Original Research Article

Epidemiology, Clinicopathology And Management Of Liver Abscess In Tertiary Care Centre

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Abstract

Background: Liver abscess is a fatal ailment in the developing areas of the country, affecting most of the young adults with certain risk factors and lethal complications and a clinical diagnostic dilemma. We have described the epidemiology, clinicopathology and management of liver abscess in our institution.

Method: This is a prospective analytical, two-armed study design done in the department of General Surgery at RIMS Ranchi, involving 90 patients admitted in the indoor ward of department of General Surgery of RIMS Ranchi. The diagnosis was made on the basis of clinical findings, risk factors, lab findings and imaging evidences. All the data (gender involved, type of abscess, common risk factors, diagnostic dilemma and management) of patients were collected and compared. Furthermore, all patients were managed according to the standard protocol requiring either medical, interventional or surgical management.

Result: Pyogenic abscess was found to be more common here at Rims Ranchi than the classical amoebic abscess. The commonest organism found in pus samples was Klebsiella. There was a strong correlation with low socioeconomic status, chronic alcoholism and other immunocompromised states like diabetes, other GI comorbidities and malnutrition. Among imaging, USG was found accurate and cost-effective in the diagnosis. Most of the patients went percutaneous drainage, which was found efficient in remission.

Conclusion: Liver abscess present mostly with vague symptoms, and every clinician should know the loopholes that points toward its diagnosis. The study suggests early diagnosis through imaging modalities and thus prevention of most of the fatal complications.

Keywords: Pyogenic liver abscess, USG guided drainage, Pigtail catheter, Entamoeba histolytica.

Introduction

Liver abscess had been recognised way back during the era of Hippocrates (400 BC) [1]. Two types of well recognised liver abscesses are seen ie; Amoebic liver abscess due to Entamoeba histolytica and another one is Pyogenic liver abscess which is often polymicrobial and due to secondary landing of organism from distant sources. [2]. Pyogenic Liver Abscess result from ascending biliary infection, hematogenous spread through portal vein, sepsis with secondary liver involvement or secondary spread from intraperitoneal infection. *Klebsiella*, E. coli and *Streptococcus* are the most common etiology of pyogenic abscess. Although no distinct clinical criteria exist for distinguishing Amoebic and pyogenic Liver Abscess; differential diagnosis can be made based on the basis of clinical, imaging and microbiological criteria. The factors favouring amoebic abscess are - younger age, recent travel to endemic amoebiasis area, solitary abscess and aspirate like anchovy paste and negative gram stain along with rapid resolution after metronidazole treatment. The predisposing factors are alcoholism (particularly of indigenous variety), malnutrition, low socioeconomic status, poor hygiene and overcrowding [3]. Imaging techniques like USG or CT are useful in diagnosis of liver abscess. Patients with stable general condition, small size lesion less than 2 cm or having multiple micro abscesses can be managed conservatively. Conservative management includes higher dose of metronidazole, a cephalosporin and hepatic support in most of the cases. The management of liver abscesses evolves around minimal intervention techniques like pigtail catheter and percutaneous drainage in tertiary centre. Open surgery should be reserved only in the management of complicated cases like ruptured abscess or pulmonary fistulisation.

This study analyses the relationship of occurrence of liver abscesses to patient entities such as age, gender, socioeconomic status, alcoholism, history of diabetes mellitus and other comorbidities. Also, in the management part, this study identifies the most effective and least interventional technique of abscess drainage done here at RIMS Ranchi.

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Materials and Methods

This prospective analytical study was conducted during the period of 15th September to 14th August in RIMS Ranchi, in the selected groups of patients (n=90) who were admitted in the department of Surgery with a diagnosis of liver abscess. The diagnosis of liver abscess was made on the basis of history, clinical features, laboratory investigations, radiology, and culture of the aspirate.

