Original Article

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Single Time EUS Guided Aspiration of Caudate Lobe Abscess is less Painful

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Abstract

Background: Percutaneous drainage of the liver abscess may be difficult in caudate lobe abscess due to the anatomical position. It is also associated with significant pain and few complications. Surgical management of such abscesses is associated with morbidity. An alternative option is Endoscopic ultrasound guided aspiration or drainage through stomach wall in view of anatomic proximity to the caudate lobe.

Methods: Five consecutive patients who presented with symptomatic caudate lobe liver abscess were selected from 2015 till 2019. In all the five patients, percutaneous drainage was considered difficult by the interventional Radiologist. In them, Endosonography guided aspiration/drainage was done through the gastric wall under sedation.

Results: All the five patients had a successful clinical outcome with less pain following EUS guided abscess drainage.

Conclusion: EUS guided aspiration or drainage of liver abscesses is feasible, less painful and a safe option in patients where percutaneous drainage may be difficult.

Keywords: Caudate Lobe Liver abscess; Endosonography (EUS); EUS guided Abscess Drainage; Painless, Ultrasound guided abscess drainage.

Introduction

Liver abscess is infectious space occupying lesion in liver parenchyma. It could be Pyogenic or Amebic origin. The most common source is biliary followed by abdominal infection and hematogenous spread.

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In tropical countries, Amebic liver abscess is the more common variety found.[10-13]

In both the types, the right lobe of liver is the most common involved site nearly 70%. Involvement of the Caudate lobe is less common. The clinical presentation is similar in all types with Fever, pain abdomen and hepatomegaly with or without jaundice. Presentation can be with septic shock or peritonitis if there occurs a free rupture of abscess.

The mainstay of treatment is Antibiotics combined with drainage of abscess. Traditionally, percutaneous drainage of liver abscess is done in cases with features of impending rupture or left lobe abscess or not improving clinically with conservative management for 72 hours. If complicated or ruptured abscess, then surgical management is indicated.

Percutaneous aspiration is associated with few complications like pain, bleeding, biliary peritonitis and fistula formation.[13]

EUS guided aspiration or drainage of liver abscess has been described by several endosonographers with good results and safety.[1-8]

In this series we describe 5 cases of caudate lobe liver abscesses which were managed by aspiration under EUS guidance. The patients had good outcome with less pain and no complications were noted.

Materials and Methods:

It is a retrospective cohort study where 5 consecutive cases of caudate lobe liver abscess were included. They were taken for EUS guided drainage in view of difficult percutaneous access. They had not responded well to antibiotics.

EUS was done using the Olympus curvilinear echoendoscope.

Procedure was done under sedation using Propofol.

Imaging was done using the echoendoscope and abscess was identified and comfortable point to access was noted and a 19 G needle was inserted into the abscess avoiding vessels with the help of doppler mode. Aspiration of maximal possible volume was done using suction syringe. If thick pus was noted, sterile saline was injected and re-aspiration was done. Pus was sent for analysis. Antibiotics were continued and adjusted according to the sensitivity report. Patients were followed up with an ultrasound once discharged.

All the five patients showed good clinical response with complete resolution of abscess on follow up.

Case 1: 58 year old man presented with epigastric pain, fever, and chills for 3 days. At the emergency department, he had features of severe sepsis. He was resuscitated and CT abdomen was done which demonstrated a 45 x 25 mm caudate lobe abscess. Because the hepatic abscess was inaccessible to percutaneous drainage, EUS-guided drainage was considered. EUS image is provided in Figure no. 1.

Nearly 70 ml of pus was aspirated from the abscess using 19 gauge access needle. Pus was sent for culture and sensitivity which grew Klebsiella pneumonia. Appropriate antibiotics were given and patient improved clinically. Follow up was done for 3 months when the check ultrasound howed resolution of the abscess.

Fig. 1: Abscess in Caudate lobe of Liver.

Case 2: 40 year old male with no comorbidities with history of significant ethanol intake, presented with pain abdomen and fever of 10 days duration. He was evaluated and noted to have a space ocupying lesion of 3.1x3 cm in caudate lobe. Alpha Feto Protein was normal. It was not accessible through ultrasound guidance in view of large vessels closeby. EUS showed a well defined lesion with hypoechoic nature in caudate lobe. EUS guided aspiration of the lesion revealed purulent material. 25cc of pus was aspirated and sent for analysis. He was treated with antibiotics as per the culture and sensitivity report. There were no malignant cells on cytology report. He was then managed with antibiotics and had uneventful recovery.

Case 3: 55 year old female presented with pain abdomen of 20 days duration followed by fever, jaundice and then distension of abdomen with swelling of feet for 15 days duration. She was evaluated and noted to have a large liver abscess compressing the inferior venacava. Budd-Chiari syndrome like presentation was noted. Antibiotics were initiated and percutaneous aspiration was done, 100 ml of pus drained. Pigtail catheter placement into the abscess cavity could not be done. Patient had persisting pedal edema and ascites. He needed drainage of the abscess. Hence EUS was considered. EUS Image is provided in figure No. 2 and 3. EUS guided aspiration of the residual large abscess was done. 120 ml of pus was aspirated using 19G needle. Compression on the IVC was noted to be reduced. Patient had gradual resolution of symptoms following it.

