International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Case Report

Fusarium Peritonitis an Uncommon Complication in a Patient on Continuous Ambulatory Peritoneal Dialysis - A Case Report

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Received: 10/12/2015 *Revised: 26/12/2015* *Accepted: 30/12/2015*

ABSTRACT

Fungal Peritonitis is a serious complication of treatment with peritoneal dialysis, with high rates of morbidity and mortality. In majority of the cases cause of fungal peritonitis is *Candida* species, with *Candida albicans* predominating. Infections by *Fusarium* species can be superficial or limited to single organs in otherwise healthy patients. In contrast, disseminated fusariosis affects the immunocompromised host. Fusarium infection is uncommon cause of peritonitis among patients on Continuous Ambulatory Peritoneal Dialysis [CAPD]. Here, we report a case of peritonitis due to *fusarium* species in a patient on Continuous Ambulatory Peritoneal Dialysis. Fusarium infection in patients on CAPD can be life threatening

Key words: *Fusarium;* Fungal peritonitis, Continuous Ambulatory Peritoneal Dialysis [CAPD].

INTRODUCTION

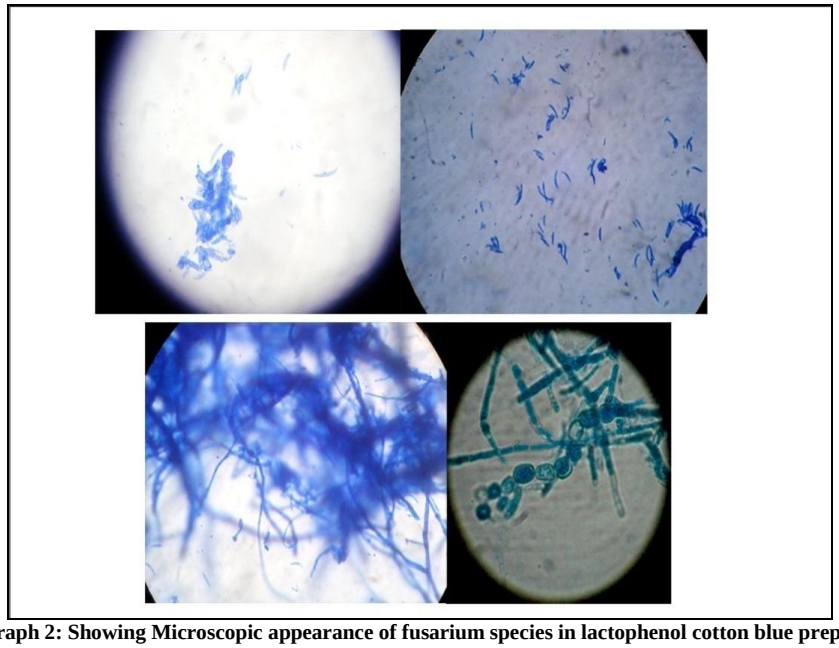
Peritonitis is the main complication of continuous ambulatory peritoneal dialysis. Fungal Peritonitis accounts for 1 - 16 % episodes in various studies. [1-3] Patients with previous bacterial peritonitis and antibiotic usage are at greater risk of developing fungal peritonitis. [3] Predominant cause of Fungal Peritonitis is Candida species. [2,4,5] The genus Fusarium is a common soil saprophyte and important plant pathogen that causes a broad spectrum of human disease, including mycotoxicosis, and infections which can be superficial, locally invasive or disseminated. [6] Fusariosis is an invasive mold infection associated with *Fusarium* species, most commonly *F. solani*. The skin and respiratory tract are the primary portals of entry. Localized skin infections may occur at sites of trauma in immunocompetent hosts. [7] Fusarium infection in immunocompromised patients has been reported in various studies. [8,9] Fusarium infection is uncommon cause of peritonitis among patients on CAPD. [4] This report presents the first known case of *Fusarium* peritonitis in a patient on CAPD in MGM Medical College, Aurangabad.

CASE REPORT

A 27 year young female patient had been on CAPD for one & half years. She presented in Medicine OPD of our Institute with H/o fever, vomiting, cough, pain in epigastric region & decreased urine output four days prior to hospitalization in 14 March 2013. She was a known case of chronic kidney disease with hypertension with hypothyroidism. She was on treatment for hypertension and hypothyroidism for last one year duration.

