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**Case Report**

# Management of complex hepatic abscess by percutaneous catheter drainage: a case report

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## ABSTRACT

Liver abscesses are a commonly encountered pathology in the tropical setting. Most commonly these are secondary to amoebic infestation. Majority of liver abscesses present with abdominal pain confined to the right hypochondrium. Smaller abscesses are easily dealt with by needle aspiration or catheter drainage under image guidance. Larger and complex abscesses are commonly dealt with by surgical drainage. We deal here with a case of complex liver abscesses which even had perforated into the pleural cavity. Keeping a close watch on the patient's general condition which was satisfactory, we did not rush into a major surgical procedure. Wide antibiotic coverage and pulmonary care were initiated. Two pig-tail catheters were placed in separate abscesses and metronidazole irrigation periodically done. The daily drain output gradually reduced and we could successfully remove the two catheters at an interval. The patient made a good recovery and continues to do well on follow-up. We see in this case that even large and multiple abscesses if meticulously managed, surgical drainage can be avoided and catheter drainage provides satisfactory results. Good antibiotic coverage must continue in the follow-up period too.

**Keywords:** Liver, Abscess, Drainage, Amoebiasis, Catheter

## INTRODUCTION

Hepatic abscess is a commonly encountered pathology in North India. Of the various underlying etiologies of liver abscesses, amebiasis is the most prevalent. Amebiasis, caused by Entamoeba histolytica can manifest ranging from an asymptomatic state to liver abscess.[1] The organism has two stages of life, the cystic stage is the infective stage and the trophozoite stage which ends up causing invasive disease.[2] Amoebic liver abscess is the most common extra-intestinal manifestation of amebiasis.[1,3] Amoebic liver abscess is uncommon in children and ten times more common in men than in women.[1] Low socio-economic status and habit of alcohol consumption are important predictors of liver abscess.[4] Mortality in cases of amebiasis is chiefly by extra intestinal infections, amoebic liver abscess being the most common one.[4] In USA, the first case was diagnosed by William Osler.[2] In fact, one of the earliest documentation of liver abscess is found in Sanskrit literature.[5] Of course, back then the cause was not known.

We discuss here the case of a 50 year old male who presented with right upper quadrant abdominal pain of over two weeks, fever and dyspnoea. He was diagnosed as a case of right lobe liver abscesses which were multiple and intercommunicating. In view of the large abscess volume and communicating nature, two separate pig-tail catheters were placed percutaneously for continuous drainage and need for surgery was avoided.

## CASE REPORT

A 50 year old male presented to our outpatient department with c/o pain in upper abdomen since two weeks, occasional fever of relatively recent onset and mild dyspnoea. The pain was localized to the right upper quadrant of the abdomen and while at onset it was intermittent and dull in nature, since last three days it had increased in intensity and had become more or less constant. There were no aggravating factors for the pain. The patient also complained of reduced appetite since last one week. He had not sought treatment elsewhere prior to coming to us and had only taken over the counter analgesics occasionally. The patient was also habitual to regular alcohol consumption and smoking since last 20 years. A thorough clinical examination was performed. Patient had mild pallor but no icterus was appreciated. Tenderness was elicited in the right hypochondrium region. There was also mild tenderness in the right iliac fossa. Rest of the examination was unremarkable.

The patient was admitted and further investigations were carried out. While blood reports were largely unremarkable except for slight elevation in leucocyte counts (12,900/mm$^3$) and hyponatremia (125 meq/l). Abdominal ultrasonography revealed mild hepatomegaly with multiple abscesses at right lobe of liver, each approximately 250 cc, 420 cc and 85 cc in volume. The collections were seen extending upto the diaphragmatic region. Mild right sided pleural effusion was also noted. The patient was started on broad IV antibiotic regimen. X-ray chest further confirmed the mild right sided pleural effusion. The patient was taken up for ultrasonography (USG) guided aspiration the next day and the USG done prior to this procedure revealed the abscess had already ruptured into the right pleural cavity. The procedure was nonetheless carried out very methodically and over 200 ml of brownish red pus was aspirated. The patient remained stable and in view of the rupture of abscess into the pleural cavity, his antibiotic regime was revised. Regular nebulization and spirometry were initiated. It is important to stress here that the patient did not develop any respiratory difficulty in the days following admission and aspiration of abscess. In fact, after needle aspiration he did not once develop fever nor did he develop dyspnoea. His oxygen saturation remained satisfactory. Revised X-ray chest showed no cause for alarm. The patient was symptomatically better and improved over the next one week. In the meantime, the pus culture report came out as sterile.

The next USG abdomen (performed after a week) revealed persisting residual abscesses in the right liver lobe roughly 370 cc, 85 cc and 450 cc in volume. The abscess at supero-lateral aspect of the right lobe was ruptured into the pleural cavity and the abscess cavity in segment VI was causing contour bulge and abutting upper pole of right kidney. Also reported was mild circumferential thickening of the caecum (upto 5.5 mm). It was decided that the patient needs continuous drainage of the abscess cavity rather than merely aspiration.

