



Treatment of Prosthetic Joint Infection due to *Listeria Monocytogenes*.

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INTRODUCTION

Listeria monocytogenes (LM) is a Gram-positive facultative aerobic bacterium initially reported in 1926 during an animal disease epidemic. In the 1980s, it was recognized as a food-borne pathogen that can affect humans. Of the 17 species of *Listeria* that have been identified, only two species, *Listeria monocytogenes* and *Listeria ivanovi*, are pathogenic for humans [1]. The rate of listeriosis in Europe and in the United States is estimated to be 4.7 cases per million people [2]. Prosthetic joint infection (PJI) caused by *Listeria monocytogenes* (LM) is rare and affects mainly immunocompromised patients [2]. In a study by The first case of PJI due to LM was reported in 1987. It accounts for approximately 2% of prosthetic hip and knee infections. However, in recent years, PJI shows an increasing tendency because of an aging population and the increased number of immunocompromised patients undergoing joint replacement surgery.

RESULTS

The patient was scheduled for surgical treatment following a two-stage revision of her THA. During the first stage, we found a purulent collection mostly at the posterior aspect of the stem whereas the cup was stable (Fig. 2a and b). At the first stage, we removed the stem the mobile part and the screws were removed, and a mobile-bearing spacer (Zimmer Biomet, Warsaw, Indiana) was used (Fig. 3a and b). The patient received intravenous meropenem plus vancomycin for 2 weeks, deescalated by intravenous ampicillin for 3 weeks, based on the culture results. During the second-stage we removed the mobile-bearing spacer and the cup and, a tantalum cup with a Wagner stem were implanted (Zimmer Biomet, Warsaw, Indiana). New cultures were negative. Follow-up appointments were scheduled on a monthly basis for the first 6 postoperative months, after a year postoperatively and the last took place 2 years postoperatively. On the last follow-up the patient was asymptomatic (Fig. 4a and b).

DISCUSSION

PJI after total joint arthroplasty is a challenging complication for an orthopedic surgeon to address. Musculoskeletal Infection Society (MSIS) convened a workbook in 2011 and defined the criteria of PJI [37]. It occurs approximately at a rate of 1% to 2% of primary and in 4% of revision arthroplasties [38]. Prosthetic joint can be infected via three different pathways: perioperative, hematogenous and directly from nearby infected tissue. Ampicillin is generally considered the preferred agent in combination with gentamicin. Meropenem or SMX-TMP have been suggested for patients allergic to penicillin. A combination of ampicillin and trimethoprim-sulfamethoxazole seems to be an option for severe infections. Our literature review shows no recurrent cases from one-stage revisions. We think that the success rates of conservative treatment, one-stage or two-stage procedures are dependent on selecting appropriate patients having considered acute and chronic infections, and other individual factors.

CONCLUSIONS

Although the diagnostic algorithm for PJI caused by LM does not require any special consideration, a strategy is vital especially for immunocompromised patients. The time of antibiotic administration, conservative or surgical treatment, debridement and prosthesis retain or removal in one or two-stages revision remain controversial. Surgical treatment was performed in 42 patients (62%), 19 patients (28%) were treated conservatively and for 7 (10%) there was no statement. Our literature review shows no recurrent cases from one-stage revisions. The present study shows, that this type of infection can be treated with debridement, and mobile part replacement if it is stable or one-stage revision with suitable antibiotics and proper time administration. Immunocompromised patients are susceptible to PJI caused by LM and should be advised that consumption unpasteurized dairy products increases the risk of this atypical infection

METHODS AND MATERIALS

An 82-year-old woman was admitted to our hospital with a recent history of a progressive right hip pain. She reported gradually increasing hip pain 4 months before. At the time of admission, the patient was afebrile, able to walk but in pain which was located at the groin area and radiated to the thigh. The patient had a total hip arthroplasty (THA) performed 9 years ago. Standard hip radiographs demonstrated no obvious loosening signs of the implant (Fig. 1). She reported transitory fever and diarrhea, and that she had consumed soft cheese produced from unpasteurized milk obtained from her own animals. Paracentesis of the hip grew *Listeria monocytogenes* susceptible to aminopenicillins, meropenem, Sulfamethoxazole/Trimethoprim (SXM/TMP). The patient's medical history also included type 2 non-insulin dependent diabetes, chronic obstructive disease, hyperthyroidism, and hyperlipidemia.



