A 21-year-old man presented to the emergency room complaining of fever, chills, diarrhea and nausea with vomiting of two days' duration. He had a past medical history of remote jejunal dysplasia, which was surgically corrected when he was a child. He was taking no regular medications. He had been well until two days earlier, when he developed a sudden onset of fever to 39.9°C, chills and severe nausea with frequent bouts of vomiting. He remembered feeling more tired than usual for three days before the onset of his fever, but nothing more specific. He saw a physician the day after the onset of fever, and the physician prescribed oral cotrimoxazole double-strength, of which he took one dose. Due to persistence of the above symptoms, he presented to the emergency room. He had travelled to Cuba for a seven-day vacation at a resort, and returned home 14 days before the onset of symptoms. He had experienced one day of mild diarrhea while in Cuba, but two of his friends experienced two to three days of diarrhea without fever at the same time while there. He denied abdominal pain, headache, cough, shortness of breath, rash, urinary symptoms or other problems. He had no risk factors for HIV infection.

On examination, he was toxic and experiencing rigors, but was awake and alert. His temperature was 39.8°C, pulse was 107 beats/min and respirations were 30 breaths/min. The examination was normal except for evidence of dehydration and marked splenomegaly without tenderness. A chest radiograph and urinalysis were normal. The patient's hemoglobin level was 167 g/L, his platelet count was 138×10^9/L and his leukocyte count was 9.5×10^9/L with a marked shift to the left. The patient's creatinine level was 139 µmol/L, urea level was 6.8 mmol/L, total bilirubin level was 48 µmol/L (44% conjugated), alanine aminotransferase level was 113 U/L and gamma glutamyl transpeptidase level was 83 U/L. Other liver function tests were normal. Blood and urine cultures were obtained. An abdominal ultrasound confirmed the presence of splenomegaly with a tiny splenic cyst and an otherwise normal examination (including a normal liver). Infectious enteritis with sepsis was diagnosed and the patient was started on intravenous ciprofloxacin. The following day, two sets of blood cultures that were taken while the patient was in the emergency room showed the presence of Gram-negative rods, which were identified the next day as *Salmonella* species (serogroup C1), susceptible to amoxicillin, cotrimoxazole, fluoroquinolones and ceftriaxone. After three days of taking parenteral ciprofloxacin, the patient felt subjectively better but continued to have afternoon and evening fevers of more than 40°C, accompanied by rigors and extreme exhaustion. His platelets decreased daily, to a nadir of 49×10^9/L, and his leukocytes decreased to 3.8×10^9/L. HIV serology was negative. He had no other new complaints, and the examination was unchanged. Repeat blood cultures were negative. A diagnostic procedure was performed to explain the persistent sepsis.

What is your diagnosis?

continued on page 338
continued from page 333

DIAGNOSIS
A computed tomography (CT) scan of the abdomen was performed, showing a 5 cm abscess in the spleen. A percutaneous catheter was inserted into the abscess with CT guidance and was left in place, draining copious odourless pus. A postinsertion CT scan showed a near-complete collapse of the abscess cavity. Gram stain of the pus showed many polymorphonuclear leukocytes and copious Gram-negative bacilli. Culture of the pus yielded heavy growth of Salmonella species (serogroup C1) with susceptibility results that were identical to those of the blood isolates. Twelve hours after the drainage procedure, the patient became afebrile and no longer experienced rigors. After three days in place, the catheter no longer drained any pus and was removed. All blood counts normalized, as did the liver function test abnormalities. The patient was discharged home two days later, feeling well and taking oral ciprofloxacin. He completed a 21-day course of oral ciprofloxacin and remained well.

DISCUSSION
Splenic abscesses from Salmonella species septicemia are uncommon and are associated most often with infections by Salmonella typhi (1-7). Such abscesses are usually painless and pose diagnostic difficulties, unless such a diagnosis is actively sought. Traditional therapy has included appropriate antibiotics and splenectomy (8), but the advent of minimally invasive interventional radiology has allowed for the selective drainage of these abscesses without the need for the removal of the infected organ (3,9-11). This preserves splenic function, and avoids the morbidity and prolonged convalescence that are associated with conventional abdominal surgery. The present case illustrates the following:

- the ‘silence’ of splenic abscesses and the paucity of symptoms or signs other than splenomegaly,
- the failure of antibiotics alone to cure this patient without a drainage procedure,
- the success of radiologically guided catheter drainage of such an abscess,
- the rapid growth of the patient’s splenic abscess despite adequate antibiotic therapy, and
- the rapid resolution of sepsis once the abscess was adequately drained.

In conclusion, patients with Salmonella species bacteremia who present with continuing sepsis despite appropriate antibiotics should be investigated for metastatic infectious foci, including ‘silent’ splenic abscesses. If they are present, splenic abscesses may be managed successfully by percutaneous drainage, thus avoiding unnecessary splenectomy.

REFERENCES