

FUSARIUM PERITONITIS SUCCESSFULLY TREATED WITH VORICONAZOLE

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Introduction: *Fusarium* species are a rare cause of fungal peritonitis in peritoneal dialysis patients. Antifungal therapy of *Fusarium* infections presents a clinical challenge because of frequent resistance to available agents, including amphotericin B. We report a case of *Fusarium* peritonitis successfully treated with voriconazole.

Case: A 36 year old African-American male with a past medical history of end stage renal disease, failed renal transplant in 1998 with subsequent continuous ambulatory peritoneal dialysis (CAPD), and three episodes of bacterial peritonitis in the past year presented with a ten day history of abdominal pain, fever and cloudy peritoneal dialysate. Physical examination on admission was significant for a tense abdomen with diffuse rebound tenderness. Peritoneal fluid analysis showed 786 white blood cells with 70% polymorphonuclear cells, 11% lymphocytes and 18% eosinophils. Fungal smear from the liquid media showed hyphal elements. With fungal culture results pending, the patient was started on IV fluconazole and switched to IV amphotericin B the following day. The peritoneal dialysis catheter was removed and hemodialysis was initiated. All peritoneal fluid cultures and culture of the dialysis catheter tip subsequently grew *Fusarium* species. All blood cultures were negative. The patient was continued on IV amphotericin B but remained symptomatic with fever, abdominal pain, and ascites after four weeks of therapy. By that time, the results of susceptibility testing of the *Fusarium* isolate performed by a reference laboratory were obtained. The isolate was resistant to fluconazole (MIC >64) and to amphotericin B (MIC >16). Extended susceptibility testing was then requested. Amphotericin B was discontinued, and empiric treatment with oral itraconazole was begun. After three weeks of outpatient therapy, the patient was readmitted with continuous low grade fever, ascites, and severe abdominal pain, especially in the right upper quadrant. Computed tomography showed fluid collections around the liver, which were drained percutaneously. KOH smear of the fluid showed moderate hyphal elements, but cultures remained negative. Additional susceptibility testing results of the initial *Fusarium* isolate became available and showed: 24 hr MIC for itraconazole >8, 48 hr MIC for caspofungin 32, 48 hr MIC for posaconazole >8, and 48 hr MIC for voriconazole of 8. At that time, the patient was enrolled in a compassionate use protocol of voriconazole at a dose of 200mg orally twice daily. Within one week, the patient became afebrile, and he had decreased abdominal pain and ascites. He was discharged home to complete a six week course. The patient had no adverse reactions to voriconazole and at a six week follow-up visit, he was afebrile without abdominal pain. Ultrasound evaluation of the abdomen showed no ascites. Ten months after the discontinuation of voriconazole, the patient shows no signs of recurrence of infection.

Discussion: *Fusarium* species are very common soil saprophytes and plant pathogens. Manifestations of human disease include keratitis, endophthalmitis, onychomycosis, and skin and soft tissue infections in the immunocompetent host. Additionally, *Fusarium* is an emerging fungal pathogen which causes disseminated disease in immunocompromised individuals. *Fusarium* peritonitis associated with continuous ambulatory peritoneal dialysis has been reported in eleven cases in the English language literature. In several cases, resolution of peritonitis occurred only after catheter removal. Antifungal agents including amphotericin B, ketoconazole, miconazole, and flucytosine were used with varying success. Voriconazole is a new triazole antifungal available in IV and oral formulations; oral bioavailability approaches 90%. Currently available data regarding in vitro susceptibility testing demonstrate variable fungistatic activity of voriconazole against *Fusarium* species. The clinical value of determining MIC and MFC (minimum fungicidal concentration) as predictors of antifungal activity remains to be established. Furthermore, data on clinical experience are limited. We describe a rare case of complicated *Fusarium* peritonitis. In contrast to several of the previously reported cases, treatment including peritoneal catheter removal and antifungal therapy including amphotericin B did not result in clinical or microbiological cure. In our case, the utilization of oral voriconazole achieved a complete and rapid resolution of all prior clinical symptoms. We believe this is the first case of *Fusarium* peritonitis successfully treated with voriconazole. This antifungal agent should be considered in *Fusarium* peritoneal infections which do not respond to catheter removal and amphotericin B. Further studies are needed to determine the clinical efficacy of voriconazole against *Fusarium* infections.