



LAPAROSCOPIC MANAGEMENT OF BURST LIVER ABSCESS

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ABSTRACT **Background:** Burst liver abscess has low mortality rate in current era due to usage of the broad spectrum antibiotic, developed advanced techniques and improved intensive care services, however still it is a potentially fatal disease.

Aims and objective: The objective of this study is to compare laparoscopy with laparotomy treatment methods and our case load with the current literature.

Materials and Methods: A total of 12 burst liver abscess patients were enrolled and all were treated with laparoscopic drainage.

Results: 8 male and 4 female patients were enrolled. Patient's age was from 4 to 53 years. Out of 12 ALA patients, 9 in right lobe and 3 in left lobe of liver. Burst liver abscess were recovered well and discharged on average 6th post-operative day.

Conclusion: It is concluded that laparoscopic drainage of burst liver abscess is a better alternative than laparotomy.

KEYWORDS : Liver abscess, Amoebic liver abscesses, Laparoscopic, Laparotomy

Introduction

Liver is a vital organ of the body. It is imperiled to several systemic infections which includes viral, bacterial and parasitic. It lies at the distal end of the portal circulation and therefore bathed with portal blood containing viruses, bacteria parasites, ova, products of digestion and other antigens.¹

Liver (Hepatic) abscesses are infectious, space-occupying lesions in the liver. Liver abscess (LA) is a common condition in tropical countries and is associated with significant morbidity and mortality.² Traditionally, there are two major classifications of hepatic abscess;

1. Pyogenic LA and
2. Amoebic LA

1. Pyogenic LA

Pyogenic liver abscess (PLA) is a rare but potentially lethal condition, with a reported incidence of 20 per 1,00,000 hospital admissions in a western population.¹ Its severity depends on the source of the infection and the underlying condition of the patient.

2. Amoebic LA

Amoebiasis is the infection of the human gastrointestinal tract by *Entamoeba histolytica*, a parasite that is capable of invading the intestinal mucosa and may spread to other organs, mainly the liver.³

Amoebic liver abscesses (ALA) are common in tropical regions mainly where '*Entamoeba histolytica*' is prevalent and is more dominant in individuals (mostly young males) with suppressed cell mediated immunity.¹

ALA is commonly encountered clinical entity in the surgical out patients and emergency department in hospitals. It spreads with faecal-oral route. Main cause of ALA is poor socioeconomic status, unhygienic handling of food and water, poor status of sanitation.

Complication of the ALA is secondary infection, rupture into the thoracic or peritoneal cavity which leads to empyema, generalized peritonitis and sometimes as sub diaphragmatic or localized collection. Burst liver abscess is a grave surgical emergency which leads to severe morbidity and mortality.

In both the types of hepatic abscesses, right lobe of the liver is the most likely site of infection. The clinical presentation of both the types may be elusive with combination of fever, right upper quadrant pain and hepatomegaly with or without jaundice.²

Laparotomy, evacuation of purulent contents, packing of abscess cavity with omentum, generous lavage and drainage was a standard procedure for LA.

Open surgery (Laparotomy) was the only choice for surgery. With discover of effective antimicrobials, newer methods of radio diagnosis like USG and CECT and interventional radiological techniques like USG, CT guided aspiration, percutaneous catheter insertion, mortality associated with the condition has significantly decreased.

Innovative imaging techniques have abetted the clinicians in the diagnosis of liver abscesses and have successively become vital treatment apparatuses, decreasing the number of cases treated with surgical intervention.

Though open surgery still remains most commonly used management modality, with beginning of minimally invasive surgery, laparoscopic drainage of the liver abscess have been described with few complications.

The mainstay of the management of liver abscesses was intravenous antibiotics and radiologically guided percutaneous drainage. However, not all abscesses treated successfully in this way, and some required surgical drainage. Laparoscopic drainage of liver abscesses may be an alternative to open surgical drainage.⁴

Thus, multiple management options are available today and burst liver abscess is a preventable and manageable pathology. However, what to do is decided by the clinicians based on the patient's medical status. No specific guidelines are available for choosing the modality of treatment.

The aim of this study was to investigate the various pathological and epidemiological factors in patients with burst liver abscess for better management and insight into the prognosis for such patients. Also, an attempt has been made to compare the outcome of the various modalities of management in such cases so as that the modality best suited to the pathological state of the patient may be chosen in future.

Materials and Methods

Study was conducted in the Department of surgery, St. Jude's Hospital, Bundelkhand Laparoscopic Surgery Centre, Jhansi, India.

After obtaining consent from patients of burst liver abscess with symptoms like pain in abdomen, fever of long duration, lump

and loss of appetite, lump in abdomen, tenderness and distension abdomen were included.

Total 12 patients were enrolled from January 2006 to July 2007. Out of the total 12 patients, 8 were male and 4 were female.

Patients were diagnosed with age from 4 years to 53 years of range.

