



LAPAROSCOPIC DRAINAGE OF RESIDUAL LIVER ABSCESS AND PIGTAIL SITE SINUS TRACT EXCISION

General Surgery

Dr.Ashiq Ahmed	M.S, Assistant professor, Institute of general surgery, Madras medical college, Rajiv Gandhi government general hospital. Chennai.
Dr. Pravin.M*	Post graduate, Institute of general surgery, Madras medical college, Rajiv Gandhi government general hospital. Chennai. *Corresponding Author
Dr.Kannan.R	Professor of general surgery, Institute of General surgery, Madras medical college, Rajiv Gandhi government general hospital. Chennai.

ABSTRACT

The cornerstone of the management of liver abscesses has been intravenous antibiotics and radiologically guided percutaneous drainage using a pigtail catheter. However, not all abscesses are treated successfully in this way, and some require surgical drainage. If interventional radiology fails, surgical drainage becomes necessary. Laparoscopic drainage of liver abscess is definitely superior to open surgical drainage if surgery is indicated. We present here cases reports of liver abscesses that did not resolve with nonsurgical methods, and laparoscopic drainage was successfully applied.

KEYWORDS

Laparoscopy, liver abscess, pigtail drainage, sinus tract, Liver injury, guided drainage, percutaneous

INTRODUCTION:

A liver abscess is a suppurative cavity in the liver resulting from the invasion and multiplication of microorganisms, entering directly from an injury through the blood vessels or by the way of the biliary ductal system. It is most commonly due to pyogenic, amoebic or mixed infections.

Liver abscess was identified since Hippocrates period who believed that the prognoses of the patients were related to the type of fluid within the abscess cavity.

Although amoebic liver abscess occurs more commonly on a worldwide basis, the pyogenic liver abscess predominates in the United States. It is found more commonly in men between 20 and 40 years of age, but can occur at any age. Approximately 60% are solitary and mainly located in the right lobe of the liver, as a result of the streaming of portal blood flow secondary to the fact that the right lobe is predominantly supplied by the superior mesenteric vein, and because most of the hepatic volume is in the right lobe. **When multiple abscesses are present, pyogenic or mixed is the most probable type.** Patients usually present with a constant dull pain in the right upper quadrant of the abdomen which may be referred to the scapular region or the right shoulder. These patients usually have fever of between 38°C and 40°C.

An untreated hepatic abscess is nearly uniformly fatal as a result of complications that include sepsis, empyema, or peritonitis from rupture into the pleural or peritoneal spaces, and retroperitoneal extension.

Antibiotic therapy as a sole treatment modality is not routinely advocated, though it has been successful in a few reported cases. It may be the only alternative in patients too ill to undergo invasive procedures or in those with multiple abscesses not amenable to percutaneous or surgical drainage. In these instances, patients are likely to require many months of antimicrobial therapy with serial imaging and close monitoring for associated complications.

Antimicrobial treatment is a common adjunct to percutaneous or surgical drainage.

In recent years, image-guided percutaneous drainage has been increasingly used to treat liver abscesses with reported success rates ranging from 70-100%. Although percutaneous placement of an indwelling catheter is the method most widely preferred to drain liver abscesses, recent studies have claimed needle aspiration to be a simpler, less costly, and equally effective mode of treatment. Surgical drainage was the standard of care until the introduction of percutaneous drainage techniques in the mid-1970s. With the refinement of image-guided techniques, percutaneous drainage and aspiration have become the standard of care.

Recent indications for the surgical treatment of pyogenic liver abscess are complex or ruptured abscess, multiple abscesses, percutaneously unreachable abscess, if associated surgical problem also present (e.g., peritonitis), failure of previous drainage attempts.

Shock with multisystem organ failure is a contraindication for surgery.

Open surgery can be performed by either of the following two approaches, I.) A transperitoneal approach allows for abscess drainage and abdominal exploration to identify previously undetected abscesses and the location of an etiologic source. ii.) For high posterior lesions, a posterior transpleural approach can be used; although this affords easier access to the abscess, the identification of multiple lesions or a concurrent intra-abdominal pathology is lost.

A laparoscopic approach is also commonly used in select cases. **This minimally invasive approach gives us the opportunity to explore the entire abdomen and to significantly reduce patient morbidity.**

A retrospective chart review compared surgery versus percutaneous drainage for liver abscesses greater than 5 cm. Morbidity was comparable for the two procedures, but for the candidates requiring surgery, **those treated with laparoscopic surgery had fewer secondary procedures and fewer treatment failures.**

Case report :

A 17 year old male complained of swelling in the right upper abdomen at the post pig tail removal site for liver collection for a duration of 3 months, gradually progressive, not associated with pain, associated with sero-purulent discharge on and off. No history of fever.

