

Bulletin de la Dialyse à Domicile

Raoultella planticola peritonitis in a patient on automated peritoneal dialysis 48 hours after sanding of a horse trail

(Péritonite à *Raoultella planticola* chez un patient en dialyse péritonéale automatisée 48 heures après ensablement d'une piste équestre)

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Résumé

Nous rapportons ici un cas de péritonite à *Raoultella planticola* multisensible chez un patient immunodéprimé en dialyse péritonéale automatisée. Le patient avait travaillé à l'ensablement d'une piste équestre 48 heures auparavant. L'évolution clinique et biologique a été rapidement favorable sous antibiothérapie par ciprofloxacine.

La ciprofloxacine a été remplacée dans un second temps par de l'amoxiclavulanate en raison d'une tendinopathie achilléenne. L'antibiothérapie a été poursuivie pour une durée totale de 3 semaines avec une bonne réponse clinique.

Aucun autre cas de péritonite à *raoultella planticola* n'a été rapporté à ce jour auprès du registre de Dialyse Péritonéale de Langue Française (RDPLF)

Summary

Mots clés : We here report a case of *Raoultella planticola peritonitis* in an immunocompromised patient on automated peritoneal dialysis. The patient had worked in sanding a horse trail during hours two days earlier. Clinical and biological outcomes were rapidly favourable on ciprofloxacin antibiotherapy.

Ciprofloxacin was substituted for by amoxicillin/acid clavulanic for a total duration of 3 weeks because of Achille's heel tendinopathy.

Up to now, no other case of *raoultella planticola* has been reported in the data base of the french language home dialysis registry (RDPLF)

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INTRODUCTION

Introduction *Raoultella planticola* is a soil-encapsulated aerobic Gram-negative bacillus belonging to the Enterobacteriaceae family [1]. It is very close to the *Klebsiella* family of which he was originally part under the name of *Klebsiella trevisanii*. This organism was known to be mildly virulent, but since 1984 [2], the date of the first mentioned case of sepsis, many severe infections have been reported.

We here report a case of *Raoultella planticola* peritonitis in a patient on peritoneal dialysis, immunocompromised, that occurred two days after sanding a horse trail.

CASE REPORT

In May 2015, a 49-year-old patient presented to the emergency room for severe abdominal pain that had appeared the day before. He had been on automated peritoneal dialysis for 6 months after chronic kidney transplant dysfunction and allograft glomerulonephritis. He had been transplanted at the age of 31 for kidney failure secondary to Goodpasture syndrome. He was still receiving immunosuppressive therapy with tacrolimus and prednisolone at the time of admission.

He reported that he had made a sand-filling work on an equestrian track 48 hours before his admission.

In the emergency room, his vital parameters were unremarkable with mildly elevated blood pressure at 190/80 mmHg, regular heart rate at 96 bpm, and body temperature at 36.2 ° C. The dialysate fluid was cloudy with a white cell count of 16,000 cells/ μ l of which 88% were neutrophils polymorphonuclear cells. Biology showed an acute phase response with CRP level at 111 (NI <5) mg/L and neutrophilic hyperleukocytosis at 14,000/ μ l. The patient was promptly treated with probabilistic antibiotic therapy combining intravenous vancomycin at a dose of 20 mg/kg (dose adjustment to maintain trough level above 14 ng/ml), oral ciprofloxacin (500 mg b.i.d.), and a single 80 mg dose of intravenous gentamycin (according to our protocol) and oral fluconazole at a rate of 50 mg o.d. in prevention of fungal superinfection as the patient was still on immunosuppressive therapy.

Dialysate culture demonstrated the presence of *Raoultella planticola*, sensitive to amoxicillin/clavulanic acid, quinolones, 2nd and 3rd generation cephalosporins, the combination of piperacillin/tazobactam and meropenem. Blood cultures remained negative. Antibiotic therapy was simplified to quinolones and fluconazole according to the antibiogram, for a total duration of 3 weeks.

