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Efficacy of Pigtail Drainage of Uncomplicated Liver Abscess

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Abstract

Background: Liver abscess (LA) is collection of pus in liver parenchyma and can be due to bacterial, parasitic, fungal or mixed infection. Two third cases reported in developing countries are of amebic origin and three fourth in developed countries are of pyogenic origin. Amoebiasis is third common cause of parasitic infastation and is endemic in India. Surgical management was main stay of treatment for LA. Recent evidence has shown that percutaneous catheter drainage (PCD) has a favorable outcome as regards less average stay in the hospital and overall positive outcome regarding morbidity and mortality of patients. **Subjects and Methods:** It was an analytical cross sectional study carried out on 50 patients with liver abscess admitted in department of general surgery of TMMC & RC, Moradabad from October 2015 to April 2017. The diagnosis of uncomplicated liver abscess was based on proper history and examination finding of tender liver and ultrasound evidence of uncomplicated unilocular liver abscess with more than 150 cc of pus and without evidence of secondary infections. The patients were examined daily for 72 hours of starting the therapy and only patients who showed improvement were continued on this mode of treatment. Pigtail drainage was done using 16 to 18 F distal tapered polyethylene catheters with trocar under local anesthesia. **Results:** It was found that maximum cases were hindu males under 30 years of age and 40% required hospital stay of 5 to 10 days. Biliary and bowel pathology was associated in 40% cases and 98% cases had pain abdomen at the time of admission. Right lobe of the liver was involved in 70 % patients and 96% were completely resolved. Duration of drainage of pus was 8.8+/- 2.9 and 50% showed reduction in cavitary size in 5.1+/- 1.5 days.82% patients showed mixed type of infection. **Conclusion:** Our study concludes that PCD is a better modality of treatment as regards clinical improvement, resolution of cavity and success rate. However early diagnosis in cases of non specific presentation remains a challenge.

Keywords: Liver, Liver Abscess, Pig tail catheter.

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Introduction

Liver abscess (LA) is defined as collection of purulent material in liver parenchyma which can be due to bacterial, parasitic, fungal or mixed infection and is common condition across the globe. Out of total incidence of LA, approximately two third cases reported in developing countries are of amoebic etiology and three fourth in developed countries are of pyogenic origin.[1] Amebiasis is presently the third common cause of death from parasitic disease.[2] The condition is endemic in tropical countries like India due to poor sanitary conditions and overcrowding. However pyogenic and tubercular liver abscess should always be entertained in differentials. The incidence of tubercular liver abscess (TLA) has increased in recent past due to increased incidence of predisposing conditions like alcoholism, immune deficiency, and irrational usage of antibiotics and emergence of drug resistant bacilli.

Surgical management was the mainstay of treating LA earlier.[1] Recently evidence from percutaneous drainage (PCD) has shown a favorable outcome with less average length of stay in hospital compared to conservative treatment.[3] The precise diagnosis of abscess etiology is pivotal to appropriate management. The present study is an objective criterion for management of such abscesses. Our study is helpful and ideal for a particular patient with reference to severity of disease and safety of the patient thus help reduce morbidity and mortality associated with the disease.

Subjects and Methods

The study was conducted on fifty patients admitted with liver abscess in the department of general surgery of TMMC & RC, Moradabad from October 2015 till April 2017. The diagnosis of uncomplicated liver abscess was based on history of anorexia, malaise, fever and pain abdomen with or without preceding history of diarrhea, finding of tender hepatomegaly and ultrasound evidence of

uncomplicated liver abscess.

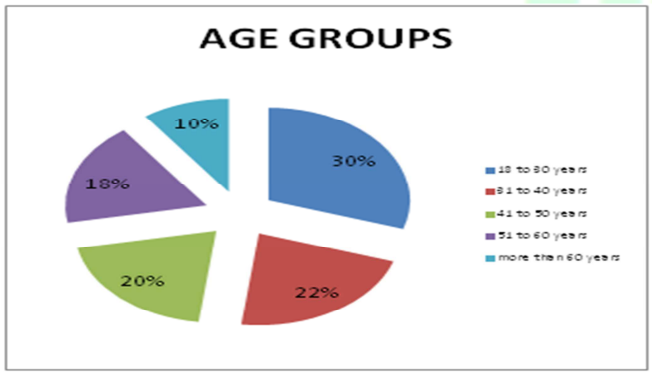
It was an analytical cross sectional study. Patients with unilocular abscess cavity with volume more than 150 cc without septation, any evidence of secondary infection or previous intervention were included while patients with impending or ruptured abscess, jaundice, toxic patient (secondary infection), ascites and multi cavitary abscess were excluded.