The *Inclusion* criteria were – Age 18–70-year with diagnosis of Liver abscess (clinical or imaging)

Exclusion criteria were- Patients with hepatobiliary malignancy, hepatobiliary diseases like alcoholic hepatitis, viral hepatitis and pregnant women.

Patients were treated with standard protocol consisting of either medical management, minimal interventional techniques or laparotomy.

The cut off of abscess volume for medical vs intervention, was set around 100 ml with systemic features.

All Patients with had abscess volume less than 100 cc or with multiple small abscesses were given inj. metronidazole (400-800) mg

IV eight hourly and inj. ceftriaxone 1 gm IV 12 hourly for five days. Patients with high leucocytosis and features of sepsis were started with Piperacillin tazobactam 4.5 gm IV eight hourly [4].

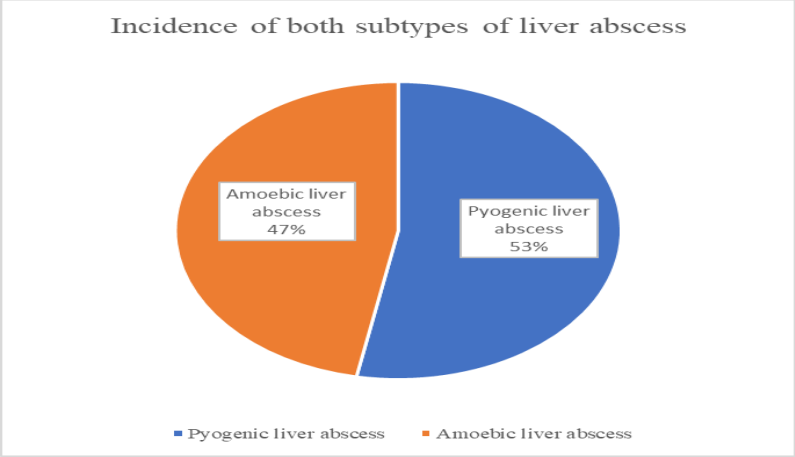
Patients who had abscess volume between 100-300 cc with a low lying/superficial segment abscess with a normal PT/INR were tried with USG guided percutaneous needle aspiration under aseptic conditions [5]. The aspirated pus was sent for microbiological examination and culture/sensitivity. Most patients respond well and remitted under this treatment.

Patients who had abscess volume more than 400cc or more than one abscess or underwent USG guided percutaneous pigtail catheter (12 or 14 Fr) drainage under aseptic conditions.

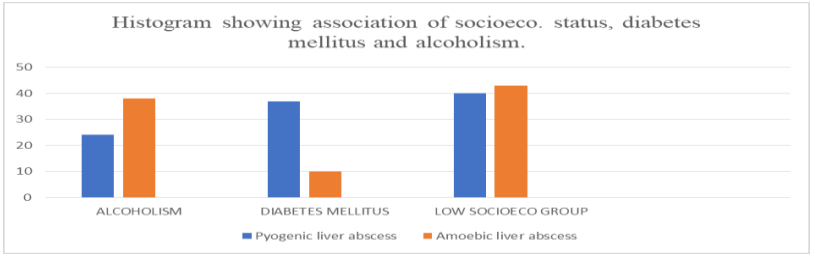
Patients who presented with a ruptured liver abscess along with features of peritonitis, or who have fistulisation with other organs, a midline laparotomy was done and the abscess cavity was then explored and evacuated. Thorough peritoneal lavage was then done along with placement of two 32 Fr Romo ADK drain.

Result

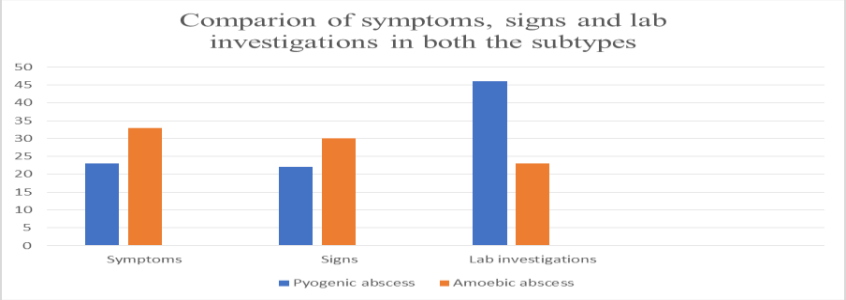
- Out of 90 patients selected for study,48 was found to have pyogenic abscess ie;53. %, while only 42 were having amoebic liver abscess ie;46.6%, on the basis of aspirate culture.