Three days after admission, the effluent numeration found 1000 elements/ μ l of which 24% were neutrophils while its culture remained negative.

Following the onset of an Achilles 'heel tendinopathy, ciprofloxacin was substituted for by a combination of amoxicillin/clavulanic acid at an oral dose of 500 mg b.i.d.

The clinical course of the patient was rapidly favorable without recurrence of peritonitis within the next 6 months.

DISCUSSION

Raoultella planticola is an aerobic Gram-negative bacillus classically considered as not very virulent.

To the best of our knowledge only two cases of *Raoultella planticola* peritonitis have been reported so far. Similarly, the patient from the first report had also been on automated peritoneal dialysis for 4 months but he was not on immunosuppressive therapy [3]. He had been successfully treated with intraperitoneal antibiotics (ciprofloxacin and ceftazidim) for 2 weeks. The authors of this clinical case also reviewed the 21 cases of *Raoultella planticola* infections described in the literature at the time of their publication; among the various aetiologies, they found five biliary tract, three soft tissue, two urinary tract and two pulmonary infections, respectively. Six patients (32%) presented with active solid neoplasia and one patient with hematologic neoplasia. The second case of *Raoultella planticola* peritonitis occurred in a farmer on continuous ambulatory peritoneal dialysis and had been effectively treated with meropenem [4]. Interestingly, no other case of *Raoultella planticola* peritonitis has been declared so far in the RDPLF (French Language Peritoneal Dialysis Register).

Another review about bacteremia caused by *Raoultella planticola* confirms its high prevalence in immunocompromised oncological (17 out of 20) patients [5]. Despite the fragility of the patients, a favorable clinical outcome was reported in the majority of them (85%) after antibiotherapy initiation; death occurred in the other three patients.

Several hypotheses to explain how *Raoultella* enters the organisms have recently been raised by Ershadi and colleagues [6]. The possibility of a trauma occurring in an environment colonized by the bacteria or a context of immunosuppression, allowing systemic bacterial invasion by this organism, have been suggested.

Our patient was still on dual immunosuppressive therapy to prevent the emergence of specific post-transplant donor antibodies. Two days before the first signs of infection, he had worked with his bare hands for several hours on sanding a horse trail . We hypothesized that nebulization of soil bacteria in this immunocompromised patient may have been the gateway, with potential trans-luminal contamination, manually, via the catheter.

The presence of *Raoultella terrigena* has also been demonstrated in horse meat [7]. Its cousin, *Raoultella planticola* could also be a colonizing bacterium of horses, although this has not been described in the literature. *Raoultella planticola* would therefore be a new germ to be added to the series of zoonoses reported in peritoneal dialysis patients [8].

While *Raoultella planticola* is generally sensitive to most antibiotics. However several cases of resistance, particularly by strains producing carbapenemas, have recently been described in the literature [9].

Our patient benefited from the systemic antibiotic therapy protocol with vancomycin, ciprofloxacin and gentamycin that we recommend for the treatment of peritonitis [10].

CONCLUSION

We here report a case of multisensitive *Raoultella planticola* peritonitis in a patient on automated peritoneal dialysis. The organism entry in this immunocompromised patient could be an indirect contact with horses. Clinical course was rapidly favorable with systemic antibiotic administration. Peritonitis remains one of the most serious complications of patients on peritoneal dialysis. Patients must be aware of the potential infectious risk during contact with animals but also during soil work. It is essential to remind the patient the importance of the hygiene hand measures when making connections to the peritoneal dialysis catheter.

Raoultella planticola, initially considered to be a low virulent and multisensitive germ, is proving more and more frequently to be a pathogen of various, and sometimes severe, infections with some bacterial strains becoming resistant to conventional antibiotics.

CONFLICT OF INTEREST

The authors declare no conflict of interest for this article.

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