

CASE REPORT

Successful renal transplantation in the setting of *Alcaligenes xylosoxidans* peritonitis treatment

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Abstract

We report a patient with continuous cycling peritoneal dialysis (CCPD)-associated peritonitis caused by *A. xylosoxidans* who successfully received a renal transplant during his peritonitis treatment course and cleared his peritoneal infection. This is the first case of *A. xylosoxidans*-related CCPD peritonitis who was successfully transplanted.

Keywords

Continuous cycling peritoneal dialysis, *Alcaligenes xylosoxidans*, Peritonitis, Transplantation

1 Introduction

Peritonitis remains the leading cause of morbidity and treatment failure in patients on peritoneal dialysis. More commonly, peritonitis is caused by gram positive (45%-65%) and gram-negative (25%-40%) organisms, but in some cases, anaerobes, fungi (3%-6%) and mycobacteria (< 0.5%) can also be found^[4]. *Alcaligenes Xylosoxidans* (*A. Xylosoxidans*) is a rarely reported cause of peritonitis in peritoneal dialysis (PD) patients. The complications of peritonitis are noteworthy and include hospitalizations and subsequent removal of PD catheter (permanently or temporarily)^[7].

2 Case presentation

We report a case of CCPD-associated peritonitis caused by *A. xylosoxidans* in a 47 year-old male with a history of end stage renal disease secondary to diabetes. He was initially on hemodialysis for 3 years; then switched to PD in 2012 because of poor vascular access. He presented to the emergency department one and a half years later on June 9, 2013, with abdominal pain, generalized swelling and shortness of breath after receiving a week of intraperitoneal (IP) fortaz for peritonitis. He was initially continued on fortaz, but switched to imipenem after initial peritoneal cultures returned positive for *A. xylosoxidans*. Two days after admission his PD catheter was removed and the patient was converted to hemodialysis through a femoral vascath. On June 14th, day 4 of treatment with imipenem, he received an 8/8 HLA matched kidney transplant offer from a 27 year-old deceased donor. At this time the patient was doing well, follow-up peritoneal culture had finalized as no growth after 5 days. After careful consideration of his infectious risks balanced against diminishing dialysis access options and excellent kidney match the decision was made to proceed with transplantation (Induced with Basiliximab, has zero mismatch, no delayed graft function) with modified immunosuppression protocol (Myfortic, low

dose prednisone, and prograf). At present, now 11 months following renal transplantation, this patient continues to do well with no infectious concerns and excellent transplant function with serum creatinine of 1.09 mg/dL (see Table 1). Table 2 shows that patient has had negative donor specific antigen (DSA), BK (a polyoma virus) and cytomegalovirus (CMV) viral load, indicating that the transplant renal function is not compromised by infectious processes or activation of immune response.

Table 1. Renal function before and after the kidney transplantation.

Labs	Pre-transplant 6/13/13	Post-transplant 6/20/13	July 2013	December 2013	February 2014
BUN (mg/dL)	49	27	22	16	13
Creatinine (mg/dL)	10.8	5.02	1.3	1.26	1.09

Table 2. Patient has had negative DSA, BK, and CMV viral load

Labs	July 2013	April 2014
Donor Specific Antigen	Negative	Negative
BK Viral DNA, Quant, PCR	Negative	Negative
CMV, Viral Load, Blood	Negative	Negative

3 Discussion

A. xylosoxidans, also known as *Achromobacter xylosoxidans*, is a gram-negative aerobic organism with close relationship to *Pseudomonas* [5]. This organism has been reported in immunosuppressed patients such as those with cystic fibrosis or indwelling hardware [3]. *A. xylosoxidans* peritonitis has a poor prognosis because of pathogen's virulence and a high rate of recurrence [1]. Most of the cases that have been reported demonstrated antibiotic resistance and required removal of the PD catheter with transition to hemodialysis. However, there are a few case reports of successful treatment without catheter removal, including prolonged therapy with IP imipenem and oral ciprofloxacin for a total of 30 days. In non-peritonitis cases the organism has been shown to be sensitive to bactrim but resistant to ciprofloxacin. Normally renal transplantation is contraindicated in the setting of active peritonitis especially with extended-spectrum beta lactamases (ESBL) organisms [6].

4 Conclusion

We demonstrate that with early PD catheter removal and aggressive prolonged antibiotic therapy, it may be possible to successfully transplant a patient with peritonitis. Careful assessment is necessary when considering renal transplantation in high risk patients. In our patient, after balancing his infectious risks against limited vascular access options and excellent kidney match, the decision was made to proceed with renal transplantation. Transplantation in our patient resulted in an overall better outcome, and he continues to do well since the renal transplantation.

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