

## Case Report

# Splenic Abscess due to Listeriosis: A Case Report

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## Introduction

*Listeria monocytogenes* is a pathogen bacteria often observed in immunosuppressed patients, both newborn and older adults as well as in pregnant women and occasionally in healthy individuals [1]. It is a Gram positive bacteria, aerobic and anaerobic, beta-hemolytic, showing characteristic of motility [2]. Although relatively rare, human listeriosis is often severe and mortality rates may approach 50%. *Listeria* has evolved ingenious mechanisms to evade the innate immune defenses. The most common clinical manifestations of *Listeria* infections are gastroenteritis and meningitis. There are also reports of infections by *Listeria* in the eye, skin, heart, bones, arteries, joint replacement and cardiac implants [3]. Clinically splenic abscess presentation may often be a specific and insidious. Fever could be recurrent, or persistent, and may be present despite antimicrobial therapy. It could be associated with left upper quadrant pain, with or without splenomegaly, peritonitis and pleurisy chest pain [4]. Incidence rate varies from 0.14% to 0.7% in autopsy studies and 600 cases have been reported in literature [5]. Mortality rates for splenic abscesses range from 15-20% (in previously healthy patients with unilocular lesions) to 80% in immunocompromised patients with multiple abscesses [4].

## Case Presentation

A 66 years old woman was admitted with a 2 month history of generalized malaise, appetite lost, associated with fever, sweating, especially during the night, and itchiness. She referred episode of hematuria followed by an intense left flank pain. Abdominal echography revealed voluminous expansive and hypoechoic lesion charged to the lower pole of the spleen, with necrotic-colliquative areas, in a context of splenomegaly. She also underwent an abdominal tomography that found a volumetric growing of the spleen (14cm), with inferior focal polar lesion (95 x 71mm), characterized by a wide internal component of hydric density and peripheral component characterized by contrast enhancement; areola hypodense along the bottom edge of the spleen with a maximum diameter of 15mm with modest share of veiling edematous. She had history of broncho-pneumonic chronic obstruction disease and was ex-smoker; 26 years ago she underwent partial thyroidectomy and radiotherapy for

## Abstract

Splenic abscess is an uncommon discovery. Splenic abscess is an incidental finding in septic patients (blood-borne) or can be observed after a direct spleen trauma. We describe a case of splenic abscess caused by *Listeria monocytogenes* in a 66-years-old woman with splenomegaly. Collection of microbiological samples during splenectomy resulted positive for *Listeria monocytogenes*. The subsequent histological analysis documented a large cell B lymphoma.

**Keywords:** Splenomegaly; Splenic abscess; *Listeria*; Large cell B lymphoma

thyroid cancer, relapsed 6 years ago. She had frequent hospitalizations for pneumonia and GERD. She referred an allergy to ASA and FANS. The patient did not report history of a recent consumption of unpasteurized milk, raw meat, not washed raw vegetables and also denied diarrhea or abdominal pain. On physical examination she was lean with regular peripheral pulse of 80bpm and a blood pressure of 110/70mmHg. She was febrile with body temperature of 38.5°C. There was not lymphadenopathy at the physical examination whereas a splenomegaly was found. Laboratory tests: thrombocytopenia (138000PLT/ $\mu$ l); increased acute phase inflammatory markers: VES 72mm, fibrinogen 505mg/dl, C reactive protein 39mg/dl, ferritin 317ng/ml, beta-2 microglobulina 3,3mg/l, hypoalbuminemia (49%), increase in alpha-2 globulin (14%), hypogammaglobulinemia (630ng/ml), restriction of heterogeneity of polyclonal area range. As she was admitted with fever of unknown origin, lymphomatous disease was also suspected. We performed a PET that revealed high metabolic activity exclusively in the spleen. In order to identify the etiology of the lesion and splenomegaly a surgeon was contacted who indicated an elective splenectomy. The procedure resulted in an inevitable opening of the abscess with leaking copious amounts of pus that was aspirated and sent to microbiological examination. Two drains were placed in a drop cable Douglas and splenic loggia. The postoperative course was regular with prompt recovery. Results on the preliminary bacteriological samples revealed *Listeria monocytogenes* on culture identification. An empirical intravenous antibiotic therapy with Meropenem (1g x 3day) in combination with Linezolid (600mg x 2day). At the blood tests the patient showed neutrophilic leukocytosis and increased C Reactive protein values which fell progressively while antibiotic therapy was continued. The final report on antimicrobial susceptibility of bacterial culture showed sensitivity to Ampicillin, Penicillin, Trimethoprim-sulfamethoxazole so we amended the existing treatment substituting the Meropenem with Ampicillin (2g x 6die). In order to rule out further infectious localization imaging studies were performed: heart ultrasound and brain magnetic resonance ruled out the presence of endocarditis and/or brain abscess. Serology for anti-*Listeria* antibodies confirmed positive results. Her clinical condition gradually improved and after 10 days of therapy, she was discharged from the hospital ward. The report histology of the surgical specimen then showed a picture referable to large cell