ALA in 3 patients were in left lobe where as in 9 patient ALA was in right lobe. Location of the collection from ALA patients were as per following:

- Sub-Diaphragmatic – 6 patients
- Peritonitis and pelvic – 4 patients
- Epigastric – 2 patients

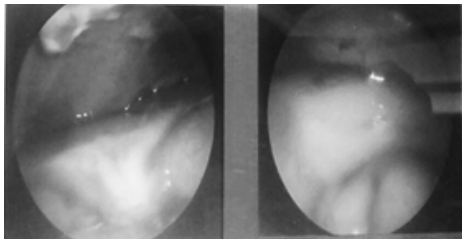


Figure 1: Laparoscopic drainage of the Sub Diaphragmatic collection

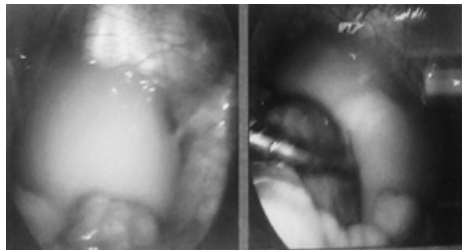


Figure 2: Pelvic collection drainage and lavage of the peritoneal cavity

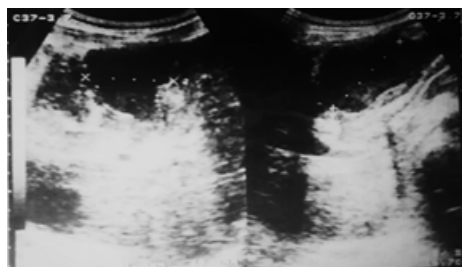


Figure 3: Burst liver abscess with epigastric collection

Ultrasound finding for all patients were carried out. Typically reveals a round or oval hypoechoic area which is contiguous to the liver capsule and without significant wall echoes (Figure 4). It may also show associated right pleural effusion or evidence of rupture (burst).



Figure 4: Showing ultrasonographic demonstration of an amoebic liver abscess

Liver abscesses usually need drainage, in addition to antibiotics

for effective resolution. Medical therapy alone does not work, because of large bacterial load, inactivation of antibiotics and ineffective medium for bacterial elimination. The duration of antibiotic therapy may be shortened with effective drainage.

There are currently two methods for drainage, namely:

1. Nonsurgical (percutaneous needle aspiration [PNA] or
2. Percutaneous catheter drainage [PCD]) and surgical (open [OD] or laparoscopic drainage [LD]).

As per hospital practice all patients in this study laparoscopy was performed with open technique. A 10 mm camera port was created to observe laparoscopic procedure. Additional 5 mm port was created according to the location of collection of abscess from sub-diaphragm/sub-hepatic/pelvic.

The liver abscess was aspirated out and it was washed with copious amount of warm saline mixed with metrogyl and diluted betadine solution. All other adhesions found during surgery were removed from whole peritoneal cavity and it was washed properly.

Following to this, multiple large bore drains were kept followed by USG scan. When drain was less than 25 ml and no collection in the peritoneal cavity, it was confirmed by USG and then drains were removed.

Results and Discussion

Liver abscesses were recognized as far back as Hippocrates, in 400 BC, who thought that diagnosis was related to the type of fluid in the lesion.⁵

Osler, in 1890, was the first to describe the presence of amebae in a patient’s abscess and stools, but it was only in the early 20th century that amebae were correlated to the formation of a liver abscess. The etiology varies.⁵

In addition to pyogenic bacteria and amebae, other microorganisms, such as fungi and cytomegalovirus, can also cause liver abscesses, albeit rarely, especially in immunosuppressed patients. In the USA, the incidence of pyogenic abscesses is 8–15 new cases/100,000 inhabitants/year, accounting for over 80% of cases. Abscesses due to amebae make up 10% of cases, and are more common in tropical areas, in tourists and in immigrants from developing countries, while fungi and other agents are responsible for less than 10%.⁵

Abscesses due to pyogenic bacteria and amebae seem to be more common in men, with the incidence peaking between the ages of 40 and 60 years.⁵

In current study, out of total 12 patients with ALA, 8 patients were male and 4 patients were female.

Patients were of age ranging from 4 years to 53 years. This age range is vary difference from other studies which may be due to inclusion of cases of only burst liver abscess which is a complication more common in older age groups.

According to Anita dutta et al. ALA lesions are usually single and mostly found in the right lobe of the liver. The incidence of left lobe ranges from 5% to 21%. Similar results were found in the current study which is out of 12 ALA patients 9 were from right lobe and 3 were from left lobe of liver.¹

According to Chung Y F A et al. the comparative studies for treatment of liver abscess, percentage of mortality by percutaneous treatment was lower than antibiotic alone and surgery.⁶

Similarly in current study, all patients of the burst liver abscess were recovered well and discharged on 5th to 7th (Mean 6th) post-operative day.

In our study only one patient had intestinal obstruction on 18th post-operative day and three patients had port site infection which was improved with conservative treatments.

Conclusion

It is concluded that laparoscopic drainage of burst liver abscess is a better alternative than laparotomy. Laparoscopy has less morbidity and early patient recovery.

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