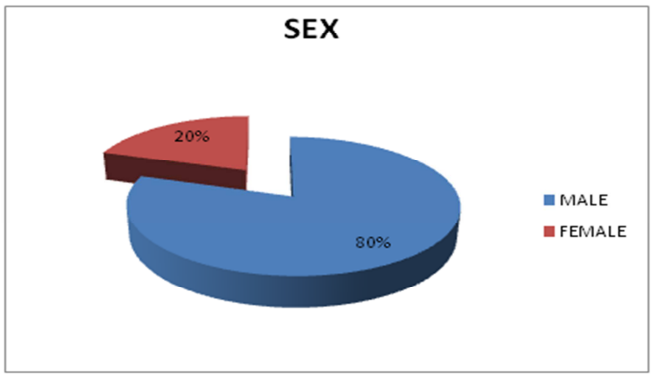
Methodology

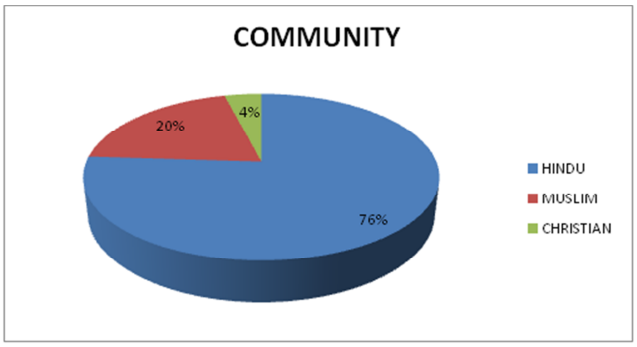
The study group patients were subjected to

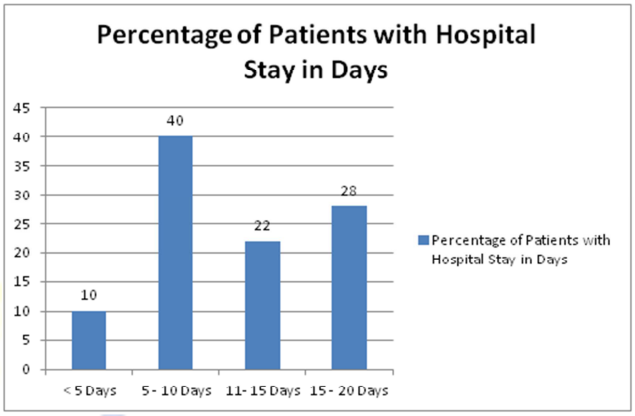
1. Complete general and physical examination
2. Specific investigations- complete hemogram, LFT, PT, Ultrasound abdomen, chest x-ray, microscopic examination and culture of aspirated pus
3. The patients were examined daily for clinical improvement in respect to pain, fever, anorexia and hepatomegaly for 72 hours of starting the therapy and only patients who should improve were continued on particular modality and treatment.
4. Pigtail drainage was done using 16 to 18 F distal tapered polyethylene catheter with trocar under local anesthesia and aseptic precaution under ultrasound guidance and the catheter and cavity was flushed daily with 50 ml metronidazole and catheter output charting done daily. Chest x-ray was done to rule out pleural effusion and pneumothorax.

