Liver abscess due to *Listeria monocytogenes*

Listeria monocytogenes is a facultative intracellular, Gram-positive, motile rod which causes both sporadic disease and outbreaks of food-borne infection in humans.

Infections with *L. monocytogenes* occur most frequently in neonates and in adults with immunosuppression, in pregnancy, advanced age, HIV infection, transplant recipients or diabetes mellitus [1–3]. The most apparent clinical forms present as meningitis and primary bacteremia. Focal nonmeningeal infections are uncommon and very few cases affecting the liver have been reported [4–7].

We present a case of solitary liver abscess due to *L. monocytogenes*. A 58-year-old, obese woman healthy except for a type II diabetes mellitus was admitted to the hospital with fever and abdominal pain in the right upper quadrant that had been present for 1 week. Physical examination revealed a temperature of 39 °C, pallor and tenderness in the right upper quadrant, but no hepatosplenomegaly. Laboratory test findings were as follows: white blood cell count 18 000 per mm^3 (77% neutrophils; 23% lymphocytes); haemoglobin level, 9.7 g/dL; erythrocyte sedimentation rate, 120 mm/h; glucose, 404 mg/dL; alkaline phosphatase, 424 U/L; gamma glutamyl transferase, 89 U/L; alanine aminotransferase, 227 U/L; aspartate aminotransferase, 230 U/L; both total and fraction bilirubin levels were normal as was the immunoglobulin level and the result of the coagulation study. Abdominal ultrasound detected minimal hepatomegaly with a hypoechoic lesion located in the right hepatic lobe that was compatible with a liver abscess. Ultrasound-guided needle aspiration was performed and 30 mL of pus was drained. Empirical treatment with piperacillin/tazobactan (4/0.5 g IV every 8 h) was instituted. Two days later a culture of the drained pus yielded a heavy growth of *L. monocytogenes* and so the previously used antibiotics were replaced by ampicillin (12 g/day) and gentamicin (3 mg/kg per day) intravenously for 4 weeks and then oral amoxicillin (1.5 g/day) for 2 weeks. Blood cultures on her admission were negative. The epidemiological history included nothing of particular significance. During the following weeks there was progressive improvement and the patient made a total recovery. A computerized tomography scan of the liver 2 months later showed complete resolution of the lesions and a second globular sedimentation rate was 23 mm/h.

Liver involvement in infections due to *L. monocytogenes* is rare, probably having its origins either in a primary bacteremia then spreading to different organs or through the portal system

Table 1 Summary of data from cases of *L. monocytogenes* infection of the liver

Patient no. [Reference]	Patient Age/Sex	Method of diagnosis	Liver function test	Treatment	Outcome
1 [PR]	58/F	Ultrasound-guided needle aspiration	↑ SGOT,SGPT,γGT,AP	Ampicillin and gentamicin	Survived
2 [4]	73/F	Ultrasound-guided needle aspiration	Normal	Ampicillin and gentamicin; amoxicillin	Survived
3 [8]	66/M	Blood cultures	NA	Penicillin and gentamicin; penicillin; amoxicillin	Survived
4 [9]	56/F	Ultrasound-guided needle aspiration	NA	Ampicillin and gentamicin	Survived
5 [10]	77/F	NA	NA	Ampicillin and gentamicin	Survived
6 [11]	22/F	NA	NA	NA	Died
7 [12]	38/M	Blood and CSF cultures	NA	Penicillin; oxytetracycline	Died
8 [13]	70/F	Blood and CSF cultures	NA	Ampicillin	Died
9 [14]	51/M	Blood and CSF cultures	NA	Ampicillin	Died
10 [15]	55/M	Blood cultures	↑ SGOT	Cefoxitin and clindamicin	Died
11 [16]	59/F	CSF culture	NA	Penicillin and streptomycin	Died
12 [17]	81/M	NA	NA	Ampicillin	Survived
13 [18]	67/F	Blood cultures	NA	Penicillin	Died
14 [5]	67/M	Laparotomy	↑ γGT,AP	Cefazolin and gentamicin; ampicillin/sulbactam	Survived
15 [6]	55/M	Blood cultures	↑ SGOT,SGPT,γGT,AP	Ceftriaxone; ceftazidime	Died
16 [7]	28/F	Blood and vaginal swabs cultures	Normal	Cefuroxime and metronidazole; amplicillin and netilmicin	Survived

PR, present report; NA, data not available.

after enteric colonization. Table 1 summarizes previous cases of *L. monocytogenes* infection of the liver. Three patterns of liver infection have been described: solitary liver abscess, multiple liver abscesses and acute hepatitis. Our case, as with those previously reported, corresponds to a patient whose only known risk factor was diabetes mellitus and who presented with a solitary liver abscess with neither associated bacteremia nor meningitis. The outcome was completely favourable after surgical drainage and antibiotic treatment with ampicillin and gentamicin. On the other hand, in the cases of liver involvement with multiple abscesses, the clinician may need to exercise more caution since the outcome involves increased morbidity and mortality.

