International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2019): 7.583

Intra-Hepatic Perforation of Gall Bladder Causing Liver Abscess Mimicking Malignancy: A Rare Presentation

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Abstract: ***Introduction-Spontaneous gall bladder perforation (GBP) in cases of gall stone disease is rare with an incidence of 0.8-3.2% and with its wide range of sequelae, carries a high morbidity as well as mortality. Intra-hepatic GBP creating a cholecystohepatic fistula are perhaps a bit research with just about a dozen cases reported worldwide, needs to be brought forward for their challenging pre-operative diagnosis. Case outline-We report a case of a 57 years old adult male who came with complaints of right hypochondrial pain and fever since 2-3 months. Ultrasound and Triple phase CT were suspicious of concomitant cholelithiasis and gall bladder malignancy with liver infiltration. A pre-operative FNAC from the liver lesion was suggestive of chronic inflammatory cells and pus thus clenching the diagnosis. The patient was managed with repeated aspirations of the liver abscess and a definitive Laparoscopic cholecystectomy with lavage of the abscess cavity. Conclusion-In cases of GBP, possibility of Intra-hepatic GBP and Cholecystohepatic fistula should be kept in mind. Pre-operative radiology and histopathology can help distinguish between liver abscess and malignancy. With more cases being reported and advanced imaging techniques, there is better understanding of the complex anatomy relating a cholecystohepatic fistula leading to a reduction in the number of conversions of laparoscopic cholecystectomy to open cholecystectomy.***

Keywords: Gall bladder perforation (GBP), Cholecystohepatic fistula

1. Introduction

Spontaneous gall bladder perforation (GBP) in cases of gall stone disease are rare with an incidence of 0.8-3.2% (1) and was classified into three categories by Neimeier in 1934 as type I, also known as acute free perforation, type II / subacute pericholecystic abscess and type III /chronic cholecystoenteric fistulation (2). Despite being widely accepted, the classification doesn't include a set of complications of GBP termed as Cholecysto-Hepatic communications which includes an Intrahepatic perforation causing liver abscess and/or bilomas.

In this study, we present a case of an Intra-hepatic perforation of gall bladder causing liver abscess in a 57 year old male which was mimicking carcinoma gall bladder with liver infiltration.

2. Case Report

A previously healthy 57-years-old male presented with complaints of right hypochondrial pain and mild grade fever since 2-3 months, anorexia with subsequent weight loss and nausea since a month. There was no history of cough, vomiting, bleeding per rectum or obstipation. He had no significant medical or surgical history. His family history was also unremarkable. He had no sick contacts or history of travel within the last few years. He was a farmer and denied smoking and alcohol or intravenous drug abuse. His immunization history was not known. He appeared averagely nourished. There was no palor, cyanosis, clubbing, pedal edema or icterus. On physical examination, his temperature was 100.8 F, blood pressure was 126/78mmHg, pulse rate was 102/minute, respiratory rate was 20/minute and oxygen saturation was 97%. Cardiopulmonary examination was normal. Abdominal exam revealed tenderness in the right hypochondrial region. There was no guarding or rigidity. There were no palpable lumps.

Routine laboratory investigations revealed haemoglobin of 12.2g/dL with a TLC of 15,300 and platelet count of 5,92,000. His liver function tests were normal. His PT/INR was deranged (17.3/1.539). His electrolytes, kidney function test were within normal limits. His urine routine and microscopy was positive for bilirubin.

A chest X-ray at the time of admission showed prominent bronchovascular markings.

An ultrasound (USG) of the whole abdomen showed an ill-defined heterogenous area of 51 x 48 mm seen adjacent to gall bladder fossa in liver. The lesion showed minimum vascularity & possible communicating with anterior wall of gall bladder. A single echogenic foci with distal acoustic shadow of size 13mm was seen in the gall bladder lumen along with sludge. Common bile duct was dilated (7mm) and portal vein was 11.3mm normal overall suggestive of cholelithiasis and gall bladder malignancy with liver infiltration.

CA19-9 was 150.0 U/ml (raised; normal<37).

A Triple phase CECT was done which revealed an enlarged gall bladder with a radio-dense calculus in the neck. There was diffuse irregular wall thickening and enhancement of gall bladder wall. It also showed a large heterogenously enhancing necrotic lesion in the segment V

and VI of liver with loss of fat planes between the lesion and wall of gall bladder with periportal and retroperitoneal lymphadenopathy.

