

## Case Report

# Gas Forming Pyogenic Liver Abscess around a Primary Hepatic Biliary Calculus

Vinay G Mehendale\* and Namita Chaudhari

*Medico Surgical Clinic and Hospital, India***\*Corresponding author**

Vinay G Mehendale, Medico Surgical Clinic and Hospital, B103-104, Lal Bahadur CHS, Doshi Wadi, Opp Sarvoday Hospital, LBS Rd, Ghatkopar, Mumbai 400086, India, Tel: 91 9821140674, Email: vinaymehendale@gmail.com

**Submitted:** 02 August 2016**Accepted:** 26 October 2016**Published:** 01 November 2016**ISSN:** 2379-0830**Copyright**

© 2016 Mehendale et al.

**OPEN ACCESS****Abstract**

A report of a case of gas forming pyogenic liver abscess associated with a primary hepatic calculus. 51 year old diabetic patient on insulin underwent laparoscopic cholecystectomy for symptomatic cholelithiasis. Patient had uneventful postoperative course. She presented after three weeks with pain in right hypochondrium, fever and clinical and laboratory features of septicemia. Ultrasound and CT scan showed abscess in segment V and VI with gas within, normal IHBR and no calculi. Patient was treated with broad spectrum antibiotics and surgical drainage through right subcostal incision; a 1 cm calculus was found in the abscess cavity. Pus culture showed growth of *E. coli*. Though there are sporadic reports of gas forming hepatic abscess most are secondary to interventions like radiofrequency ablation, intra arterial embolisation or intra arterial infusion chemotherapy. But there is no report of gas forming abscess without such intervention. Gas forming hepatic abscess are associated with high morbidity and mortality. The present case was associated with primary hepatic calculus and recovered completely with surgical drainage and antibiotic therapy along with good blood glucose control.

**Keywords**

- Liver abscess
- Pyogenic liver abscess
- Types and causes of liver abscess

**ABBREVIATIONS**

HCC: Hepato Cellular Carcinoma

**INTRODUCTION**

Gas forming liver abscess is a rarity. There is no report of a primary hepatic biliary calculus within such an abscess. We report a case of a 51 year old diabetic woman who developed a pyogenic abscess around a primary hepatic biliary calculus 3 weeks after she underwent laparoscopic cholecystectomy. The abscess was cured by open drainage

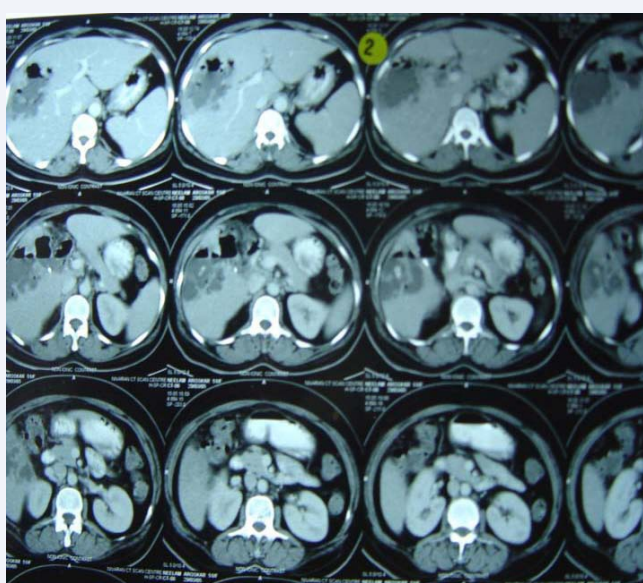
**CASE PRESENTATION**

A 51 year old diabetic woman with symptomatic cholelithiasis was treated by laparoscopic cholecystectomy. Her pre operative abdominal ultrasonography showed multiple gall bladder calculi, common bile duct (CBD) size was 3mm, intrahepatic biliary radicles were normal. She required 28 units of human insulin per day for the control of blood sugar levels. Liver function tests were within normal limits. During laparoscopic cholecystectomy there was no spillage of bile or calculi into the peritoneal cavity. Three weeks after cholecystectomy the patient suffered from pain in the right hypochondrium and fever. She had stopped insulin therapy on her own after discharge from the hospital. She was hospitalized in septicemia. Her hemoglobin had come down to 8gm/dl, leucocyte count was 26000/mm<sup>3</sup>, serum bilirubin was 0.9mg/dl with direct bil. 0.4mg/dl and blood glucose level was 360mg/dl. She was treated with ceftizidime, gentamycin and metronidazole. Ultrasonography showed abscess in the right

lobe of liver with air fluid level, post cholecystectomy status, no evidence of calculi. CT scan showed a large abscess in segment V and VI with gas within, normal intrahepatic biliary radicals and no evidence of calculi (Figure 1a). Patient was operated upon by right subcostal incision (Kocher's). There was a large abscess in the lateralmost part of the right lobe of liver, pointing on the lateral surface. Incision was taken on this point and about 250ml of thick pus was drained. A 1cm diameter calculus came out along with pus (Figure 1b). The abscess was in the segment V and VI of the liver and there was no communication with the gall bladder fossa. The gall bladder fossa was normal and the clips on cystic duct and the cystic artery were in place. Pus was sent for culture. 32 FG size drain was placed in the abscess cavity. There was luxuriant growth of *E coli* in the culture, sensitive to ceftizidime and amikacin. Drain was removed on the 4<sup>th</sup> post operative day and patient discharged on the 7<sup>th</sup> post operative day. Patient has been followed up for 3 years and is symptom free.