Fig. 2: Abscess partially compressing IVC.

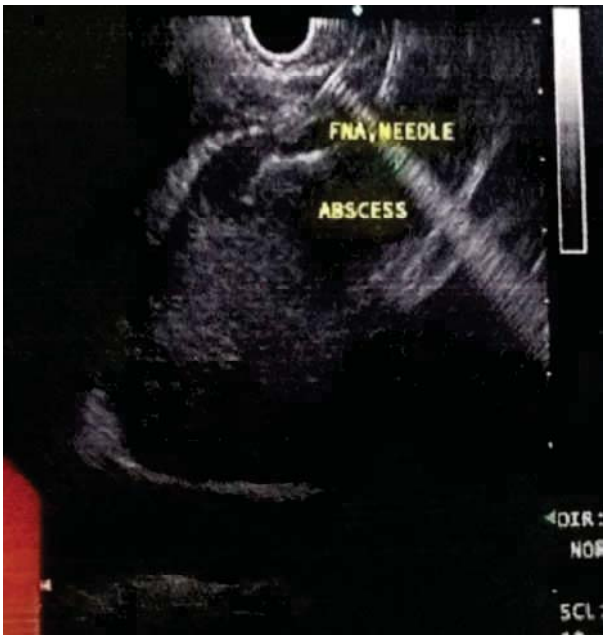

Fig. 3: Aspiration of abscess.

Case 4: 50 year old male with history of significant alcohol intake, presented with pain abdomen and fever. Jaundice was noted on examination with tender hepatomegaly. Evaluation was suggestive of abscess measuring 5.5x4 cm in caudate lobe of liver and hepatitis. Percutaneous aspiration was not feasible, because of difficult access. EUS image is provided in Figure No. 4. EUS guided aspiration of the abscess was done using 19G needle. Patient improved with course of antibiotics for 6 weeks. Resolution of the abscess was documented on ultrasound after 3 months.

Fig. 4: Abscess in caudate lobe.

Case 5: 32 year old male presented with pain in right upper quadrant with general debility of 10 days duration. There was no history of fever. Anorexia was present. Ultrasound abdomen showed a well defined heterogenous predominantly hypoechoic lesion suggestive of abscess of 5.1x4.9 cm in Caudate lobe of liver. EUS guided aspiration of pus was done and patient had good clinical response with antibiotics following that.

Discussion and review of literature

Liver abscess is collection of pus and necrotic material within liver parenchyma. Usually right lobe of liver is affected. In about 30% of cases the left lobe may be involved. In about 20% of cases multiple abscesses may be seen.[10]

Traditional approach to managing liver abscess includes antibiotics, drainage of the abscess percutaneously or surgically.

Percutaneous aspiration is easily available, can be done bedside, with lower cost, good technical success of 100% and clinical success of >85%.[10-13] Even multiple abscesses can be attended at a time while doing the procedure. However, it may be associated with significant pain, bleeding risk, risk of biliary peritonitis and fistula formation.

Some locations in liver may be difficult to access percutaneously for drainage particularly caudate lobe abscess due to presence of large vessels close by. In patients with ascites and respiratory distress, percutaneous drainage is not recommended. Even in confused and agitated patient, percutaneous drainage is not advisable because of risk of

accidental removal by patient. Surgical management is indicated in case of rupture liver abscess which has higher morbidity and mortality. Hence an alternative approach for abscess drainage may be considered. In this regard, several case reports of successful drainage of liver abscesses under EUS guidance have been reported.[1-9] Literature search was done for endoscopic ultrasound guided liver abscess drainage procedure.

Noh et al[1] have successfully done drainage of caudate lobe abscess under EUS guidance which could not be done percutaneously.

John koehane[2] et al have successfully drained transgastrically caudate lobe abscess.

Itoi et al and Shei Wei et al also have successfully drained caudate lobe abscesses under EUS guidance. Hiroshi et al have drained liver abscess under EUS guidance using a metal stent.[3,4,8]

We aspirated the pus under EUS guidance in the cases described. We have done a single time procedure which was painless to the patient as compared to percutaneous drainage method. We have not placed any stent inside the abscess. Antibiotics were continued along with supportive care. Patients recovered well and were noted to have complete resolution of abscess on follow up.

Therapeutic endoscopic ultrasound is expanding in clinical application from it being the first line in managing pancreatic and peripancreatic collections to the latest in failed ERCP for EUS guided biliary access. EUS guided Liver abscess drainage also is a feasible, safe and reliable option where percutaneous aspiration is not feasible as described in multiple case reports. However there are certain limitations for EUS guided liver abscess drainage.

Limitations of EUS guided drainage of liver abscesses include the following

- Limited availability of EUS and accessories
- Technical expertise and skill, manpower.
- Right lobe liver abscess may not be easily accessible for EUS guided procedure.
- Cost of procedure
- Need for anaesthesia and intubation if needed

Implications

Endosonography guided liver abscess drainage is one newer modality to manage difficult caudate lobe abscess drainage and which is safe and efficacious, less painful method.

There is however a need for more evidence like a randomised trial before considering as first line in management of liver abscess drainage.

Conclusion

Endoscopic ultrasound guided caudate lobe liver abscess aspiration or drainage is a technically feasible, less painful and safe alternative option in patients where percutaneous access is difficult.

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Disclosures

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