The differential diagnosis included gall bladder malignancy with liver infiltration or cholecystitis with associated liver abscess. An ultrasound guided FNAC from the liver lesion was donewhich revealed a purulent tap and cytology showed chronic inflammatory cells with mild biliary ductal cell proliferation with no evidence of malignant cells.

The patient was then managed with sequential ultrasound guided aspiration of the liver abscess and later, a definitive Laparoscopic cholecystectomy. Intraoperatively, the fundus was found adherent to the segment V of the liver beneath which a pus cavity of about 50ml was found as soon as the gall bladder was removed of the bed. A frozen section was sent from the fundus which was suggestive of chronic cholecystitis.

Post-operatively the patient was started on enteral nutrition from day 3 and was discharged uneventful on post-operative day 8th.

3. Discussion

Spontaneous GBP is a known complication of gall stone disease with a mortality of 12-16% (3). Acute uncomplicated cholecystitis is more common in females whereas gallbladder perforations are more common in males. (4) The basic pathophysiology involves occlusion of the cystic duct by a calculi acting as a ball valve which allows entry of the bile but not to exit resulting in gallbladder distension and a rise in intraluminal pressure. These leads to vascular compromise causing necrosis and perforation, the most common site being the fundus as it has the lowest blood supply. (5)

GBP with intrahepatic perforation leading to liver abscess is an extremely rare entity with just about a dozen cases reported worldwide. (6) The nomenclature includes Cholecystohepatic fistula, Intrahepatic abscess or bilomas.

Clinical presentation can occur as a right upper quadrant pain, nausea/vomiting and fever. Sometimes a smooth lump may be palpable in the right hypochondrium accounting to the distended gall bladder. Biochemically, liver function tests maybe deranged, specially a raised alkaline phosphatase.

Diagnosis includes an initial ultrasonography which may show gallbladder wall thickening of more than 3 mm, a distended gallbladder (largest diameter being >3.5–4.0 cm) and visualization of a defect in the gall bladder suggestive of a perforation called as a “Hole sign”(7).

A contrast enhanced CT scan is the investigation of choice due to its high sensitivity of diagnosing a perforation and differentiating it from a GB malignancy (8).

Since these presentations are rare, not enough treatment guidelines are available. But to our understanding and the data that has been published, type 1 perforations can be managed with abscess drainage, abdominal lavage and cholecystectomy, type 2 perforations require percutaneous drainage of the abscess followed by cholecystectomy (laparoscopic/open) whereas type 3 perforations require additional procedures like repair of the cholecystoenteric fistulation.

In our case, due to its clinical, radiological and histological features, we classified it into a type 2 gall bladder perforation and hence was managed by a serial aspiration of the liver abscess using ultrasound guidance percutaneously followed by a definitive Laparoscopic cholecystectomy.

Table 2 Cases of intrahepatic gallbladder perforation with liver abscesses in the literature

Authors	Publication year	Patient age (years)	Presentation	Diagnostic method		Treatment
				Ultrasound	CT	
Singla *et al.*	1998	65	Acute (fever)	–	Yes	Open cholecystectomy and abscess drainage
Bhatwal *et al.*	2012	60	Acute (abdominal pain)	Yes	Yes	Open cholecystectomy and abscess drainage
Kamlesh *et al.*	2012	70	Acute (abdominal pain)	Yes	Yes	Ultrasound-guided percutaneous drainage and laparoscopic cholecystectomy
Singh *et al.*	2013	60	Chronic (abdominal pain)	–	Yes	Open cholecystectomy and abscess drainage
de Hollanda *et al.*	2013	50	Acute (abdominal pain)	Yes	Yes	Open cholecystectomy and abscess drainage
Jethwani *et al.*	2013	58	Acute (abdominal pain)	Yes	–	Open cholecystectomy and abscess drainage
Donati *et al.*	2014	62	Chronic (intermittent fever)	Yes	Yes	Open cholecystectomy and abscess drainage

4. Conclusion

GBP with liver abscess formation in acute and chronic cholecystitis are rare entities but are associated with high morbidity and mortality. Investigating modality of choice is a CECT which can differentiate it from malignancy which mimics the condition. Treatment includes percutaneous drainage of the abscess and early cholecystectomy (total or partial). As more cases are being reported, fewer cases are being converted to open and Laparoscopy is the preferred approach.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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