RHEUMATOLOGY

Letter to the Editor (Case report)

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Ralstonia mannitolilytica bacteraemia and gastroenteritis in a patient with rheumatoid arthritis: an emerging nosocomial infection

Rheumatology key message

- *Ralstonia mannitolilytica* is an emerging nosocomial infection that may run a protracted and complicated course.

Dear Editor, *Ralstonia mannitolilytica* or *R. pickettii* biovar 3/'*thomasii*' is a species of gram-negative bacilli within the genus *Ralstonia* [1]. The name *mannitolilytica* is attributed to its ability to acidify mannitol. The bacillus is found ubiquitously in the environment. *Ralstonia mannitolilytica* has previously been mistaken for *Pseudomonas fluorescens* [1] and *Burkholderia cepacia* [2]. We describe here a case of *R. mannitolilytica* bacteraemia in a patient with RA who presented to us with acute diarrhoea.

A 47-year-old lady presented with a 5-day history of diarrhoea in February 2020. She was recently hospitalized elsewhere for Herpes Zoster infection involving multiple thoracic dermatomes. A 5-day course of parenteral acyclovir and clindamycin was given. She developed a change in consistency of stools with these drugs, which progressed to small volume diarrhoea by 10 days. She developed fever 2 days after the onset of diarrhoea. She was diagnosed with seropositive RA 7 years ago and was on treatment with methotrexate, hydroxychloroquine and low dose prednisone. A year ago, she switched to alternative indigenous medicines.

On examination at admission, she was lethargic and appeared dehydrated. She was febrile and had active arthritis involving multiple joints. Systemic examination was otherwise unremarkable. The patient was started on parenteral ciprofloxacin and metronidazole. She was restarted on low dose prednisolone and hydroxychloroquine for her arthritis flare. Her laboratory tests revealed anaemia of chronic disease, elevated inflammatory markers and uncontrolled diabetes. Following an initial improvement, she became lethargic and had recurrence of semisolid stools on switching to oral antibiotics. Her blood culture, which was sent on day 1, grew *R. mannitolilytica*. The identity was confirmed by matrix assisted laser desorption/ionization time-of-flight mass spectrometry. Based on antibiotic sensitivity, she was started on cefoperazone–sulbactam with which she improved. She completed a 2-week course of antibiotics.

Ralstonia mannitolilytica infections are rare and outbreaks have been reported from dialysis and renal transplant units [3], neonatology and oncology wards [4, 5]. Grobner *et al.* have reported *Ralstonia* infection in a 7-year-old patient of juvenile scleroderma among four other patients with haematological malignancy who had undergone stem cell transplantation. The child had leucopenia at the time of development of infection [4]. While most patients usually develop only fever, a minority of patients go on to develop organ seeding and specific symptoms. De Baere *et al.* isolated *R. mannitolilytica* in a patient with recurrent meningitis [1]. Shankar *et al.* described bacteraemia in five chronic kidney disease patients on haemodialysis, in which the course of one patient was complicated by the development of infective endocarditis [3]. In a multicentric study, *R. mannitolilytica* was isolated from the sputum of 38 paediatric patients, of whom eight children developed pneumonia [6].

There has also been an increased recognition of *Ralstonia* infection in patients with chronic lung diseases. In a series of seven patients with cystic fibrosis, four had multidrug resistant strains with six patients eventually dying of the infection [2]. In a larger prospective series of 14 patients with cystic fibrosis, 86% of patients continued to grow *R. mannitolilytica* in sputum in half or more serial samples over a period of 1 year [7].

The drug sensitivity of *R. mannitolilytica* in our patient to cotrimoxazole, cefoperazone–sulbactam and levofloxacin and resistance to amikacin, imipenem and meropenem is consistent with previous literature [4, 5, 8]. Multidrug resistant strains have also been observed [2].

Our patient was hospitalized elsewhere before transfer to our hospital. This along with the lack of subsequent cases in our ward suggests that she may have acquired the infection elsewhere. The common sources of contamination in hospital have been oxygen delivery systems [6], sterile water for injections [3] and dialysis water units. However, in most cases the source remains unidentified.

Patients with connective tissue disease have increased risk of infection due to basic disease as well as use of multiple immunosuppressants, like in our patient. Interstitial lung disease, seen in RA, systemic sclerosis and inflammatory myositis and their dependence on oxygen delivery systems may predispose these patients to chronic *R. mannitolilytica* as in cystic fibrosis [7]. This along with the ability of *R. mannitolilytica* to produce persistent infection and drug resistance to multiple antibiotics makes it a potent threat to patients with rheumatological diseases. Further, isolation of the organism in any patient should be followed by prompt efforts to identify the source, to avoid outbreaks

that could be catastrophic in immunocompromised patients.

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Data availability statement

The data underlying this article will be shared on reasonable request to the corresponding author.

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