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Case Report

Liver abscess caused by *Serratia grimesii* in an immunocompetent patient

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ABSTRACT

In tropical and subtropical countries, the most common cause of liver abscess is *Entamoeba histolytica*. However, pyogenic infections are common due to bacteria like *Kleibsella pneumonia* followed by *Escherichchia coli* and enterococcus species. The possibility of atypical organisms should be considered especially with recurrent liver abscess. We report a case of recurrent liver abscess caused by *Serratia grimesii* in an immunocopetent individual. Early isolation of the organism along with drug susceptibility testing would make a marked difference in improving the management of the patient and associated prognosis.

Keywords: Immunocompetent, Liver abscess, *Serratia grimesii*

INTRODUCTION

The genus Serratia, gram-negative, facultative anaerobic, belongs to enterobacteriaceae family.[1] The common presentation is urinary tract infections and it can lead to meningitis, osteomyelitis, infectious arthritis, and endophthalmitis in severe hematologic infection.[2] *S. marcescens*, is normally the only pathogen and usually causes nosocomial infections. However, rare strains of *S. plymuthica*, *S. liquefaciens*, *S. rubidaea*, and *S. odoriferae*, *S. grimesii* have caused diseases through infection.[3]

CASE REPORT

A 42-year-old man, resident of New Delhi, with complaints of high-grade fever of ten days duration, associated with right upper quadrant abdominal pain. Patient consulted to many physicians, an ultrasound scan of abdomen was done which had revealed a liver abscess of 148 cc in segment VII of the right lobe of the liver. He was prescribed oral antibiotics for one week. His fever was subsided but abdominal pain persisted, for which he underwent wide bore needle aspiration of the abscess at a clinic, around 100 ml pus was drained and he was sent home on oral antibiotics. After two days, his condition deteriorated further, abdominal pain increased. Repeat Ultrasound scan was done, which again showed liver abscess of 122 cc in the right lobe of the liver and he was referred to our hospital for further management.

On examination in medical emergency, His oral temperature was 104°F. His pulse rate and blood pressure were 112/min and 110/60mmHg, respectively. Abdominal examination revealed fullness in the right hypochondriac region; tenderness along with presence of localized guarding.

Laboratory tests revealed 13.2gm% hemoglobin and total leucocyte count of 16,200/mm^3 with normal differential counts and platelets. The erythrocyte sedimentation rate was 32mm/1st hr. Liver function tests, lipid profile, urine

routine and microscopy, renal function tests were all within normal limits. Blood and urine culture were sterile. HBsAg, Anti HCV and HIV were all non-reactive. His CD4 count was 639/mm^3 and the levels of IgA (88mg/dL), IgM (219mg/dL) and IgG (882mg/dL) were normal. Emergency ultrasound was done, which showed liver abscess of 78x57x65mm with volume 168 cc in the segment VII of right lobe of liver (Figure 1).

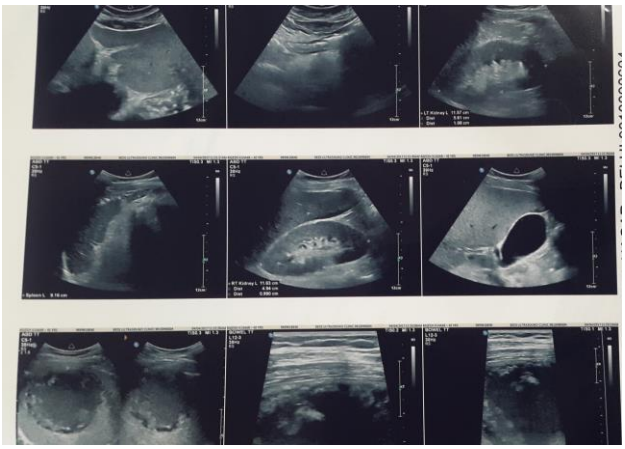

Figure 1: Liver abscess of 78x57x65 mm with volume 168 cc in the segment VII of right lobe of liver.

Ultrasound guided aspiration of the pus was done and it was sent for culture and drug sensitivity testing. After 72 hours of incubation, *Serratia grimesii* was isolated and it was sensitive to piperacillin. He was started on a combination of piperacillin and tazobactum, and other supportive management. On day 14 of admission, he was discharged from the hospital in stable condition.

DISCUSSION

Serratia infections are most commonly acquired within the hospital, but community-acquired cases may occur, as the organism is ubiquitous and found in soil, sewage, and water. In a study of hospitalized patients with *Serratia bacteremia*, predisposing features included a recent history of antibiotic use (most often first-generation cephalosporin), surgery, instrumentation, steroid use, or diabetes mellitus.[4] Among community-acquired *Serratia* soft tissue infections, common risk factors include a history of trauma, renal failure, diabetes, and chronic leg ulceration.[5]

The pathogenesis of Serratia infection is not well understood. *S. marcescens* and the other *Serratia species* do not produce many notable virulence factors and are considered opportunistic pathogens. *Serratia species* are motile and can adhere to cells via fimbriae. *S. marcescens* produces a few different hemolysins that are toxic to different cell types.[6]

Serratia are generally susceptible to several antibiotic classes: fluoroquinolones, aminoglycosides, trimethoprim-sulfamethoxazole, piperacillintazobactam, ticarcillin, clavulanate, third and fourth-generation cephalosporins, aztreonam, and carbapenems.[7] In Serratia, a chromosome AmpC beta-lactamase are responsible for resistant to ampicillin and first-generation cephalosporin.[8]

CONCLUSION

Serratia species usually causes nosocomial infections, among all species of *Serratia, S. marcescens* is normally the only pathog*en. But Serratia grimesii* may causes severe infection. However, infection by *Serratia grimesii* has been rarely reported in clinical practice.

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