pain in the right upper quadrant, nausea, vomiting, fever. Often patients have nonspecific clinical features and high Inflammatory markers [5].

Methods

In this article, we report four cases at Ramnicu Sarat Hospital with cholecystitis and synchronous liver abscess where the therapeutical approaches were different for each patient. Patients were diagnosed from 1 - 6 weeks after the onset of acute phase of cholecystitis. The first two cases were treated with antibiotics laparoscopic drainage and interval laparoscopic cholecystectomy, the third case was treated with laparoscopic cholecystectomy converted in open due to adhesions and bleeding from Calots triangle followed by drainage of abscess, the fourth case laparoscopic cholecystectomy with drainage of liver abscess.

Case 1

A 63 year old patient was admitted to our hospital due to fever, chills, tachycardia, abdominal pain in right upper quadrant of abdomen for one week. On examination Abdominal tenderness with positive and Murphy sign was noted. Blood work showed Hemoglobin 15.5 g/dl, leucocyte count16.500, cu 79% neutrophils, VSH 60 mm/1h, Fibrinogen 650 mg/dl, C-reactive protein 192 mg/l. CT scan showing liver abscess in the right lobe. Patient was also COVID positive.

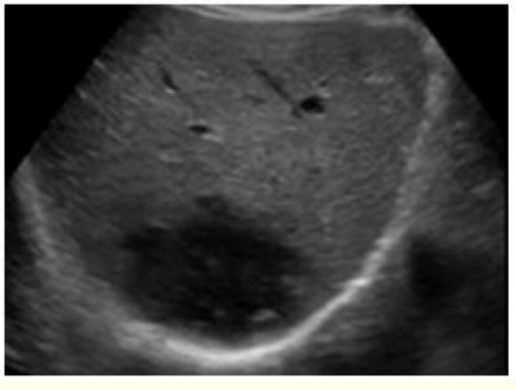

Figure 1: Ultrasound of the liver abscess.

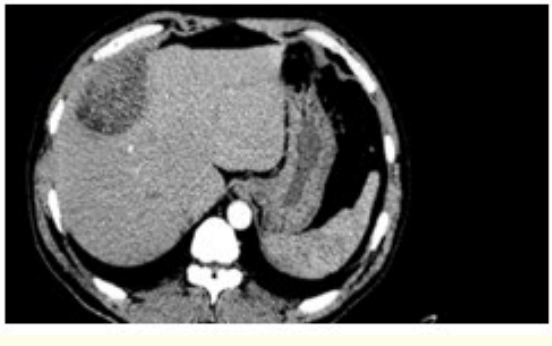

Figure 2: CT scan liver abscess.

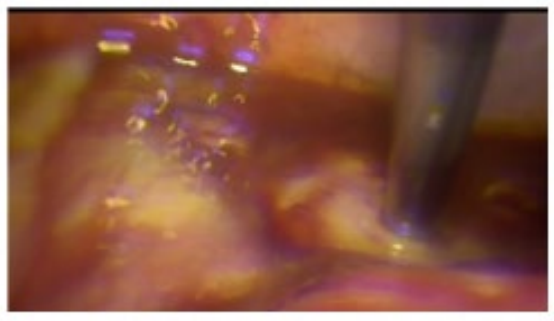

Figure 3: Liver abscess intraoperative, laparoscopic approach.

Case 2

A 90 years old male with Past medical history of AF, HTN, dyslipidaemia was admit to our hospital with epigastric pain, fever, deterioration of the general status, nausea and vomiting 7 days prior to his admission. Blood work: Hb 13.5 g/dl, leucocyte 11.000, cu 82% neutrophile, thrombocyte 122.000, VSH 42 mm/1h, Fibrinogen 590 mg/dl, CRP 45 mg/l. Ultrasound (US) revealed a gallbladder with thickened walls, with multiple hyperechoic images of small dimensions at the infundibular level, a hypoechoic image at the level of the liver was observed located at the level of segment VII, with high viscosity content diagnosed as an intrahepatic abscess. A Laparoscopic drain with Adhesiolysis and Intensive wash was placed for 2 weeks without cholecystectomy.

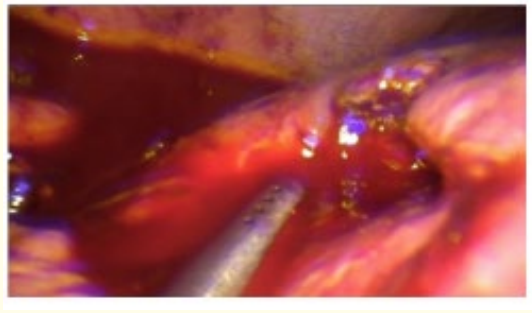

Figure 4: Liver abscess intraoperative, laparoscopic approach.