- In the study, 81 cases were male and only 9 were female cases.
- Among all cases (n=90), most of the patients ie; 83/90 ie;92.2% belong to *low socioeconomic group* (holding Below poverty line status), with poor personal hygiene and living in an overcrowded family with doubtful fair municipality status.
- 62/90 cases ie; 68.8%were addicted to *alcoholism* for past decade of years. Among 48 pyogenic abscesses, 24 were chronic alcoholic ie; 50%; whist among 42 amoebic, 38 were addicted to alcohol ie; 90.4%; thus, alcohol favoring more amoebic than pyogenic liver abscess.
- 47/90 cases ie; 52.2% were *diabetic* patients taking oral hypoglycemic drugs for at least past two years.

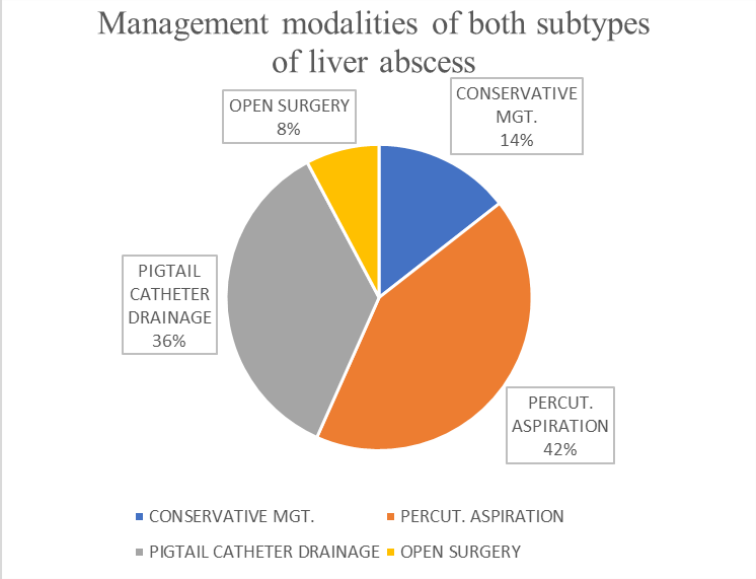


- Among 48 cases of pyogenic abscess, 37 cases ie; 77% were having history of either acute gastroenteritis, episodes of acute appendicitis, gastritis or any other comorbidities in the past.
- Among 42 cases of amoebic abscess, 29 cases ie;69% were having history of ingestion of indigenous alcohol, visiting got an endemic area and poor sanitization.
- *Symptoms* like abdominal pain, fever, diarrhoea, weight loss and jaundice were more pronounced in amoebic abscess than pyogenic abscess. Only 23/48 cases of pyogenic group suffered these symptoms; whilst 33/42 cases of amoebic group suffered these symptoms.
- *Signs* like intercostal tenderness, intercostal bulging, right hypochondrial tenderness and hepatomegaly were more pronounced in amoebic group (30/42) than pyogenic group (22/48).
- 7/90 patients presented with features of peritonitis and ruptured abscess who underwent laparotomy.
- *Lab investigations* like leukocytosis, Serum bilirubin, AST, ALT, Alkaline phosphatase, serum albumin, PT/INR were abnormal in pyogenic group (46/48) than the amoebic group (23/42).



