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Ultrasound Guided Fine Needle Aspiration Cytology Is The Excellent Mode For The Diagnosis And Management Of Patients Suffering From Pyogenic Liver Abscess

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A B S T R A C T

Aims and objective-The present study was undertaken to evaluate the role of ultrasound guided fine needle aspiration cytology for the diagnosis and management of patients suffering from pyogenic liver abscess**. Materials and methods**- A total of 24 patients presenting with right upper abdominal pain, high grade fever, nausea, vomiting and loss of appetite were seen in surgical and medical opd were send for ultrasound guided F.N.A.C. in our department. **Results-** Out of 24 patients of pyogenic liver abscess (PLA), 18 patients (75%) were male and 6 patients (25%) were female. Age group was ranging from 15-65 years. Majority of patients 22 (91.66%) were presenting with upper abdominal pain followed by fever with rigor in 14(58.33%). About 13(54.16%) patients has unknown cause and must be due to cryptogenic in origin. The most common pathogens isolated were Klebsiella spp., **Conclusion-** Prompt ultrasound guided percutaneous fine needle needle aspiration and drainage of pus along with intravenous antimicrobial shows excellent recovery of patients from the disease.

Keywords: Ultrasound guided Fine needle aspiration cytology (F.N.A.C), pyogenic liver abscess (PLA), right hypochondrial lump.

INTRODUCTION

Pyogenic Liver abscess (PLA) is defined as collection of pus that forms in the liver due to an infection. Pus is a fluid composed of white blood cell, dead cells, and bacteria that forms when our body fights off infection. In the case of PLA, instead of draining from the infection site, the pus collected in the liver. Abscess shows signs of inflammation in the surrounding area.

The most common cause of PLA is biliary disease, which includes conditions affecting liver, pancreas and gall bladder. An inflamed gallbladder is the most common cause for PLA out of all the biliary disease, other causes include bacteria from ruptured appendix that forms an abscess, pancreatic cancer, Ca colon, IBD, diverticulitis, perforated bowel, septicemia, liver injury. Patients with diabetes mellitus are more predispose (3.6 times risk) to PLA[3]. Septic pulmonary embolism, Brain abscess, endophthalmitis are important complications of PLA due to bacteria released and hematogenous spread.

Incidence of pyogenic liver abscess is estimate to be 8-15 cases per 100,000 persons; in US. in India, it is commonest in fourth to sixth decade of life and higher due to poor health care facilities. Male to female ratio is 2:1. Liver abscess have been recognized since the age of Hippocrates. Amoebae as a cause of liver abscess was described by Kochs in 1883. Series of publication was published by Ochshner and Debakey in 1938 regarding pyogenic and amebic liver abscess[5]. The causative organism isolated most often from blood and abscess cultures are E. coli in 33%, K. Pneumoniae in18%,

streptococcal species in 37%, and Microaerophilic streptococci in 12%, klebsiella pneumoniae has emerged as a common isolate in patients with diabetes. In the elderly, diabetic and immunosuppressed patients, there is increased incidence of this abscess[10].

The common presenting symptoms are upper abdominal pain, high grade fever, nausea, vomiting and loss of appetite. Jaundice and breathlessness are less common. The common signs are tenderness in right hypochondrium, guarding and hepatomegaly. Jaundice, ascites and pleural effusion, mostly right sided may be present. Biliary tract disease is found to be the most common cause. Other causes are portal hypertension, ruptured appendix, hematogenous spread (septicemia), liver trauma etc[4].

Majority of abscesses are multiple and in right lobe of liver due to biliary disease and hematogenous cause. Solitary abscess is cased due to obstruction in portal circulation, cryptogenic in nature and trauma. Earlier studies by Ochsner et al recommended open surgical drainage as per the treatment of choice. But now due to availability of better imaging modality and ultrasound guided percutaneous drainage procedure there is dramatic changes in pattern of treatment of pyogenic liver abscess.