Case 3

A 69 years old female patient with hypertension was admitted to RS hospital with 6 weeks of abdominal pain, antibiotics orally for 10 days prescribed by her family doctor, no improvement, but in the last 5 days prior to her admission the patient's symptoms were increased. Blood work: Hb 15.5 g/dl, leucocyte 22,000 , cu 90% neutrophile, , VSH 70 mm/1h, Fibrinogen 670 mg/dl. CRP 192 mg/l.

Tratament: Started laparoscopy converted to open surgery due to a lot of adhessions, Liver abscess drainage with cholecystectomy, Adhesiolysis. Washing and insertion of drainage tube.

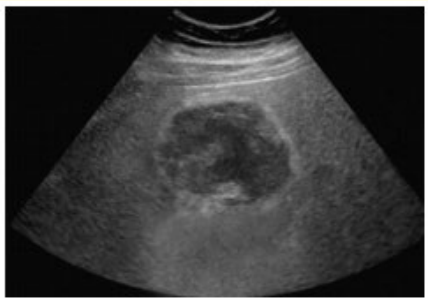

Figure 5: Ultrasound liver abscess.

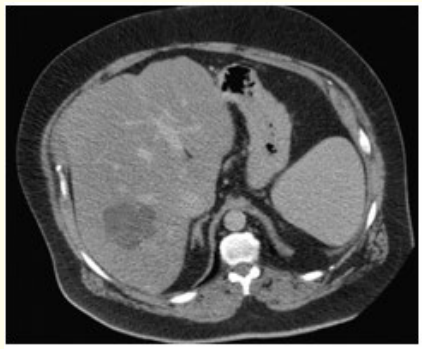

Figure 6: CT liver abscess.

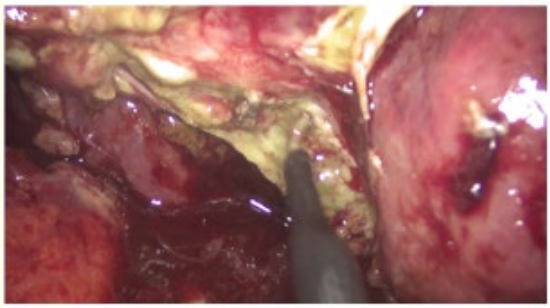

Figure 7: Liver abscess, intraoperative laparoscopic approach.

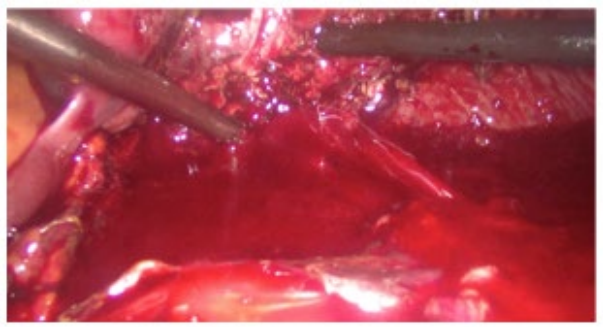

Figure 8: Bleeding one of the cause to convert to open approach.

Case 4

A 71 years old male patient with HTN, thrombocytopenia and morbid obesity, was admitted to our hospital with right upper quadrant pain, nausea, vomit, chills and fever 10 days prior to his admission, the patient had an episode of abdominal pain in the right upper quadrant 3 months before his admission but didn't seek any medical advice (biliary colic). Physical exam: tenderness on superficial palpation with positive Murphy's sign. Blood work: Hb 14.5 g/dl, leucocyte 13.500, cu 76% neutrophile, thrombocyte 130.000, VSH 30 mm/1h, Fibrinogen 550 mg/dl, CRP 46 mg/l.

Figure 9: Liver abscess ultrasound.

Figure 10: Laparoscopic approach of liver abscess.

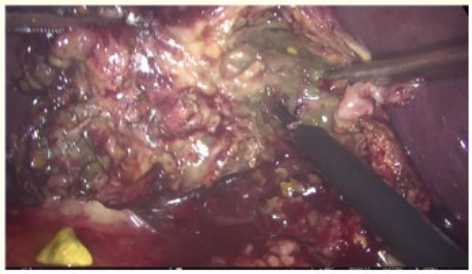

Figure 11: Laparoscopic approach of liver abscess.

Discussion

Acute cholecystitis means acute inflammation of gallbladder. 90-95% are due to impacted stones in the infundibular of gallbladder which cause acute pain in the right upper quadrant of the abdomen [6].