Past history: Alleged history of Road traffic accident fall from 2 wheeler 8 months ago during which he sustained blunt injury abdomen. CECT abdomen showed sub-capsular hematoma in the liver > 50% indicating grade 3 liver Injury. In view of hemodynamic stability, patient was initially put on non-operative conservative management. On post trauma day 9, patient developed drop in haemoglobin, hemodynamic instability and expanding sub-capsular hematoma and bilateral lower limb deep vein thrombosis, CT pulmonary angiogram was normal. CT abdominal angiogram showed right hepatic artery pseudo aneurysm of 2cm x 1.5cm which were coiled. Ultra sound guided pigtail catheterisation was done for the residual sub-capsular collection in the liver and was removed on post trauma day 25 after confirmation of no residual collection and patient was discharged.

After 8 months of non operative management of liver trauma, patient presented with swelling in the right upper abdomen at the post pigtail removal site for liver collection.

On examination, an oval swelling of 3x2 cms was present in the right hypochondrium, non tender, firm in consistency, mobility restricted.

MRI sinogram showed skin collection of 1.3x0.8x1.1cms traversing subcutaneous tissue, intra muscular plane, peritoneum and this tract reaches the collection 4x3.6x2.2cm at the superior surface of the right lobe of the liver. The tract extends for a length of 2cms.

Patient was taken up for elective laparoscopy guided drainage of residual collection. After general anaesthesia, a small cut below the umbilicus was made followed by establishing pneumoperitoneum and placing a laparoscope into the peritoneal cavity. The pore site positions were determined according to the size and position of liver abscess/collection. Under laparoscopy, the adhesions of the liver with the abdominal wall or diaphragm were separated using electrocautery. The collection on the superior surface of the right lobe of the liver was visualised. Samples were routinely obtained for bacterial culture and drug sensitivity testing.

A guide drainage tube of 16 french diameter was passed through the tract and the tract was excised from outside in. An elliptical incision was then made around the external fistulous pit, which was deepened to the level of the parietal peritoneum. This elliptical cut with the fistulous tract attached to it were removed en bloc. At the conclusion of the procedure, a drain was positioned in the sub-hepatic space. It remained in place until less than 20mL drained and was removed on the third post-operative day. There was no evidence of bile in the drain reservoir during that period. The post-operative course was uneventful and the patient remained symptom-free 12 months after the procedure.

Fig 1 Preoperative Picture Of Pig Tail Sinus Tract And Residual Liver Abscess



Fig 2 Mri Sinogram- Suggesting Pigtail Site Sinus Tract With Residual Collection In The Liver

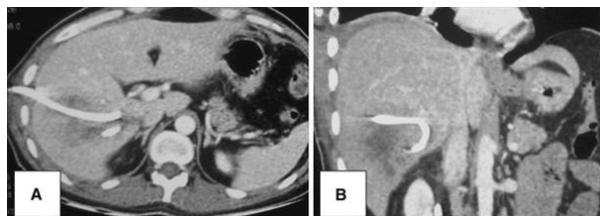
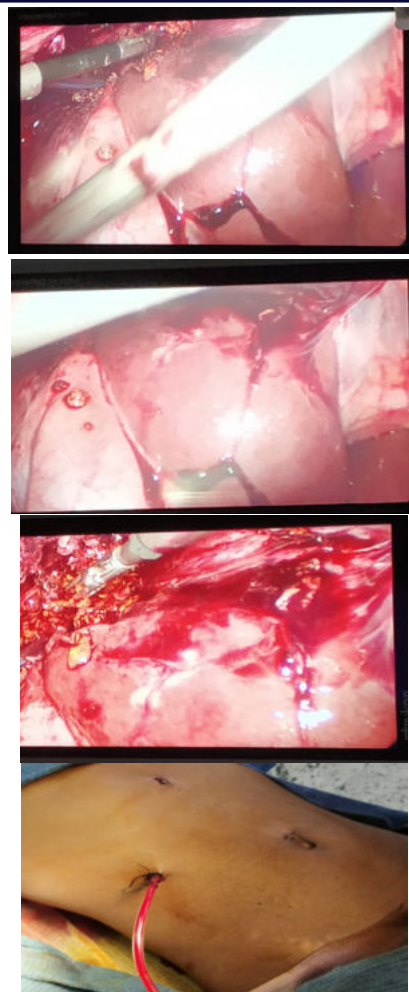


Fig 3 Intraoperative Picture- Laparoscopy Assisted Pigtail Site Sinus Tract Excision And Drainage Of Residual Collection In The Live



DISCUSSION:

Several modalities are available to treat liver abscess. Percutaneous aspiration along with antibiotic therapy can be useful for small, solitary abscesses, particularly in young healthy patients. Elderly, debilitated patients, multiloculated, with multiple or large abscesses have a higher failure rate with percutaneous aspiration. Sometimes it fails if the cavity is multilocular and has high viscous content.