The diagnosis of peritonitis was based on clinical manifestations. She had not documented any episode of peritonitis prior to admission in our Institute. She was non diabetic. In the hospital she received inj metronidazole 400 mg TDS for 5 days, inj ceftazidime 1 gm after each cycle of peritoneal dialysis, inj Vancomycin 1 gm every 48 hrs, followed by Tab metronidazole 400 mg TDS, tab rifaximin 400 mg TDS & Tab fluconazole 150 mg once a day and vancomycin powder locally QID prior to availability of fungal culture report. Analysis of CAPD fluid was carried out, which showed total leucocyte count of 100 cells per mm. [3] It showed predominant [80%] polymorphs. The percentage of lymphocytes in CAPD fluid was 20%.

Photograph 1: showing growth of fusarium species on Sabraoud's dextrose agar.



Photograph 2: Showing Microscopic appearance of fusarium species in lactophenol cotton blue preparation

We received CAPD fluid of this patient for Gram stain, routine bacterial culture & fungal culture in Microbiology department. No organism could be detected on gram staining of the specimen. Routine culture was negative for growth of bacterial pathogen. Direct microscopic examination of CAPD fluid revealed no fungal element but culture of CAPD fluid on Sabraoud's agar without cycloheximide yielded growth which was identified on the basis of their macroscopic [photograph1] and microscopic appearance. Microscopic examination of colony showed presence of sickle shaped multicelled microconidia having 3 - 5 septae typical of fusarium species [photograph 2].

The patient was discharged with treatment advised which included inj fluconazole 200 mg on alternate day, inj vancomycin 1 gm after 48 hrs intra

peritoneally, in addition to other supportive treatment. She was advised to continue CAPD and come for follow up after 7 days. While on treatment, patient died due to sepsis in May 2013.

DISCUSSION

Peritoneal dialysis has been shown to be practical, safe & cost effective alternative to chronic haemodialysis. Bacterial peritonitis is most commonly encountered in these patients. The definition of CAPD peritonitis includes at least two of the following criteria: symptoms or signs (or both) of peritonitis, a cloudy dialysate (effluent) and a positive culture (and / or Gram stain of the dialysate). [10] The criteria for diagnosis of fungal peritonitis do not differ from those of bacterial peritonitis. The isolation of fungal organism on gram stain and or culture is diagnostic of fungal peritonitis. [4] Patients with previous bacterial peritonitis and antibiotic usage are at greater risk of developing fungal peritonitis. [3] Various studies report that fungal peritonitis accounts for 1-16 % episodes of peritonitis in patients on peritoneal dialysis. [1-3] *Fusarium* species are commonly found as saprophytes on organic debris & in soil. [11] *Fusarium* species cause a broad spectrum of infections in humans, including superficial, locally invasive, and disseminated infections. The clinical form of fusariosis depends largely on the immune status of the host and the portal of entry of the infection. [8] The principal portal of entry for Fusarium *spp*. is the airways, followed by the skin at site of tissue breakdown and possibly the mucosal membranes. [8] The duration of peritoneal dialysis treatment before the diagnosis of fungal peritonitis in our patient is also similar to the range reported by other studies [1,12] In our study Gram staining of the fluid revealed no organisms this finding is in concordance with study by Joseph et al [13] The organism has a propensity to attach to foreign bodies such as intravascular and intraperitoneal catheters. Therefore, successful treatment of infections caused by *Fusarium* may require catheter removal in addition to systemic antifungal therapy. [1,12,13] Prasad et al in their study reported that abdominal pain, abdominal pain with fever, and catheter in situ are the most commonly noted risk factors for mortality. [4,14] Fungal peritonitis, though uncommon, has great morbidity and is more difficult to treat successfully than bacterial peritonitis. In present study, the patient died of sepsis.

CONCLUSION

Fungal agents cause significant morbidity and mortality in patients with CAPD peritonitis and are usually more difficult to treat. Fusarium infection in patients on CAPD can be life threatening Fungal infections may be clinically suspected on the basis of clinical and laboratory findings, which should lead to prompt therapy.

ACKNOWLEDGEMENTS

The authors sincerely acknowledge the help extended to them by the staff of the Medicine department and Microbiology department, MGM's Medical College, Aurangabad.

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How to cite this article: Srivastava M, Wyawahare AS. Fusarium peritonitis an uncommon complication in a patient on continuous ambulatory peritoneal dialysis - A case report. Int J Health Sci Res. 2016; 6(1):597-600.

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