*M. D. López-Prieto**, *A. I. Aller García, S. Alcaraz García and J. López Cepero,*
*S. Microbiología and S. Medicina Interna,
Hospital del S.A.S. de Jerez de la Frontera,
Ctra de Circunvalación s/n,
Jérez de la Frontera,
11407 Cádiz,
Spain
Tel: +34 956 358036
Fax: +34 956 358041

REFERENCES

1. Nieman RE, Loeber B. Listeriosis in adults: a changing pattern. Report of eight cases and review of the literature. 1968–78. *Clin Infect Dis* 1980; 2: 207–27.
2. Vega T, Echevarría S, Crespo J, Artinano E, San Miguel G, Romero P. Acute hepatitis by *Listeria monocytogenes* in an HIV patient with chronic HBV hepatitis. *J Clin Gastroenterol* 1992; 15: 251–5.
3. Bourgeois N, Jacob F, Tavares ML et al. *Listeria monocytogenes* hepatitis in a liver trasplant recipient: a case report and review of the literature. *J Hepatol* 1993; 18: 284–9.
4. Braun TI, Travis D, Dee RR, Nieman RE. Liver abscess due to *Listeria monocytogenes*: case report and review. *Clin Infect Dis* 1993; 17: 267–9.
5. Manian FA. Liver abscess due to *Listeria monocytogenes*. *Clin Infect Dis* 1994; 18: 841–2.
6. Maggioni MP, Preatoni A, Cantoni A, Invernizzi F. Liver abscesses due to *Listeria monocytogenes*. *Liver* 1996; 16: 67–9.
7. Lindgren P, Pla JC, Hogberg U, Tarnvik A. *Listeria monocytogenes*-induced liver abscess in pregnancy. *Acta Obstet Gynecol Scand* 1997; 76: 486–8.
8. Al-Dajani O, Khatib R. Cryptogenic liver abcess due to *Listeria monocytogenes*. *J Infect Dis* 1983; 147: 961.
9. Ribiere O, Cotarel P, Jarlier V et al. Abces du foie a *Listeria monocytogenes*: chez una malade diabetique. *Presse Med* 1990; 19: 1538–40.
10. Herreman G, Jaisson B, Quignodon JF, Mundler B, De La Fontaine P. Abces du foie a *Listeria monocytogenes*: chez una malade diabetique [letter]. *Presse Med* 1990; 20: 479.
11. Simpson JF, Leddy JP, Hare JD. Listeriosis complicating lymphoma: report of four cases and interpretative review of pathogenic factors. *Am J Med* 1967; 42: 39–49.
12. Niklasson PM, Hambraeus A, Lungren G, Magnuson G, Sundelin P, Groth CG. Listeria encephalitis in five renal transplant recepients. *Acta Med Scand* 1978; 203: 181–5.
13. Scully RE, Galdabini JJ, McNeely BU. Case records of the Massachusetts General Hospital. *N Engl J Med* 1978; 299: 819–26.
14. Stamm AM, Dismukes WE, Simmons BP et al. Listeriosis in renal transplant recipients: report of an outbreak and review of 102 cases. *Clin Infec Dis* 1982; 4: 665–82.
15. Yu VL, Miller WP, Wing EJ, Romano JM, Ruiz CA, Bruns FJ. Disseminated listeriosis presenting as acute hepatitis: case reports and review of hapatic involvement in listeriosis. *Am J Med* 1982; 72: 773–7.
16. Henderson JR, Ramsey CA. Military granulomata in a fatal adult case of listerial meningitis. *Postgr Med J* 1967; 43: 794–6.
17. Jenkins D, Richards JE, Rees Y, Wicks CB. Multiple listerial liver abscesses. *Gut* 1987; 28: 1661–2.
18. Gebauer K, Hall JC, Donlon JB, Herrmann R, Rofe S, Platell C. Hepatic involvement in listeriosis. *Aust N Z J Med* 1989; 19: 486–7.

Isolation of verotoxigenic strains of *Escherichia coli* O26 in Poland

Verocytotoxin-producing strains of *Escherichia coli* (VTEC) are causes of diarrheal illness and hemolytic uremic syndrome in humans. The most common serotype of VTEC is *E. coli* O157:H7, which does not ferment sorbitol and does not produce β-glucuronidase, in contrast to other *E. coli* strains.

In this study we searched for VTEC strains in 359 unselected stool samples routinely submitted for culture to the Department of Microbiology of the Medical University. Stool samples were obtained from patients with diarrhea or gastroenteritis (175 adults and 184 children). All specimens were cultured for enteric pathogens by established bacteriologic techniques. From each sample, about 20 separate colonies, presumed on the basis of lactose fermentation and colony morphologic features to be *E. coli*, were picked from MacConkey agar plates and subcultured on sorbitol–MacConkey agar in order to isolate *E. coli* O157: H7 [1,2]. The same colonies were plated on tryptone–soya agar supplemented with 5% sheep erythrocytes washed three times in phosphate-buffered saline (PBS) in order to isolate enterohemolysin-producing strains of VTEC, and on tryptone–soya agar supplemented with unwashed sheep erythrocytes for detection of other hemolysins [3]. Since most verocytotoxin-producing *E. coli* strains show a lack of β-glucuronidase activity, all the examined isolates were tested in a rapid fluorogenic assay in accordance with Thompson et al [4]. This assay used 4-methylumbelliferyl-glucuronide (MUG) as an indicator, which is hydrolyzed to a fluorogenic product by the enzyme β-glucuronidase. The test reaction was performed in a microdilution 96-well U plate. Fifty microliters of MUG reagent was dispensed to wells, and a loopful of pure isolate was emulsified into MUG to produce a milky suspension. The