Percutaneous catheter drainage recently appeared as the first-line treatment instead of surgical drainage, and it is successful in 70% to 90% of solitary and unilocular abscess. Coexisting abdominal pathology, coagulopathy, inaccessibility, massive ascites, small, multiloculated or multiple abscess are unsuitable for percutaneous drainage. Failure after catheter placement can result from catheter obstruction with pus, inappropriate catheter placement, premature catheter removal, untreated abscess, multiloculated abscess, or immunocompromised patients.

Surgery is indicated for failed percutaneous drainage and for patients who require hepatic resection. **All surgically accessible liver abscesses are candidates for laparoscopic drainage.** If a coexisting abdominal pathology is present that cannot be resolved by laparoscopy, then open surgery should be preferred.

Laparoscopic drainage provides faster recovery, shorter hospital stay, less surgical-site infection, and better cosmesis than open surgical drainage does. Severely ill patients who need surgical drainage can tolerate laparoscopy better than they can tolerate open drainage. Laparoscopic ultrasound is not mandatory for every case, but can be used. Either electrocautery or Harmonic scalpel may be used for unroofing of liver abscesses. **A large-bore drain is essential for both laparoscopic and open surgical drainage.**

CONCLUSION:

Although treatment of liver abscess is mainly percutaneous drainage, **Laparoscopic drainage of liver abscesses, in combination with**

systemic antibiotics, is a safe and viable alternative in all patients who require surgical drainage following failed medical or percutaneous treatment, and in those with large or multi-loculated abscesses with thick viscous pus or the cavity is difficult to access by percutaneous route

Caudate lobe liver abscesses are rare but are difficult to drain by percutaneous route. Early surgical drainage (open/laparoscopic) is recommended in view of high risk of rupture in abdominal cavity and adjacent vessels.

REFERENCES :

1. Zerem E, Hadzic A. Sonographically guided percutaneous catheter drainage versus needle aspiration in the management of pyogenic liver abscess. *AJR Am J Roentgenol.* 2007;189:138–142.
2. Rajak CL, Gupta S, Jain S, Chawla Y, Gulati M, Suri S. Percutaneous treatment of liver abscesses: needle aspiration versus catheter drainage. *AJR Am J Roentgenol.* 1998;170:1035–1039.
3. Baca B, Hamzaog˘lu I, Karahasanog˘lu T, Hamzaog˘lu HO. Laparoscopic treatment of pyogenic liver abscess complicating Crohn's disease: A case report. *Turk J Gastroenterol.* 2007;18:58–61.
4. Tay KH, Ravintharan T, Hoe MN, See AC, Chang HC. Laparoscopic drainage of liver abscesses. *Br J Surg.* 1998;85:330–332.
5. Wang W, Lee WJ, Wei PL, Chen TC, Huang MT. Laparoscopic drainage of pyogenic liver abscesses. *Surg Today.* 2004;34:323–325.
6. Yeh TS, Ho YP, Jan YY, Chen MF. Efficacy of color sonography and harmonic scalpel in laparoscopic management of multiple/lobulated liver cysts and abscesses. *Hepatogastroenterology.* 2007;54:485–488.
7. Iwamura K. Therapeutic utilization of laparoscopy in liver abscess cases. *Tokai J Exp Clin Med.* 1981;6:275–284.
8. Cappuccino H, Campanile F, Knecht J. Laparoscopy-guided drainage of hepatic abscess. *Surg Laparosc Endosc.* 1994;4:234–237.
9. Siu WT, Chan WC, Hou SM, Li MK. Laparoscopic management of ruptured pyogenic liver abscess. *Surg Laparosc Endosc.* 1997;7:426–428.
10. Short M, Desai AP. Laparoscopy and transdiaphragmatic thoracoscopy in management of ruptured amebic liver abscess. *J Laparoendosc Adv Surg Tech A.* 2008;18:473–476.
11. Robles PJ, Lara JG, Lancaster B. Drainage of hepatic amebic abscess successfully treated by laparoscopy. *J Laparoendosc Surg.* 1994;4:451–454.
12. Kayaalp C, Yol S, Nessar G. Drainage of liver abscess via laparoscopic trocar with local anesthesia. *Surg Laparosc Endosc Percutan Tech.* 2003;13:121–124