Infection can occur in multiple ways through the bile ducts, arterial, venous, or locally. Ultrasound is the best imaging for diagnosis of liver abscess, it can visualize solitary or multiple lesions. 80% of cases occurs in right hepatic lobe. CT scan is more sensitive test in incipient stages, but does not appear better than ultrasound in late stages [7-9]. Liver abscess caused by acute cholecystitis can be a life-threatening complication with a reported mortality of 5.6%. While 22% of adult people have gallbladder stones, only 1-2% of people will suffer from acute cholecystitis during their lifetime and 0.8-3.2% of acute cholecystitis develop into liver abscess [10]. The most common site of perforation is the fundus of the gallbladder 33.3-42.9% may be is the most distal part to the cystic artery. There are many risk factors for liver abscess others than acute cholecystitis like diabetes mellitus, malignancy, Crohn's disease cirrhosis, regular use proton pomp inhibitors, elderly patients (>65 years) and liver transportation [10-13].

The frequency of liver abscess caused by acute cholecystitis was 1.3% at Ramnicu Sarat Hospital in the last 5 years, all cases were diagnosed clinically and confirmed by the imaging exam like ultrasound. In our hospital we performed 63 cases with acute cholecystitis degree II and III in the last 5 year. Delayed diagnosis is the major cause of high morbidity and mortality. The morbidity and mortality of the surgical treatment of liver abscesses has always been high. Of the 4 cases that we treated laparoscopy one case was converted to open approach due to adhesions and bleeding from the Calot's triangle from the cystic artery found posterior to cystic duct.

Conclusion

The clinical presentation and US findings are sufficient to diagnose liver abscess. The drainage of the liver abscess is necessary for clinical improvement. The choice of procedure and approach differs on the patient's presentation and procedural factors. The decision of "open vs laparoscopic approach" is important for the management of liver abscess. Laparoscopic approach can be used in earlier presentation and is a minimally invasive procedure. Acute cholecystitis grade III with liver abscess is a complex intervention and can be performed laparoscopically only by surgeons with experience in laparoscopy.

Bibliography

1. Costi R., *et al*. "Synchronous pyogenic liver abscess and acute cholecystitis: How to recognize it and what to do (emergency cholecystostomy followed by delayed laparoscopic cholecystectomy)". *Surgical Endoscopy* 26 (2011): 205-213.

2. Chou FF., *et al*. "Single and Multiple Pyogenic Liver Abscesses: Clinical Course, Etiology, and Results of Treatment". *World Journal of Surgery* 21 (1997): 384-389.

3. Kochar K., *et al*. "Intrahepatic perforation of the gall bladder presenting as liver abscess: Case report, review of literature and Niemeier's classification". *European Journal of Gastroenterology and Hepatology* 20 (2008): 240-244.

4. Niemeier OW. "Acute free perforation of the gall bladder". *Annals of Surgery* 99 (1934): 922-924.

5. Hatzidakis AA., *et al*. "Acute cholecystitis in high-risk patients: Percutaneous cholecystostomy vs conservative treatment". *European Radiology* 12 (2002): 1778-1784.

6. Fagan SP., *et al*. "Prognostic factors for the development of gangrenous cholecystitis". *The American Journal of Surgery* 186 (2003): 481-485.

7. Tang S., *et al*. "Contrast-enhanced ultrasonography to diagnose gallbladder perforation". *American Journal of Emergency Medicine* 31 (2013): 1240-1243.

8. Escartín A., *et al*. "Acute Cholecystitis in Very Elderly Patients: Disease Management, Outcomes, and Risk Factors for Complications". *Surgery Research and Practice* 2019 (2019): e9709242.

9. Izadi K., *et al*. "Gallstone Liver Abscess Secondary to Gallbladder Perforation". *Radiology Case Reports* 4 (2009): 280.

10. Duncan J. "Femoral hernia, gangrene of the gall bladder: Extravasation of bile: Peritonitis: Death". *New Jersey Minority Educational Development* 2 (1844): 151-153.

11. Hosaka A., *et al*. "Gallbladder perforation associated with carcinoma of the duodenal papilla: A case report". *World Journal of Surgical Oncology* 8 (2010): 41.

12. Soroken C., *et al*. "An Unusual Case of Cholecystitis and Liver Abscesses in an Older Adult". *Journal of the American Geriatrics Society* 60 (2012): 160-161.

13. Tonolini M., *et al*. "Urgent MRI with MR cholangiopancreatography (MRCP) of acute cholecystitis and related complications: Diagnostic role and spectrum of imaging findings". *Emergency Radiology* 19 (2012): 341-348.

14. Derici H., *et al*. "Diagnosis and treatment of gallbladder perforation". *World Journal of Gastroenterology* 12 (2006): 7832-7836.