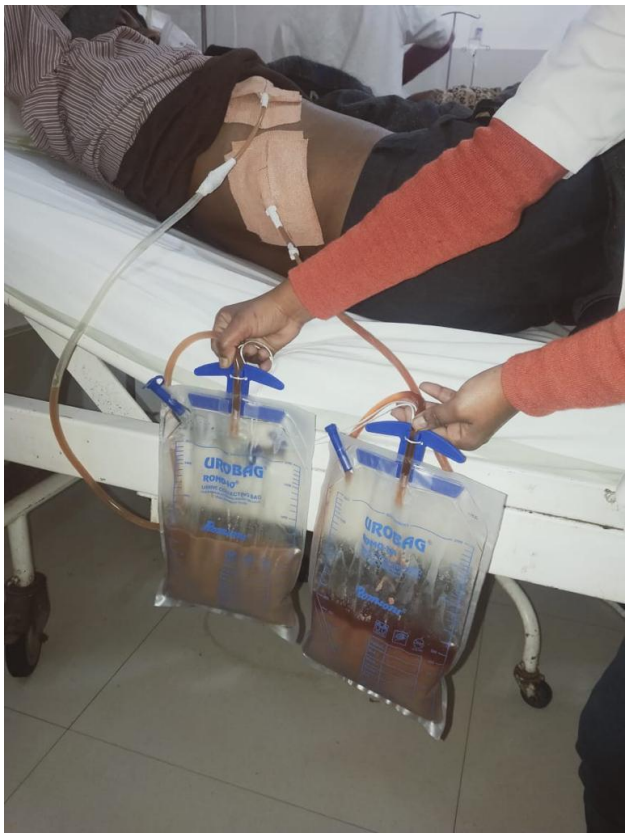


**Figure 1: Profuse drainage of 'anchovy sauce' pus from two pig-tail catheters in situ.**

Thus, USG guided pig-tail catheters were meticulously placed by the interventional radiologist in the two largest cavities and the third smaller one was aspirated in the same sitting. The colour of the draining pus was reddish brown anchovy sauce like. The patient tolerated the procedure well and complaints of upper abdominal pain were reduced over the course of next few days. The abscess cavities were flushed with metronidazole solution every 48 hours. Repeat blood reports in the meanwhile were unremarkable. The daily drain output gradually reduced and on the 8$^{th}$ day, one pig-tail catheter was removed and after another 8 days and a check USG abdomen, the remaining one was removed. At our centre, we remove the drains from liver abscesses generally only if output is less than 10 cc for two consecutive days. The USG done prior to removal of the second drain reported partially liquified thick abscess at superior aspect of liver (50 cc) and another abscess (70 cc) in lateral and inferior aspect of right lobe of liver. This latter abscess had a pig-tail catheter in situ which was now removed. Following his discharge, the patient was regularly followed up in the OPD with repeat USG assessments also being done. He continued on oral antibiotic and metronidazole regimen for another two weeks and continues to do well on follow up of more than 3 months now.

## DISCUSSION

Liver abscesses are a fairly common diagnosis in the tropical setting. Right hypochondrium pain is the most common presenting complaint.[6] Majority of patients have symptoms for less than 13 days.[7] Diagnosis is fairly straight forward. With the advent of modern radiological modalities, diagnosis of liver abscess is possible in early stages resulting in non-surgical management. Nevertheless misdiagnoses do occur. Haffner et al reported that most common misdiagnosis at admission are cholecystitis (16.4%), hepatitis (12.3%) and pneumonia (9.6%).[7] In a study by Singh et al of 60 patients, 58% cases had amoebic abscess while 23% had pyogenic abscess.[8] Only 18 out of 60 pus cultures were positive, the rest being sterile.[8]

Our patient, a known alcoholic, had complaints of right upper quadrant abdominal pain and fever of late onset. The diagnosis of amoebic liver abscess was based on the fact that the drained pus was classically 'anchovy sauce' in appearance even though pus culture report came out as sterile. Also, the ultrasound revealed, apart from the multiple abscesses, thickening of the caecum, a hallmark of amoebic infestation. The patient was put on broad spectrum antibiotic cover (amikacin, ceftriaxone- later augmented with piperacillin-tazobactam). Metronidazole (500 mg/100 ml) was given IV thrice daily. Metronidazole and antibiotics continued orally for 3 weeks even after discharge till satisfactory resolution occurred. We opted for a wider antibiotic regime especially as it was reported in the ultrasonography that one of the right lobe abscesses had ruptured into the pleural cavity. We did not rush into surgical management as the patient was hemodynamically stable, maintained $O_2$ saturation on room air, had no significant dyspnoea and showed no signs of sepsis developing. The patient was constantly monitored and on any sign of deterioration, we would have carried out immediate surgical intervention. In this case, keeping in mind his stable condition, we opted for catheter drainage of the abscess. Image guided percutaneous drainage is now the primary choice of treatment of liver abscess in majority of cases.[9] It has the benefit of preserving the uninvolved liver parenchyma with fewer complications and lower mortality than associated with surgery.[9] Tokahiro et al in their study, concluded that percutaneous abscess drainage as the primary treatment of liver abscess is safe and effective irrespective of the number of abscesses and the patient's condition.[10] In our patient, two separate pig-tail catheters were inserted under ultrasonographic guidance and the third smaller abscess was aspirated in the same sitting. These were also washed with Metronidazole solution. It is not common to have multiple pig-tail catheters introduced into a single patient in one sitting. Dulku et al reported two patients having two abscesses drained separately in the same sitting and one patient had three drainage procedures for three different abscesses on a single attempt.[11] Such examples are few and rarely encountered in medical literature. There is generally a trend in cases of multiple, large abscesses to go in for surgical drainage straightaway.

## CONCLUSION

We have concluded in this case that with good patient selection and a meticulous approach, surgical intervention can be avoided in certain patients with a complex abscess and image guided catheter drainage would suffice. This is of immense benefit to the patient physically and psychologically - not to mention the financial aspect as this disease is more common in persons from low socio-economic strata. A thorough follow-up and continued antibiotic and metronidazole coverage even after discharge, we believe, is vital for a satisfactory outcome.

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