Pylephlebitis due to *Listeria monocytogenes*

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**DESCRIPTION**

A woman in her 80s with liver cirrhosis presented with a 7-day history of malaise and fever. Physical examination revealed abdominal distension and pitting oedema of the limbs, with a blood pressure of 126/57 mm Hg, a pulse rate of 119 beats per minute, a respiratory rate of 24 breaths per minute and a body temperature of 38.1°C (100.6°F). Abdominal ultrasonography showed massive ascites which was absent 3 months before admission. Paracentesis was performed and analysis of the ascitic fluid specimen revealed a white blood cell count of 27/µL, a protein level of 0.7 g/dL, a glucose level of 103 mg/dL, a lactate dehydrogenase level of under the upper normal serum limit and a serum ascites albumin gradient of 2.0 g/dL. The results did not meet the Runyon’s criteria for secondary peritonitis1 and CT was absent in the features of gastrointestinal perforation. No organism was detected on direct gram staining of peritoneal fluid. Empiric therapy with ceftriaxone was administered for 5 days suspecting spontaneous bacterial peritonitis. Since the treatment was ineffective, contrast-enhanced CT (CECT) was performed 5 days after admission and revealed thrombosis within the main portal vein (arrowhead in figure 1). Although the ascites fluid culture was negative, *Listeria monocytogenes* was detected on a blood culture. Based on these findings, a clinical diagnosis of pylephlebitis due to *L. monocytogenes* was made. The treatment against *L. monocytogenes* was initiated on day 5 of admission and her symptoms improved with a 1 week course of ampicillin-sulbactam. Thrombus resolution was confirmed on follow-up CECT after additional treatment with a subsequent 3 week course of intravenous ampicillin, an anticoagulant and a diuretic (figure 2).

*L. monocytogenes* is a food-borne pathogen, which results in severe illnesses including bacteraemia, meningocerephalitis and gastroenteritis. Even low levels of food contamination can lead to bacterial sepsis in case of children, older people, immunocompromised individuals and pregnant women. Several food outbreaks reported crustaceans, shellfish, molluscs, cheese, meat or meat products, vegetables and juices as food vehicles. Although its definitive role is unknown, contaminated food appears to be the source in sporadic cases as well as in outbreaks.1,2,3 Liver diseases were also associated with an increased risk as a consequence of suppressed T-cell-mediated immunity, which could be the additional factor of infection in this patient.4

Pylephlebitis is a rare condition with significant morbidity and mortality rates due to its non-specific clinical manifestations, also known as thrombophlebitis of the portal venous system.5 Current series suggest that doppler ultrasonography or CT is useful for early diagnosis in a patient with intra-abdominal infection or high-grade bacteraemia.6 In

**Figure 2** Follow-up contrast-enhanced CT after additional treatment with a subsequent 3 week course of intravenous ampicillin, an anticoagulant and a diuretic confirmed the resolution of thrombus.

**Learning points**

- When lacking in the evidence of bacteria in peritoneal fluid, pylephlebitis can be one of the differential diagnoses of fever with liver cirrhosis along with suspected spontaneous bacterial peritonitis.
- *Listeria monocytogenes* often causes bacteraemia, meningocerephalitis and gastroenteritis but can also be the causative organisms of pylephlebitis.
- Liver diseases are the additional factor of *L. monocytogenes* infection including children, older people, immunocompromised individuals and pregnant women.
contrast to the higher prevalence of portal vein thrombosis in cirrhotic patients, reported experiences with pylephlebitis are limited to case series. The common causative organisms include *Escherichia coli* and *Bacteroides fragilis*, but the cause can be polymicrobial.

To our knowledge, this is the first case to report pylephlebitis due to *L. monocytogenes*, indicating a new differential diagnosis of fever in cirrhotic patients. Without any evidence of bacterial ascites and any effect of cephalosporin antibiotics, pylephlebitis should also be considered along with spontaneous bacterial peritonitis.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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