



Case report

A rare presentation of *Listeria monocytogenes* infection: Perianal abscess associated with lumbar spine osteitis

Frederico Duarte*, Sara Moreira Pinto, Ana Catarina Trigo, Filipa Guimaraes, Ricardo Pereira, Miguel Neno, Ricardo Correia de Abreu, Isabel Neves

Department of Medicine, Hospital Pedro Hispano, Unidade Local de Saúde de Matosinhos, Rua Dr. Eduardo Torres, 4464-513, Matosinhos, Portugal

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ABSTRACT

Listeria monocytogenes is a ubiquitous, rapidly growing, gram-positive bacterium causing infections in humans and animals. It is responsible for a variety of symptoms depending on the infection site and the integrity of the host's immune system. Case reports of skin and soft tissues infections by *Listeria* are rare.

The authors present a case of a 65-year-old diabetic male with recurrent skin abscess diagnosed with a perianal abscess due to *Listeria monocytogenes* associated with lumbar spine osteitis.

At the time of this publication and to our knowledge, this case represents the first *Listeria monocytogenes* infection involving skin and bone in a diabetic man with recurrent skin abscess.

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Introduction

Listeria monocytogenes is an aerobic and facultative anaerobic, gram-positive, beta-hemolytic, non-spore-forming rod that shows tumbling motility by light microscopy in a narrow temperature range. It is ubiquitous in the environment and is possible to be isolated from dust, water, numerous human food products and animal feed [1,2]. Listeriosis occurs in both animals and humans [2]. All cases in humans are caused by *Listeria monocytogenes* with rare reports by *Listeria ivanovii* and *Listeria grayi* [6,7]. *Listeria* is an important human pathogen in immunosuppressed patients, pregnant women, neonates and older people [2]. Besides extremes of age and pregnancy, most commonly risk factors found in listeriosis includes neoplastic disease, chemotherapy, immunosuppression therapy, organ transplantation, alcoholism, liver disease, renal insufficiency, AIDS, and diabetes mellitus. [2–5].

In adults, *Listeria* infections are thought to result from food-borne transmission and subsequent intestinal mucosal penetration and systemic infection, which probably depends on the integrity of the immune system and the inoculum size [2,4]. It is not known how human fecal dispersal contributes to human food-borne transmission, but evidence exists that humans can be asymptomatic carriers [2,8]. Several cases of focal listeriosis have been described in case reports and small series: conjunctivitis, endophthalmitis, skin infections, lymphadenitis, pulmonary infection, pericarditis and myocarditis, arteritis, cholecystitis,

peritonitis, joint infection, osteomyelitis, brain, hepatic and splenic abscess [1–3].

The authors present a case of a 65-year-old male with a past medical history of diabetes mellitus, alcohol consumption and recurrent skin abscess who was diagnosed with a perianal abscess due to *Listeria monocytogenes*, with associated lumbar spine osteitis. Performing a PubMed search with terms “listeriosis”, “*Listeria monocytogenes*” and “spondylodiscitis” just two related cases of spondylodiscitis due to *Listeria monocytogenes* were found: the first one in an elderly man without other predisposing risk factors other than his advanced age [11]; and the second one in a 63-year-old man with medical history of type 2 diabetes mellitus without other risk factors, who presented with both spondylodiscitis and endocarditis [12].

Case presentation

A 65-year-old caucasian man was admitted to the ER following a 5-day period of loss of strength with a background of hypertension, dislipidemia, type 2 diabetes, alcohol consumption and smoking habits as well as a predominantly lumbosacral degenerative disease. He had fever (40 °C), hypertension (185/95 mmHg), tachycardia (120bpm), poor peripheral perfusion and mild loss of muscle strength of the lower limbs. Blood tests showed Hgb 12.8 g/dL, C-reactive protein of 70 mg/L, sedimentation rate 46 mm/hr, creatinine 2.3 mg/dL, no leukocyte elevation or liver changes and brain and lung imaging were normal.

He was hospitalized with the diagnosis of febrile syndrome of unclear etiology and was started on intravenous ceftriaxone 2 g/day empirically after blood cultures. Lumbosacral MRI showed an

* Corresponding author.

E-mail address: frederico.duarte1@gmail.com (F. Duarte).

enhancement of the 5th lumbar vertebrae and sacrum suggesting an inflammatory or infectious etiology. A biopsy of the vertebral body was performed on day 2, which microbiological examination did not clarify the etiology. On the 3rd day the patient complained of right-sided gluteal pain, revealing a small abscess, which according to the patient, was a frequent scenario over the past 7 years.

Surgical drainage of the abscess was performed showing a fistulous tract with posterior extension to the coccygeal region. In the drained pus *Listeria monocytogenes* was isolated. Ceftriaxone was suspended according to the sensitivity assay and he was started on intravenous ampicillin 2 g every 4 h, for 2 weeks. During the treatment time, motor deficits got better, inflammatory parameters went down, and the MRI did not show any signs of inflammation or infection.

He was discharged on oral amoxicillin (1 g every 6 h) over a period of 3 months, with regular clinical, analytical and imaging reassessments and under adjuvant therapy with Hyperbaric Medicine in order to optimize tissue perfusion, antimicrobial penetration and local healing process.

Discussion

Listeria monocytogenes is a ubiquitous, rapidly growing, gram-positive bacterium causing infections in humans and animals associated with contaminated foods, sometimes leading to serious and often fatal disease. Invasive Listeriosis is defined by the spread of the bacteria beyond the gastrointestinal tract [1]. Its ability to do so, is determined primarily by the integrity of the immune system of the host and also inoculum size [3]. This agent is responsible for a variety of symptoms related to the infection site, including abscess formation and the most common sites for this are brain and liver. Case reports describing patients diagnosed with perianal abscesses are rare. Only five cases of perianal abscess have been described so far in the literature, two of which in a Danish series, one from Israel, one from Australia and another one in a 3-case description from Asia [9,3,10]. All of these, as well as our own, describe the identification of *Listeria monocytogenes* in a normally sterile site. To the best of our knowledge the case the authors present is the first one describing a perianal abscess fistulized to bone, in a patient with no surgical manipulation (to the bone or the skin).

The first line of treatment for listeriosis is intravenous administration of penicillin or ampicillin, with or without an associated aminoglycoside. This addition is debatable, as its synergism is only proved in-vitro [10,13]. Optimal results are also dependent of a local approach with abscess drainage and, of course, the agent identification through a microbiological specimen. In this case, the association between the selected antimicrobial and abscess drainage was crucial to the successful treatment of our patient.

This case is a rare presentation of a *Listeria* infection. We would like to emphasize that local approach and focus control is crucial with a big impact in morbidity and mortality rate [14]. Despite the absence of clear published guidelines for the treatment of *Listeria* osteitis, it is a consensus that all patients should receive a long-term treatment with beta-lactams therapy, as did our patient [9]. Listeriosis is an emerging, life-threatening zoonosis and published cases may not truly represent the real incidence and prevalence of this infection. At the time of this publication and to our knowledge, this case represents the first *Listeria monocytogenes* infection involving skin and bone.

Consent

Written consent was obtained from the patient for publication of this Case Report. A copy of the written consent is available for review by the Editor of this journal.

Competing interests

None.

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