Figure 1. Radiography before surgery.

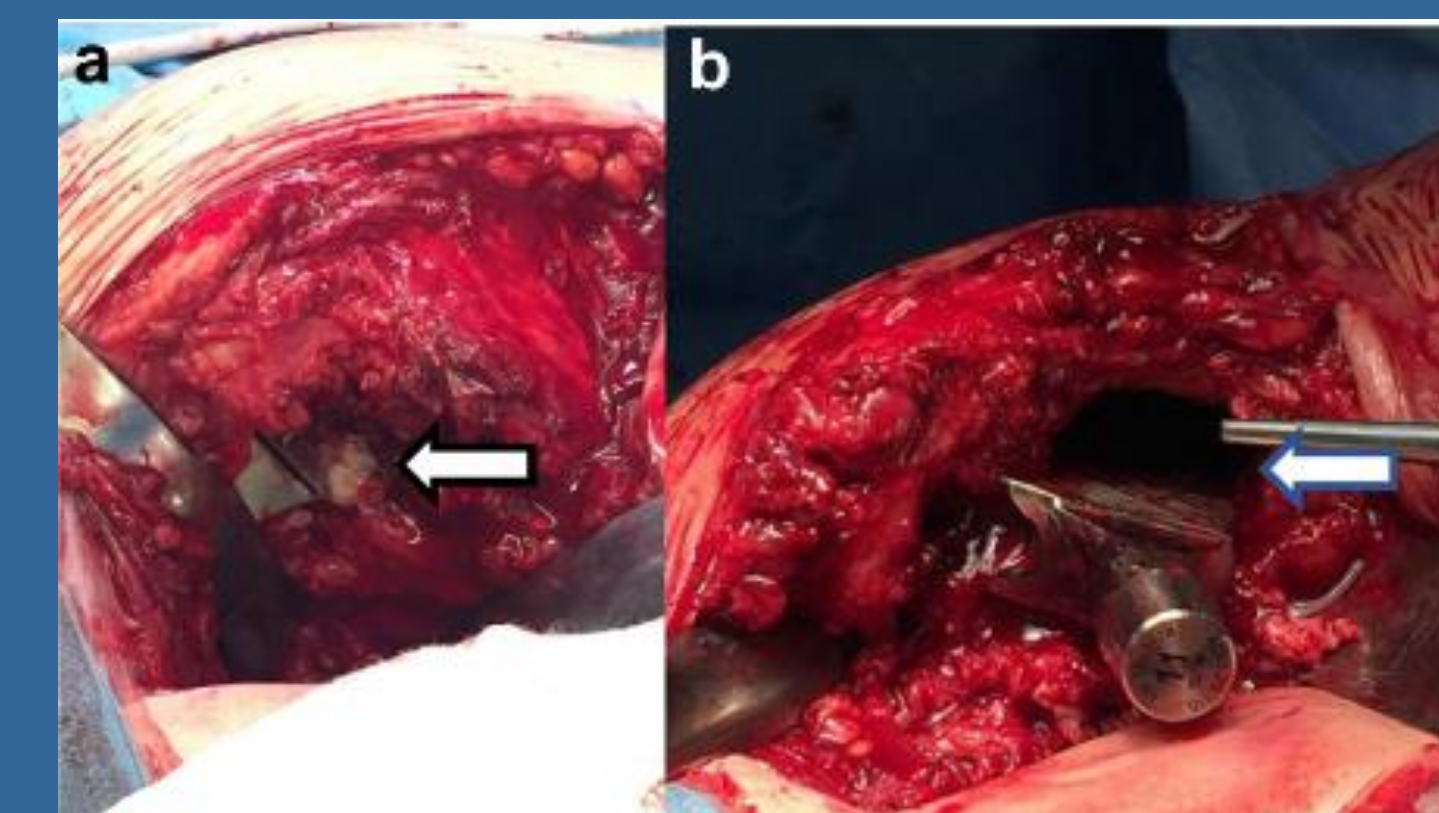


Figure 2. (a) White row shows pus collection. (b) White row shows the space after removing the pus.