Results



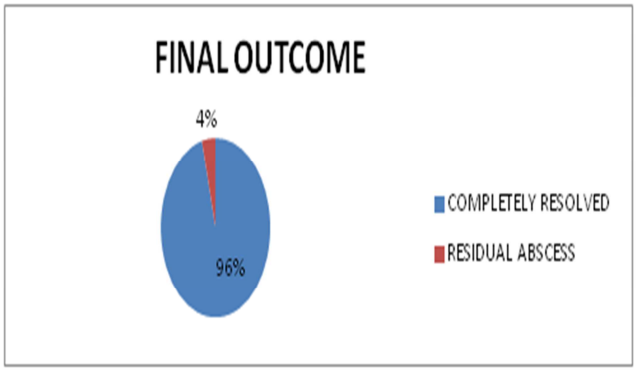




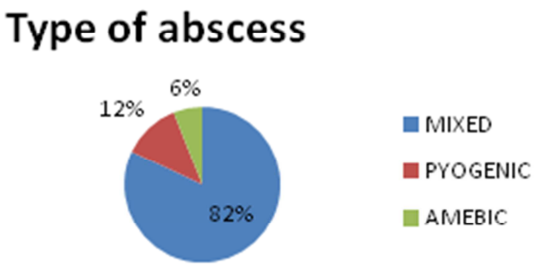


1. Age distribution: most common age group amongst study population was 18 to 30 years (30%) followed by 31 to 40 years (22%) and 41 to 50 years (20%)
2. Male predominance was noted in 80 % of study group
3. Most common community against study group Hindu 76% as against 20% in Muslims.
4. Hospital stay: 40% patients stayed for 5 to 10 days, 28% for 15 to 20 days and 22% for 11 to 15 days
5. Clinical features: abdominal pain was noted in 98% cases. Fever in 84% and anorexia in 62%
6. Comorbidities: 44% were alcoholic followed by hypertension in 12% and diabetes in 10%
7. Biliary and bowel pathology: 12% had associated gallbladder pathology followed by mural thickening of IC junction and appendicular pathology in 4% in each group
8. Organomegaly: 22% had moderate hepatomegaly and only 4% had moderate spleenomegaly. Localized and generalized tenderness was noted in 78% and 22% respectively
9. Lymphadenopathy was noted in 6% population.
10. Pus culture for AFB was positive in 6% of study population
11. Pus for routine microscopy showed 96% patient with no parasite.
12. Chest X-ray: 37% presented with right sided moderate pleural effusion
13. Right lobe of liver was most common site of abscess in 70% cases. Only 20% showed left lobe abscess and 10% in both lobes.
14. Find outcome: 96% of liver abscess were completely

resolved while residual abscess was observed in 4%.



15. Outcome parameters: Mean and SD
    Duration of drainage (days) 8.8+/-2.9
    Clinical improvement (days) 4.6+/-1.2
    Time for 50% reduction in cavity (days) 5.1+/-1.5
16. LFT parameter: there was a significant decrease in deranged LFT level observed on drainage as compared to study in study group
17. Type of abscess:



In our study mixed type of liver abscess was predominant in 41 patients (82%) which agree with study conducted by Bansal A et al.[6]

In all type, PCD is a preferred method most widely used to drain liver abscess but recent studies show PNA to be simpler,[11-13] less costly and equally effective.[12-14] Usually needle aspiration is preferred for smaller abscess and catheter drainage done in larger one. But no clear cut guidelines have been laid.

Discussion

Liver is a vital organ situated at the end of portal circulation and therefore bathed with portal blood containing virus, bacteria, parasites and products of digestion and other antigens and therefore prone to such infection.[7] Liver abscess are infectious, space occupying lesion; two common being pyogenic and amebic.

Pyogenic liver abscess (PLA) is rare but potentially lethal while amebic liver abscess are common in tropical region where 'Entamoeba histolytica' is endemic and is more prevalent in young male with suppressed cell mediated immunity. In both types right lobe liver abscess are common. The clinical presentation of fever, right upper quadrant abdominal pain with or without jaundice is seen in both types.

In the present study 15 to 30 years (30%) was most common age group followed by 31 to 40 years (22%) with male predominance amongst study group (80%). These findings correlate well with the study conducted by Mushtak Talib Abbas et al.[8]

In our study abdominal pain (98%) was most common clinical feature followed by fever (84%) and anorexia (62%). These findings are in agreement with study conducted by Soumik Ghosh et al.[10] In the present study alcoholism was most common comorbidity (44%) followed by hypertension (12%) and diabetes (10%). These findings correlate well with the study conducted by Soumik Ghosh et al and by Mukhopadhyay et al.[9,10]

In our study right lobe of liver was most common side of liver involved in abscess (70%) followed by left lobe (20%) and both (10%)

These findings are in agreement with study conducted by Bansal A et al.[6]

In our study we treated all fifty patients with pigtail catheter drainage along with systemic antibiotic. Out of fifty patients forty eight showed complete resolution while two patients had residual abscess.

The mean duration of drainage, clinical improvement and 50% reduction in abscess cavity in days in the study group was 8.8 +/- 2.9, 4.6+/-1.2, 5.1+/-1.5 Sukhjeet Singh et al,[5] reported that PCD is better modality as compared to percutaneous needle aspiration (PNA) especially in larger abscess with partially liquefied pus. The time required in 50% reduction in abscess cavity was significantly less in PCD group compared to PNA group.

Conclusion

Hepatic abscesses, pyogenic or amebic continue to be a problem in developed and developing countries of the world. Our study concludes that PCD is a better modality in respect of clinical improvement, resolution of cavity and success rate. Though effective antibiotics, chemotherapies and image guided drainage modalities are easily available the need for an early diagnosis in case of nonspecific presentation remains a challenge.

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