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Caso clinico

Case report

Leclercia adecarboxylata bacteraemia in an immunocompromised patient with metabolic syndrome

Batteriemia da Leclercia adecarboxylata in una paziente immunocompromessa con sindrome metabolica

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INTRODUCTION

Leclercia adecarboxylata is an infrequently isolated pathogenic gram-negative rod described by Leclerc in 1962 as *Escherichia adecarboxylata* [1]. In 1986, Tamura et al., based on molecular techniques, excluded it from the *Escherichia* genus, and proposed classification in a monospecific genus as *Leclercia adecarboxylata* [2]. Bacteraemia due to this microorganism may frequently pass unrecognized as a result of its close resemblance to *Escherichia coli*. The possibility of using rapid and effective molecular diagnostic methods to isolate *L. adecarboxylata* has resulted in the microorganism being diagnosed more frequently as a causative agent of infection. Few cases of bacteraemia in subjects with underlying medical conditions have been reported [3-8]. Fourteen cases of bacteraemia caused by *L. adecarboxylata* in immunocompromised individuals have been listed in PubMed until 2013. The present case is the first reported in the literature as a single aetiological agent, in blood and from a wound infection, of an immunocompromised patient with metabolic syndrome.

CASE REPORT

A 56-year-old female (height 162 cm; weight 82 kg) affected by metabolic syndrome [(high blood pressure (160/90 mmHG), obesity (BMI >30) and diabetes mellitus type 2 (glycosylated haemoglobin value of 7)] attended an ambulatory healthcare centre with a burn wound located in the left pre-tibia extremity involving a partial thickness loss of dermis presented as an open ulcer with a red pink wound bed. It had exudation at the time of the first exploration, although signs of infection surrounded the borders of the burn wound. The patient had a temperature of 38.6°C. Lab results reported: blood glucose 115 mg/l, urea and ions were within normal levels, uric acid 6.2, triglycerides 180 mg/dL, HDL cholesterol 32 mg/dl; glycosylated haemoglobin 6.8; C Reactive Protein 95 mg/l, and procalcitonin 2.3 ng/ml. White blood cell and neutrophil counts were 24,900 and 23,560 cells per microlitre, respectively. Three sets of blood cultures and a swab culture of the exudate were taken. They were positive for Gram negative bacilli after 24 hours of admission. The isolation was considered clinically significant and was identified as *Leclercia adecarboxylata* by Microscan Automatic Identification System, confirmed by API 20E System (bioMérieux, Marcy l'Etoile, France). The bacteria was further identified by molecular techniques. The microorganism was sensitive to second, third and fourth generation cephalosporins, clindamycin, erythromycin, levofloxacin, rifampicin, gentamicin, and vancomycin.
We performed debridement of the wound and later the patient was treated topically with collagenase-chloramphenicol and systemically with amoxicillin-clavulanic acid: 1 g IV/8 hours for 7 days, then orally 875/125 mg/8 hours for

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7 additional days. The lesion responded favourably to treatment and the patient was sent home within 10 days of admission; six months later healing was complete.

DISCUSSION

L. adecarboxylata is an uncommon pathogen, most often isolated from surgical wound infections in previously healthy patients [6, 9]. Some authors have suggested that infections due to *L. adecarboxylata* alone, and particularly those determined by blood culture, are probably limited to subjects with some degree of immunosuppression [6, 10]. In immunocompromised patients *L. adecarboxylata* can cause bacteraemia, sepsis, peritonitis, cellulitis, endocarditis and cholecystitis [3-8]. Its pathogenesis, specifically its entry and spread into humans, remains unclear. Bacteraemia due to *L. adecarboxylata* may be associated with the destruction of the skin barrier, through trauma and burn wounds, or with the change in normal flora and peritoneal dialysis. Catheter-related bacteraemia has been reported in patients with end-stage renal disease, multiple myeloma and in women with breast cancer and leiomyosarcoma [7, 10, 11].
The first report (2008) in the literature of a pure culture of *L. adecarboxylata* from a wound infection of an immunocompromised patient was isolated in 2007 from the blood culture of an asymptomatic platelet donor as possible contamination [12, 13]. Our strain was isolated in pure culture of a burn wound and confirmed by MALDI-TOF techniques. There is a case reported on a patient with cholecystitis and metabolic syndrome; another case is related to a wound on a diabetic patient [8, 9]. Until 1997, the organism caused immunocompromised bacteraemia in three patients [14]. Since March 2013, 14 cases of bacteraemia have been identified. De Baere et al. describe bacteraemia without focus, but co-infecting organisms [6]. Up to 1989 in the strain collection of the Institute Pasteur, there had been eight strains of *L. adecarboxylata* in blood culture, but we have no clinical data of patients. The bacteria was naturally resistant to penicillin, oxacillin, erythromycin, clarithromycin, ketolides, lincosamides, glycopeptides, rifampin, fusidic acid and fosfomycin. It was susceptible to tetracyclines, aminoglycosides, most beta-lactams, quinolones, chloramphenicol, nitrofurantoin and azitromycin [15].
Antibiotic-resistant strains have been reported in different cases [5, 6, 10, 13, 16]. One case with simultaneous resistance to beta-lactams, aminoglicosides and sulfonamides was observed [17]. The diagnosis of bacteraemia sustained by *L. adecarboxylata* continues to improve with molecular and genomic techniques as well as the detection of resistant strains [18]. The association with immunosuppressed patients is likely to be elucidated. However, additional studies are required to determine the true pathogenic potential of this organism.

Keywords: *Leclercia adecarboxylata*, bacteraemia, immunocompromised.

SUMMARY

Leclercia adecarboxylata is being increasingly diagnosed as a causative agent of infection due to the availability of rapid molecular diagnostic techniques Few cases of bacteraemia in subjects with underlying medical conditions have been reported. We report a case of *L. adecarboxylata* bacteraemia in an immunocompromised patient with metabolic syndrome.

RIASSUNTO

Le tecniche diagnostiche molecolari, più rapide, hanno consentito di identificare il ruolo eziologico di Leclercia adecarboxylata *in misura maggiore rispetto al passato; in letteratura sono riportati solo pochi casi di batteriemia in soggetti con patologie concomitanti. Nel presente articolo riportiamo un caso di batteriemia da* L. adecarboxylata *osservato in una paziente immunocompromessa affetta da sindrome metabolica.*

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