Pyogenic liver abscess is a common problem of both developed and developing countries and are most often polymicrobial. It is a condition with significant mortality if not treated promptly. Here the aim of our study is to determine etiopathogenesis, clinical, radiological and bacteriological characteristics of patients of pyogenic liver abscess and its management, focusing on the drainage procedure[1,7,8].

Materials and Methods

The present study was carried out in the department of Pathology, Sri Krishna Medical College and Hospital, Muzaffarpur, during the period of May 2024 to April 2025 with the help of Department of Surgery, Microbiology and Radiology. A total of 24 patients presenting with right upper abdominal pain, high grade fever, nausea, vomiting and loss of appetite were seen in surgical and medical opd were send for ultrasound guided F.N.A.C. in our department.

Detailed medical, surgical history and clinical examination was done for every patient selected for the study and all things regarding fnac were explained before the procedure and consent was also taken. All the relevant routine tests were carried out. After proper preparation, the lump was palpated to determine its exact location and extent with the help of the sonologist and aspiration was done by using of 10 ml. air tight disposable syringe with 23 gauze needles.

Before inserting the needle, we visualize the lesion's site and size on the monitor screen and needle direction is same as the direction of the beam. After that, the needle syringe was introduced into the lesion. Again, we confirm the position of the needle and plunger was pulled to provide negative pressure**.** A few forward and backward to and fro movement of needle was at times required in few cases within the lump by maintaining the constant suction till some material appeared in the syringe or nozzle. The needle was then withdrawn and the puncture site was pressed for 2 minutes with sterile gauge and then sealed.

The needle containing the aspirated material was detached from the syringe and reattached after pulling the plunger back. The aspirated material was pushed out on a clean glass slide and spread it gently with the help of another slide to make a smear. 3 to 4 slides were prepared for each case. The smear was fixed with cytofix spray and dried and stained with Giemsa and Papanicolaou stain.

From aspirated samples Grams staining and culture and sensitivity was also done. After proper staining the entire slide were seen under oil Immersion lens and reported accordingly.

Results

Out of 24 patients of PLA, 18 patients (75%) are male and 6 patients (25%) were female, with male to female ratio was 3:1, patients age group was ranging from 15-65 years, with mean age was 35 years. Majority of patients 22 (91.66%) present with upper abdominal pain followed by fever with rigor in 14(58.33%) patients, nausea and vomiting in 13 (54.16%) patients, diarrhea in 4 patients (16.6%) and anorexia in 13(54.16%) patients. On clinical examination tenderness was present in right hypochondrium in 22 patients (91.66%), guarding in 10 (41.66%) patients, hepatomegaly in 11(45.8%) patients, pallor in 13 (54.16%) patients, icterus in 2 cases (8.33%) and signs of septicemia in 7 (29.16%) patients.

Discussion

In our study majority of the patients were presenting with the clinical features of upper abdominal pain, fever with rigor and hepatomegaly. Incidence was maximum in middle aged patients. About 13 (54.16%) were cryptogenic in origin

followed by biliary disease, portal hypertension and hematogenous cause. With the development of better diagnostic technique and treatment, mortality rate has been significantly reduced[2]. Liver abscess is rare in children. Most of the abscesses were in right lobe of liver. Percutaneous Drainage without USG guidance is avoided because an empyema may occur. In this study 83.3% patients were treated with percutaneous aspiration drainage along with antibiotics. The most common pathogens were isolated was Klebsiella spp. followed by E. coli and Staphylococcus spp. The low mortality rate was due to early diagnosis and low sampling error because of USG guidance and proper management[7].

Conclusion

USG guided FNAC is simple, low cost, safe and relatively painless for the initial investigation and diagnosis of both superficial and deep lesion. The clinical value of USG guided F.N.A.C. is not limited to Neoplastic condition only but also valuable in the diagnosis of inflammatory, infectious, degenerative conditions and diagnosis and monitoring of graft rejection in transplantation surgery. USG guided percutaneous needle aspiration along with parenteral antibiotics is now the first line treatment for relatively small liver abscesses[9].

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