



Community-Acquired Methicillin-Resistant Pyogenic Liver Abscess: A Case Report from Pakistan

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Abstract

Methicillin-Resistant *Staphylococcus aureus* associated pyogenic liver Abscess is a rare entity with only a few cases reported up to date. These abscesses are associated with increased morbidity and mortality in left untreated. Here, we report to you a case of a 9 years old girl who evaluated for fever and right hypochondrial pain was diagnosed with MRSA related liver abscess.

Keywords: *Staphylococcus aureus*; Liver; Pakistan

Introduction

Liver abscess secondary to methicillin resistant *Staphylococcus aureus* (MRSA) is a rare entity, that if not diagnosed on time, is associated with increased mortality [1]. Pyogenic liver abscesses have an incidence of about 0.5-0.8% and they are usually polymicrobial with E coli and Enterococci being the most common cause, while *Staphylococcus aureus* is noted in around 7% of the liver abscesses. Of these, only a few are caused by methicillin resistant *Staphylococcus aureus* [2,3]. Literature review shows just 13 cases of MRSA associated liver abscesses with only five of them being community acquired.¹ Review of these case reports reveal aggressive nature of MRSA related liver abscess with increased morbidity and mortality [3]. Up to date, no case has been reported from Pakistan about MRSA associated liver abscess. Here, we report a rare case of liver abscess caused by methicillin resistant *Staphylococcus aureus* that resulted in grave complications.

Case Presentation

A 9 years old female patient, with no prior comorbidities presented with the complaints of abdominal pain and fever since

one month. Her mother described the pain as dull, achy, non-radiating, intermittent, that usually worsens on deep breathing and was associated with vomiting which was occasional, 3 episodes in a month, non-projectile, containing food particles and was not foul smelling. She also had a history of fever for 1 month which was high grade documented 104F, associated with rigors and chills, stayed throughout the day, relieved by taking paracetamol. There was no significant history of loose motions or burning micturition. On examination, thin lean female patient lying in bed with a pulse of 100beats/min, blood pressure of 90/60 mm Hg, respiratory rate of 20 breaths/min and temperature of 103F. On general examination, she looked pale. On abdominal examination, there was a bulge seen in epigastrium that was soft on palpation but tender. Blood tests revealed a raised total leukocyte count of 21000 cells/mm³. Blood culture was sent. Urgent ultrasound abdomen was done which showed a large ill defined heterogenous area involving segment 7 and 8 of liver measuring 10.4x7.3x7.3 cm. Another pocket of collection noted in epigastrium measuring 3.5x6.2x6.2 cm containing echoes. Provisional diagnosis of pyogenic liver abscess was made.

Blood samples were taken for Amebic Immunohistological Analysis and Echinococcal antibody titre that came negative. Subcutaneous collection of abscess was aspirated via 20G needle and around 80mL fluid was obtained which was sent for culture and sensitivity, AFB smear and gene expert. Meanwhile empirically piperacillin/tazobactam was started 2.25 grams intravenously every 8 hours. CT abdomen(Triphasic) was performed showing a large multiseptated hypodense area in right lobe of liver with thin septations measuring about 10.7x8.1x8.3 cm with a volume of 359mL.It was seen ruptured into perihepatic and subdiaphragmatic region (Figure 1). Another hypodense area also noted in the left lobe of liver with few septations and peripheral enhancement representing abscess (Figure 2). It was also seen to be ruptured anteriorly with intrahepatic component measuring 2.6x2.0 cm and ruptured component measuring 3.2x8.7x6 cm (volume = 83 ml).



Figure 1: CT abdomen(portovenous phase) showing a large multiseptated hypodense area in the right lobe of liver with thin septations measuring about 10.7x8.1x8.3 cm ruptured into a perihepatic and subdiaphragmatic region



Figure 2: CT abdomen (Portovenous phase) showing a hypodense area in the left lobe of liver with few septations and peripheral enhancement suggestive of ruptured liver abscess with intrahepatic component measuring 2.6x2.0cm and ruptured component measuring 3.2x8.7x6 cm.

Fluid analysis was negative for tuberculosis. Fluid culture revealed MRSA which was sensitive to Clindamycin and vancomycin. Intravenous Vancomycin was started and patient was monitored on daily basis. After 2 days, repeat ultrasound showed 250 mL of liquefactive component in right lobe abscess, which was drained by percutaneous drain. A 10Fr pigtail catheter was placed in segment VII of liver by interventional radiologist. Greenish pussy discharge was collected and drain charting was done. Patient was also screened for immunosuppressed states such as HIV and it was negative.

Patient’s condition did not improve and she suddenly became tachypneic with a respiratory rate of 40 breaths per minute. Chest radiographs showed Empyema in right lower lobe of lung. Patient was immediately shifted to Intensive care unit and supplemental oxygen therapy was initiated. Cardiac enzymes were sent, ECG was done which were within normal range. Patient is still under treatment and currently responding to IV antibiotics.

Discussion

Pyogenic liver abscess is rare with only 10% of those are linked with *Staphylococcus aureus* making MRSA a rarer entity among them [3]. Our case was rare in its known. Firstly, it was that of a young girl who was diagnosed with MRSA related liver abscess and secondly it was community acquired. No source was identified to be the cause of MRSA in our patient. The most probable source in our patient was likely the history of repeated visits for diarrhea to local clinics for intravenous antibiotics and hydration.

Liver abscess most commonly manifests as high grade fever with chills and right hypochondrial pain along with leukocytosis, increased bilirubin and transaminases and low serum albumin [4,5]. The imaging either ultrasound or cross-sectional can provide help in diagnosis. Our patient had typical complaints of right hypochondrial pain along with fever with cross-sectional imaging confirming the findings of multiple liver abscesses.

Liver abscess is manage with antibiotics and drainage of the abscess. Intravenous vancomycin is the recommended first line treatment for MRSA infection. Other options include linezolid, having comparable efficacy with vancomycin. Our case was a complicated one as abscesses ruptured. So, the patient in our case was treated with both vancomycin and drainage of the abscess through pigtail insertion.

Surgical drainage maybe required in patients with liver abscess if the condition does not improves despite of percutaneous drainage

of abscess, abscess with minimal or no liquefactive component or there are multiple pockets of abscesses or collections [6-9]. In our case, as the patient's condition deteriorated initially so we kept surgical team on board but the surgical intervention was not required as the condition improved with intravenous antibiotics.

Conclusion

MRSA related liver abscess is a rare entity that is associated with increased morbidity and mortality. Timely treatment with appropriate systemic antibiotics limits the complications associated with infection and decreases both morbidity and mortality.

Conflict of Interest

None.

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