Enterobacter sakazakii bacteraemia with multiple splenic abscesses in a 75-year-old woman: a case report

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Abstract

Enterobacter sakazakii is an uncommon bacterium that is known to cause severe neonatal infection and is rare among adults. We present a peculiar case of E. sakazakii bacteraemia with multiple splenic abscesses in a 75-year-old institutionalised woman, who was successfully treated with 6 weeks of imipenem and percutaneous drainage of the abscesses.

Keywords: Enterobacter sakazakii bacteraemia, multiple splenic abscess, elderly.

Introduction

Enterobacter sakazakii (ES) is a motile, Gram-negative, rod-shaped bacterium known to cause severe neonatal meningitis and necrotising enterocolitis in premature infants with the consumption of contaminated powdered milk formula [1, 2]. Adult infections are rare. Only nine cases have been reported to date, mainly of ill and immunocompromised older patients [3–8]. We describe a peculiar case of ES infection in an elderly woman.

Case Report

A 75-year-old woman presented in June 2006 with fever, dyspnoea and vague abdominal pain. An otherwise well and independent elder, she was a resident of a mental institution for chronic schizophrenia. At presentation, she was tachycardic, tachypnoeic and febrile (38.4°C), with the presence of a left-sided pleural effusion and left upper quadrant abdominal guarding and tenderness. There were no other significant findings.

Laboratory results revealed neutrophilia (12.6 x 10^9/l), elevated C-reactive protein levels (176.8 mg/l) and mild transaminitis. The chest radiograph confirmed a moderate-sized left-sided pleural effusion. Computed tomography (CT) scan of the abdomen revealed multiple thin-walled splenic and parasplenic abscesses (Figure 1). One hundred millilitres of thick ‘tomato relish’ paste was later aspirated under CT guidance. Cytological analysis showed inflammatory cells and fibrin debris but no malignant cells. Blood cultures eventually grew ES, which was sensitive to cefuroxime, ceftriaxone, gentamicin, ciprofloxacin, cotrimoxazole, and amoxicillin/clavulanate. The bacterium was resistant only to cephalexin.

The pleural aspirate was predominantly lymphocytic with no evidence of bacteria or acid-fast bacillus. Adenosine deaminase level was normal (29.66 U/l) and cytological analysis was negative for malignancy. Serum tumour markers (alphafetoprotein, carcinoembryonic antigen, CA 19-9, CA 125) were within normal limits and the human immunodeficiency virus (HIV) antibody was negative. In
other words, evidence for tuberculosis, malignancy, or retroviral infection was absent. The patient was treated with intravenous ceftriaxone and metronidazole. Despite initial clinical response (fever settling after 96 h of antibiotic therapy), inflammatory markers continued to rise. After consulting with an infectious diseases specialist, we surmised that the organism had developed cephalexin resistance due to inducible cephalosporinase, and switched antibiotics to imipenem. Clinical and radiological response was only achieved after 28 days of intravenous imipenem. She was discharged with another 3 weeks of oral ciprofloxacin. Unfortunately, she was readmitted 1 week later, presenting with intermittent fever and neutropenia. She recovered with a further 2 weeks of oral ciprofloxacin. Despite initial clinical response (fever settling after 96 h of antibiotic therapy), inflammatory markers continued to rise. After consulting with an infectious diseases specialist, we surmised that the organism had developed cephalexin resistance due to inducible cephalosporinase, and switched antibiotics to imipenem. Clinical and radiological response was only achieved after 28 days of intravenous imipenem. She was discharged with another 3 weeks of oral ciprofloxacin. Unfortunately, she was readmitted 1 week later, presenting with intermittent fever and neutropenia. She recovered with a further 2 weeks of imipenem and was discharged well.

Discussion
Similar to Hawkins’s study, this case illustrates that ES grown from cultures should not be dismissed as a contaminant in older persons [5]. Treatment of ES will require both prolonged antibiotics and the drainage of any abscesses. We had followed the antibiotic sensitivity pattern of our ES isolate and commenced a cephalosporin. The patient showed initial favourable response followed by worsening infection indicated by rising inflammatory markers. On hindsight, it was more appropriate to use a carbapenem, given previously reported trends of increasing antibiotic resistance to broad-spectrum penicillins and cephalosporins amongst enterobacter species due to inducible beta-lactamase or cephalosporinase [9].

Finally, our patient is the first reported case of ES in a non-immunocompromised adult host, and is also the first case with splenic abscesses. She had no major medical illnesses prior to her current presentation, and investigations did not reveal any evidence of tuberculosis, malignancy, or retroviral illness. Given that ES was isolated as part of the environmental flora in a Japanese geriatric ward [10], her only predisposing factor was her long-term residence in a health institution.

The authors declare that there are no conflicts of interests and that we have received no funding for the study.

Key points
- ES grown from cultures should not be dismissed as a contaminant in older persons.
- ES can occur in a non-immunocompromised adult host and can present with splenic abscesses.
- Treatment of ES with cephalosporins should be avoided despite in vitro sensitivity due to inducible beta-lactamase or cephalosporinase. A carbapenem should be used instead.
- Treatment of ES will require both prolonged antibiotics and the drainage of any abscesses.

References

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