**DISCUSSION**

There have been sporadic reports of gas forming liver abscesses in the literature [1-6]. But Chou et al in their retrospective study reported 36% incidence of gas forming abscesses amongst their study of 424 cases of hepatic abscesses [7]. In most of the reports the gas forming abscesses occurred following interventions like intra arterial infusion chemotherapy for hepatocellular carcinoma (HCC); intra arterial chemoembolisation, radiofrequency ablation or intra arterial embolisation for benign conditions like pseudoaneurysm [1,2,4-6]. In majority of the cases underlying cause for formation of gas



**Figure 1a** C T scan showing gas filled abscess cavity in hepatic segments V and VI.



**Figure 1b** Calculus found in the abscess cavity.

forming abscesses is not found. But 57.5% of the cases in series were diabetic. In the remaining cases there were predisposing factors like hepatocellular carcinoma, cholecysto or choledocholithiasis, biliary tract cancer [8]. *Klebsiella pneumoniae* has been commonest organism grown from these abscesses [7,8]. Out of 15 cases with *Salmonella* typhoid infection only one was associated with HCC [3]. *Clostridium septicum* was grown in only one patient of choriocarcinoma with hepatic metastasis [9].

Patients have been treated with medical treatment (antibiotics), aspiration, percutaneous drainage or operative drainage of the abscesses. Mortality is much higher in patients treated by medical treatment or aspiration only (44.4%) as compared to operative treatment [7]. The overall mortality in gas forming liver abscesses is much higher than in non gas forming liver abscesses [7,10].

In the present case the patient's laparoscopic cholecystectomy was uneventful. There was no bile or stone spillage during surgery. Patient discontinued prescribed insulin therapy and developed septicaemia with gas forming abscess in the liver. Her preoperative and postoperative ultrasonography and CT scan did not reveal any evidence of primary hepatic biliary calculus. Operative drainage of the liver abscess revealed a centimeter size primary hepatic calculus in the abscess cavity occupying segment V and VI of the liver. The cavity did not communicate with the gall bladder fossa. Our patient suffered from diabetes mellitus which is a well known underlying condition in cryptogenic gas forming pyogenic liver abscess. But finding of a primary hepatic biliary calculus was a surprise. There was no other predisposing cause for gas forming liver abscess. *E.coli* were cultured from pus. This organism has been reported by others but not as commonly as *klebsiella* [6,7,10]. Early surgical drainage, appropriate antibiotic therapy, and control of diabetes mellitus and septicaemia saved our patient despite high morbidity and mortality associated with gas forming liver abscesses [7,10].

## REFERENCES

1. Chen C, Chen PJ, Yang PM, Huang GT, Lai MY, Tsang YM, et al. Clinical and microbiological features of liver abscess after transarterial embolization for hepatocellular carcinoma. *Am J Gastroenterol.* 1997; 92: 2257-2259.
2. Kim MH, Choi MS, Choi YS, Kim DY, Lee JM, Paik SW, et al. Clinical features of liver abscess developed after radiofrequency ablation and transarterial chemoembolization for hepatocellular carcinoma. *Korean J Hepatol.* 2006; 12: 55-64.
3. Lee CC, Poon SK, Chen GH. Spontaneous gas-forming liver abscess caused by *Salmonella* within hepatocellular carcinoma: a case report and review of the literature. *Dig Dis Sci.* 2002; 47: 586-589.
4. Satoh H, Takeda T, Takashima M, Sumiyoshi K, Imaizumi N. Gas-forming liver abscess following transcatheter hepatic arterial embolization for an iatrogenic intrahepatic pseudoaneurysm: report of a case. *Surg Today.* 1995; 25: 361-364.
5. D'Orsi CJ, Ensminger W, Smith EH, Lew M. Gas-forming intrahepatic abscess: a possible complication of arterial infusion chemotherapy. *Gastrointest Radiol.* 1979; 15: 157-161.
6. Hanazaki K, Kajikawa S, Horigome N, Shiohara E, Haba Y, Kuroda T, et al. Gas-forming liver abscess after transcatheter arterial embolization for hepatocellular carcinoma: report of a case. *Surg Today.* 1993; 23: 747-749.
7. Chou FF, Sheen-Chen SM, Chen YS, Lee TY. The comparison of clinical course and results of treatment between gas-forming and non-gas-forming pyogenic liver abscess. *Arch Surg.* 1995; 130: 401-405.
8. Yang CC, Chen CY, Lin XZ, Chang TT, Shin JS, Lin CY. Pyogenic liver abscess in Taiwan: emphasis on gas-forming liver abscess in diabetics. *Am J Gastroenterol.* 1993; 88: 1911-1915.
9. Lee CH, Hsieh SY. Case report: *Clostridium septicum* infection presenting as liver abscess in a case of choriocarcinoma with liver metastasis. *J Gastroenterol Hepatol.* 1999; 14: 1227-1229.
10. Chou FF, Sheen-Chen SM, Chen YS, Chen MC, Chen FC, Tai DI. Prognostic factors for pyogenic abscess of the liver. *J Am Coll Surg.* 1994; 179: 727-732.

## Cite this article

Mehendale VG, Chaudhari N (2016) Gas Forming Pyogenic Liver Abscess around a Primary Hepatic Biliary Calculus. *J Liver Clin Res* 3(1): 1025.