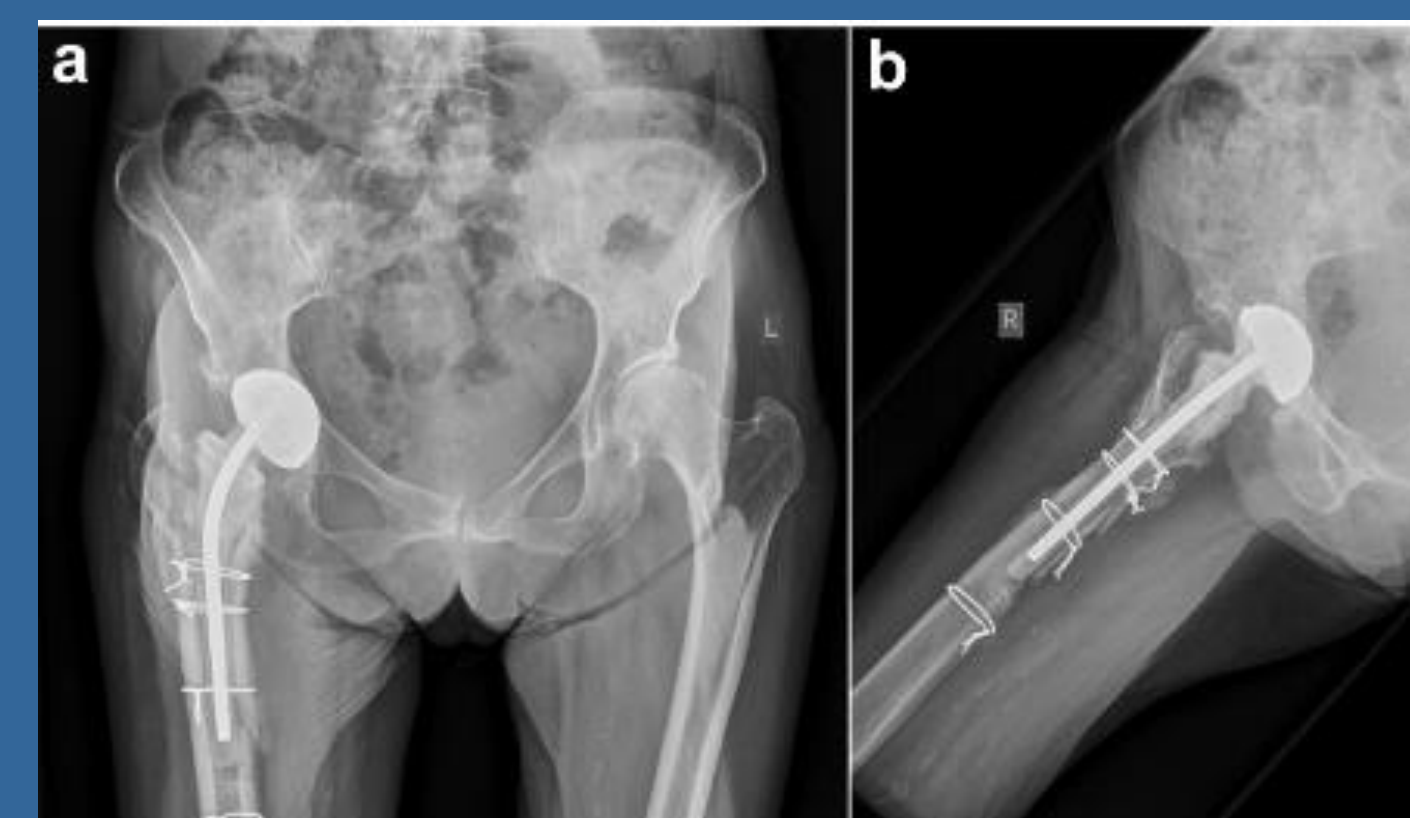


Figure 3. (a and b) Radiographs after first stage of revision.

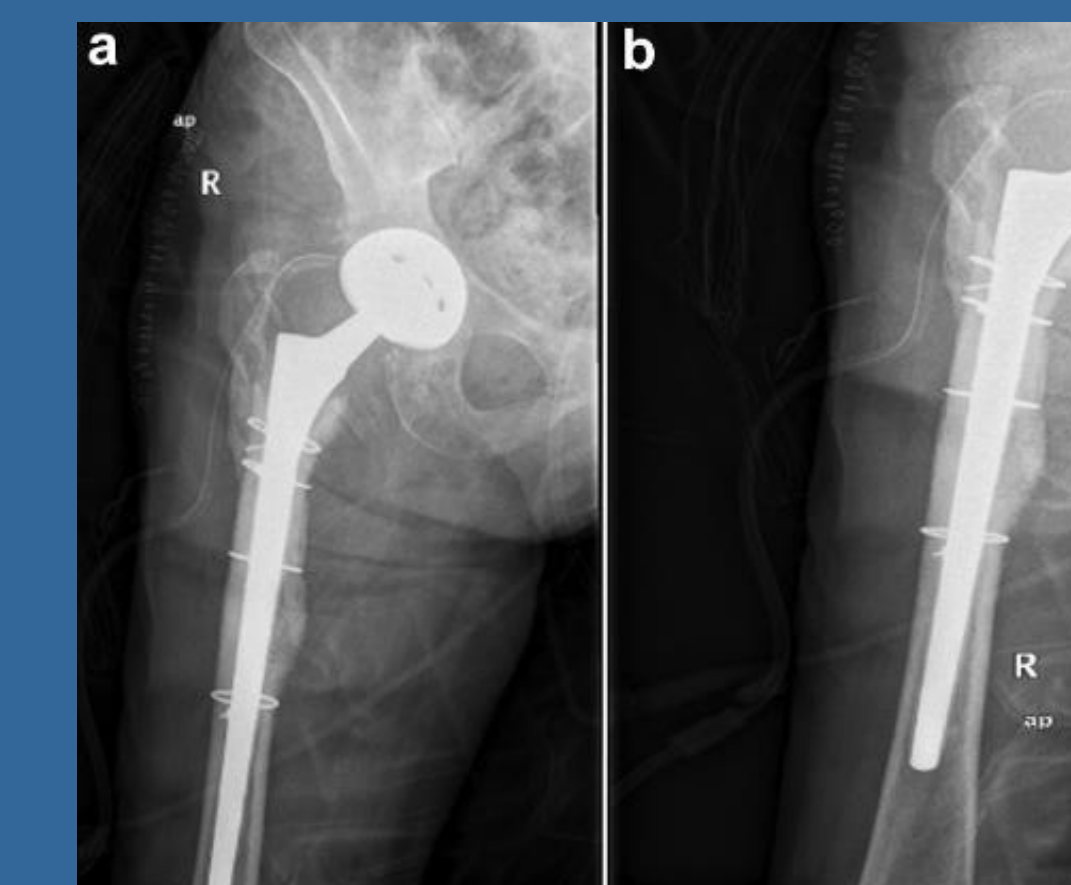


Figure 4. (a and b) Radiographs after second stage.

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