The most efficient and accurate diagnostic tool in our study was USG whole abdomen describing abscess, involving segments, perihepatic collection and complications like rupture or fistulisation. CECT abdomen was performed in two cases due to diagnostic dilemma. Most commonly right lobe was affected in our study ie; 82/90 cases ie; 91% cases. Left lobe involvement only in rest 8 cases (all pyogenic abscess).

- 13/90 cases were having abscess volume of less than 100 cc; thus, managed with antibiotics and discharged on day 5.
- 38/90 cases were having volume 100-300 cc on USG with involvement of superficial segments, thus underwent USG guided percutaneous needle aspiration, followed by microbiological examination of the aspirate, after correction of coagulopathy.
- 32/90 were having content more than 400 cc thus underwent pigtail catheter drainage followed by removal of catheter usually by day 14.
- Only 7/90 presented with ruptured abscess who underwent laparotomy. 3/7 patient died due to postop complications. Thus, overall mortality in this study was around 4%.



- 29/48 aspirate showed Klebsiella, 9 cases showed E. Coli, 4 cases showed Streptococcus milleri, Staph albus and mixed organism in rest 3-3 cases.

Thus, in our study there was almost equal incidence of both pyogenic and amoebic liver abscess with a slightly more preponderance to pyogenic one. Most common organism found in our study was Klebsiella, followed by E. Coli and streptococcus.

Discussion

Liver abscess is a common disease that is encountered in surgical emergency and OPD in this area of Jharkhand. Due to variable and vague presentation, there is a diagnostic dilemma.

In this study, Pyogenic liver abscess was reported among 53%, and rest 47% were amoebic and were more common in right lobe of liver. Opposite to other studies ie; Jha AK et al, Sharma N et al., and Mukhopadhyay M et al., on amoebic liver abscess [6,7,8] who concluded amoebic abscess more common than pyogenic one); we saw an equal or rather slightly more incidence of pyogenic than amoebic abscess in this region.

History of alcohol intake was found among 68.87% of the subjects in the study. Similar study conducted by Siroliya A et al., showed that around 68% of study subjects had history of alcoholism thus, it came out to be major predisposing factor for the liver abscess [9]. Similar observations were reported by Ramani A et al., and various other researchers [10].

In this study, 52.5% cases were diabetic. Jha AK et al., reported 33.64% of the amoebic liver abscess and 60% of the pyogenic liver abscess patients were diabetic [11-14]. Among this patient group, the higher frequency of liver abscesses in diabetics could be attributed to lower immunity.

In this study, *Symptoms* like abdominal pain, fever, diarrhea, weight loss and jaundice; and *Signs* like intercostal tenderness, intercostal bulging, right hypochondrial tenderness and hepatomegaly were more pronounced in amoebic abscess than pyogenic abscess. Similarly, the study conducted by Siroliya A et al., showed that pain abdomen was more (90%) in patients with amoebic liver abscess and (70%) as compare to the patients with pyogenic liver abscess while fever was present in 92% and 88%, respectively [15-17].

Also, this study *shows Lab investigations* like leukocytosis, Serum bilirubin, AST, ALT, Alkaline phosphatase, serum albumin, PT/INR

were more abnormal in pyogenic group (46/48) than the amoebic group (23/42). Siroliya A et al., in their study reported that leucocytosis was present in around 73%, anaemia present in 72%, Serum alkaline phosphatase was raised present in 75% and raised Bilirubin was present in 13% of subjects [18-20].

Klebsiella was found the most common organism in this study, in compare to other studies which shows E. Coli the most common organism. Also, both pyogenic and amoebic abscess showed almost an equal incidence in this study.

Only 4/90 cases died either due to late presentation or due to post op complications.

Conclusion

Liver abscess is a well-recognised liver ailment in surgical practice since era; and very common this region. Most consistent risk factors are low socio-economic status, chronic alcoholism, diabetic association and poor sanitisation. Early diagnosis is very essential in order to prevent fatal complications and mortality. Small abscess can be managed conservatively with antibiotics; most of the abscesses can be treated with percutaneous drainage. Open surgery is reserved only for complicated cases.

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