Successful management of *Listeria monocytogenes* pericarditis: case report and review of the literature

Vasco DIAS[1], MD; Sofia CABRAL[1], MD; Diana ANJO[1], MD; Miguel VIEIRA[1], MD; Nuno ANTUNES[1], MD; Graziela CARVALHEIRAS[2], MD; Catarina GOMES[1], MD; Ana MEIRELES[1], MD; Teresa MENDONÇA[2], MD; Severo TORRES[1], MD

Departments of [1]Cardiology and Internal [2]Medicine, Santo António General Hospital - Oporto Hospital Centre, Porto, Portugal.

Abstract *Listeria monocytogenes*, although an uncommon cause of illness in the general population, is feared principally because of the morbidity and mortality associated with CNS infections. Cardiovascular involvement with *L. monocytogenes* is very rare, and has been limited to endocarditis.

We describe a case of *Listeria* pericarditis, which occurred in a 60-year-old man with Child-Pugh B cirrhosis who presented to the emergency department with asthenia, anorexia, and respiratory distress. The echocardiogram showed severe pericardial effusion and after pericardiocentesis, *L. monocytogenes* was isolated in the culture of pericardial fluid.

After surgical pericardiectomy with draining of the pericardial effusion and antibiotic treatment with ampicillin, the patient experienced a slow, but full recovery.

Documentation of *L. monocytogenes* pericarditis is an extremely rare entity with very scarce reports in medical literature, and is usually associated with a very poor prognosis. A case report is presented together with a review of the literature.

Keywords *Listeria monocytogenes – pericarditis.*

INTRODUCTION

L. monocytogenes is an aerobic, Gram-positive coccobacillus affecting gravidas, neonates, elderly, and the immunocompromised. CNS infections, such as meningitis, meningoencephalitis, or abscesses, are the most serious known manifestations of disease because of the associated high morbidity and mortality.

Cardiovascular involvement with *L. monocytogenes* is very uncommon and has been limited to endocarditis.

Listeria pericarditis is extremely rare, with only seven cases reported in the literature, so the clinical manifestations, optimal treatment, and outcome have not been completely ascertained.

Address for correspondence:

Dr. Vasco Alves Dias, Cardiology Department, Santo António General Hospital, Oporto Hospital Centre, Largo Prof. Abel Salazar, 4099-001 Porto, Portugal. E-mail: vascoalvesdias@hotmail.com

Received 30 September 2010; accepted for publication 4 November 2010.

A case report is presented together with a review of the literature.

CASE REPORT

A 60-year-old white patient with Child-Pugh B cirrhosis was admitted to the emergency department with a 15-day history of anorexia, asthenia, and crescent dyspnoea. At the time of the physical examination, the patient was collaborative and eupnoeic. The radial pulse was regular (114 ppm), the temperature was 36.1ºC, and the blood pressure was 114/73 mmHg. Cardiovascular examination revealed diminution of the first and second sounds without murmurs. Fine crepitations were heard in the lung bases bilaterally. The liver was palpated 2 cm below the right costal margin. Moderate ascites and pretibial oedema were noted. There were no meningeal signs.

The laboratory findings were as follows: leukocyte count, 16 × 103/ul; haemoglobin, 9.3 g/dl; platelet count, 257,000/μl; serum creatine, 0.5 mg/dl; SGOT, 93 IU/L, SGTP, 37 IU/L; lactate dehydrogenase, 511 U/L; and urine sediment, normal. The X-ray showed cardiomegaly,

with a small left pleural effusion. The ECG showed sinus tachycardia.

The echocardiogram showed a moderate pericardial effusion with fibrin in the apex, without signs of tamponade.

Two days later, the patient experienced clinical deterioration with hypotension and respiratory distress. A repeat echocardiogram revealed a severe pericardial effusion mainly located to the left ventricular anterolateral wall. There were no signs of tamponade. A technically difficult pericardiocentesis was performed, showing serosanguinous fluid. With a suspicion of purulent pericarditis, antibiotic treatment with meropenem was empirically started. Four days later it was switched to ampicillin in association to gentamicin after isolation of *L. monocytogenes* from the pericardial fluid culture. No other focus of infection was demonstrated. A surgical pericardiectomy was performed the same day, during which 800 ml of serosanguinous pericardial fluid was drained.

After an initial period of clinical instability, the patient experienced slow, but progressive recovery. All of the blood cultures were sterile. Predisposing factors other than cirrhosis were excluded (HIV infection, haemochromatosis, and liquid or solid neoplasms).

The patient was discharged with little pericardial effusion after 5 weeks of ampicillin therapy (combined with gentamicin during the 1st week).

Nine months later, the patient was still doing well.

DISCUSSION

Cardiovascular involvement with *Listeria* is extremely rare, and mainly limited to endocarditis[1]. Since the first report by Khan et al.[2], only six patients with pericarditis caused by *L. monocytogenes* have been reported in the medical literature.

From this review some conclusions can be drawn. As expected, *Listeria* pericarditis occurred in patients with chronic debilitating conditions, such as cirrhosis or haemochromatosis, alcoholism, renal insufficiency under haemodialysis, neoplasms, or disorders characterized by dysfunction of cell-mediated immunity, such as AIDS[3,4].

The clinical course can be acute or subacute, and is frequently characterized by fever, constitutional symptoms, and cardiac manifestations.

The diagnosis has been assumed by a clinical picture of pericarditis together with bacteraemia due to *L. monocytogenes*. Isolation of *L. monocytogenes* in the pericardium, which is the gold standard to diagnosis, is very difficult to obtain.

The optimal treatment of *Listeria* pericarditis is not entirely known, penicillin being the drug most frequently used.

The prognosis is usually poor with a high mortality rate[3,5].

Based on our experience, we advocate the use of the combination of penicillin or ampicillin with gentamicin, which has shown synergistic activity in vitro and in vivo, and for these reasons, is the first-choice therapy of listeriosis[6].

Moreover, given the high mortality rate of pericardial involvement, we also think that an invasive approach is preferred together with antibiogram-directed antibiotherapy in these patients.

Importantly, very little is still known and more reports are needed to find the optimal approach to this entity.

CONFLICT OF INTEREST: none.

REFERENCES

1. Fernández ML, Rivas P, Rábago R, Nunez M, Martinell J. Prosthetic valve endocarditis due to *Listeria monocytogenes*. Report of two cases and reviews. *Int J Infect Dis* 2004; **8**: 97-102.
2. Khan A, Rosen K, Rahimtoola S, Gunnar R. *Listeria* bacteremia with acute pericarditis. *Chest* 1971; **60**: 496-7.
3. Manso C, Rivas I, Peraire J, Vidal F, Rihard C. Fatal *Listeria* meningitis, endocarditis and pericarditis in a patent with haemochromatosis. *Scand J Infect Dis* 1997; **29**(3): 308-9.
4. Ferguson R, Yee S, Finkle H, Rose T, Schneider V, Gee G. *Listeria*-associated pericarditis in an AIDS patient. *J Natl Med Assoc* 1993; **85**: 225-8.
5. Revathi G, Suneja A, Talwar V, Aggarwal N. Fatal pericarditis due to *Listeria monocytogenes*. *Eur J Clin Microbiol Infect Dis* 1995; **14**: 254-5.
6. Hof H, Nichterlein T, Kretschmar M. Management of Listeriosis. *Clin Microbiolog Rev* 1997; **10**: 345-57.