B lymphoma. The patient is currently receiving chemotherapy for lymphoma disease.

The patient agreed to the use of his clinical data for this case report and signed a written informed consent.

## Discussion

The primary habitat of *Listeria* is the soil and decaying vegetable matter. It has been isolated from dust human food products, animal feed, water, sewage, numerous species of animals and asymptomatic humans. Most cases are thought to be secondary to ingestion of food with higher levels of contamination [2]. Following ingestion of contaminated food, bacteria colonize the digestive track. They can cross the intestinal barrier and, after reaching the mesenteric lymph nodes, gain access to the systemic circulation. The primary targets of the infection are the liver and the spleen, which appear to constitute reservoirs of bacterial persistence if the infection is not controlled by immune defenses [5]. In our case accurate patient history was not able to find possible infection source. Invasive *Listeria* infections occur in individuals with one or more predisposing conditions: pregnancy, glucocorticoid therapy, hematologic malignancies, solid tumors, organ transplantations, diabetes mellitus, cirrhosis level disease [6]. The most recurrent clinical manifestations dealing with *Listeria* infections are Gastroenteritis and meningitis. For gastroenteritis the main incubation period is 24 hours whereas for invasive Listeriosis the median incubation period is around 35 days. Febrile gastroenteritis typical occurs after ingestion of a large inoculum of bacteria from contaminated food. Common symptoms include fever, watery diarrhea, nausea, vomiting, headache, and pains in joints and muscles. The typical duration of symptoms is 2 days or less, and recovery is generally complete. In our case manifestations was uncharacteristic and gastrointestinal symptoms were never revealed. Meningoencephalitis most often occurs in neonates after 3 days of age and in immune compromised and older adults [7]. The clinical presentation ranges from a mild illness with fever and mental status changes to a fulminant course with coma. Focal neurologic signs may be present (cranial nerve abnormalities, ataxia, tremors, hemiplegia and deafness) [8]. Other numerous focal manifestations of listeriosis have been described. Ocular glandular syndrome, lymphadenitis, pneumonia empyema, myocarditis, endocarditis, septic arthritis, osteomyelitis, prosthetic joint infection, necrotizing fasciitis, arteritis, prosthetic graft infection, and biliary tract infection [9]. The diagnosis of Listeriosis may be suspected from clinical findings, even if there is no clinical way to separate it from many other infection disease that can lead to fever and constitutional symptoms. The diagnosis can only be established by culture of the organism, from cerebrospinal fluid or blood. Magnetic resonance imaging is more sensitive than TC from the detection of *Listeria* lesions in the cerebellum, brain

stem and cortex. Our complete medical examinations allowed us to exclude other organs or apparatus involvement with the exception of spleen [10]. To our knowledge in literature there is only one report on almost 3 decades ago where Corthouts described a similar case of spleen abscess due to listeria (Corthouts B, De Schepper A. - Ultrasonography of a splenic abscess due to *Listeria monocytogenes*).

## Conclusion

As a multisystem disease listeriosis can often be a diagnostic dilemma. Even though the detection of *Listeria* infection is common in people with cancer, especially of hematologic origin, we decided to describe this clinical case because it's rare clinical presentation. Uncharacteristic manifestations without gastrointestinal symptoms and unique spleen local-ization were observed. Even if hypogammaglobulinemia with relative immunosuppression and cancer were present in the history of the patient (who was later diagnosed with type B large cell lymphoma) our diagnostic investigations did not show other organs involvement. Therefore, it should be pointed out that the patient did not present any food habit or working conditions that favored the relation with the infectious agent, which led us to be unable to identify the source of the infection.

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