

# SUCCESSFUL TREATMENT OF CAPD PERITONITIS CAUSED BY MORAXELLA CATARRHALIS

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## USPEŠNO LEČENJE MORAXELLA CATARRHALIS-OM PROUZROKOVANOG CAPD PERITONITISA

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### ABSTRACT

*Peritonitis remains a major complication of peritoneal dialysis which is usually caused by saprophytic gram positive microorganisms originated from skin. Here, I report an unusual case of peritonitis due to Moraxella catarrhalis.*

*A male, 59 age, on peritoneal dialysis modality because ESRD due to diabetic nephropathy was admitted to our hospital due to CAPD peritonitis. After initial empiric treatment and identification of this infrequent causer, he was submitted to two week antibiotic treatment with complete recovery and good prognosis.*

*Peritonitis is the major cause of peritoneal dialysis failure which requires prompt recognition of the causative agent for successful treatment.*

**Keywords:** peritoneal dialysis, peritonitis, diabetic nephropathy, treatment

### SAŽETAK

*Peritonitis predstavlja najozbiljniju komplikaciju lečenja peritoneumskom dijalizom i obično je prouzrokovan gram pozitivnim komensalnim mikroorganizmima sa kože. U našem radu prikazujemo slučaj peritonitisa izazvan neuobičajenim uzročnikom Moraxella catarrhalis.*

*Muškarac star 59 godina, na programu lečenja peritoneumskom dijalizom zbog terminalne bubrežne slabosti izazvane dijabetesnom nefropatijom primljen je u našu bolnicu zbog CAPD peritonitisa. Nakon inicijalno sprovedene empirijske terapije i identifikacije ovog retkog uzročnika, naredne dve sedmice je sprovedeno ciljano lečenje prema antibiogramu sa kompletnim oporavkom pacijenta.*

*Peritonitis kao najozbiljnija komplikacija peritoneumske dijalize zahteva brzu i optimalnu identifikaciju uzročnika radi uspešnog lečenja.*

**Ključne reči:** peritoneumska dijaliza, peritonitis, dijabetesna nefropatija, lečenje

### INTRODUCTION

Peritoneal dialysis is ESRD treatment modality complementary with hemodialysis and kidney transplantation, based on simultaneous daily exchanges over peritoneal catheter (1). The main complication of these home dialysis modality is peritonitis. Based on the latest reports of International Society for Peritoneal Dialysis, death outcome is presented in less than 5% of total peritonitis episodes, but indirectly it is contributing factor for death outcome in 16% of peritoneal dialysis patients (2). Also, peritonitis

is strongly associated with significant morbidity- transient loss of ultrafiltration, possible permanent membrane damage and transfer to hemodialysis (3-5). The most frequent causers are gram positive organisms originated from the skin (coagulase negative staphylococci) and less often gram negative organisms and fungi (6). Here, I report a case of peritonitis caused by Moraxella species. Until now, on the basis of relevant literature data, there were only 8 published cases of peritonitis due to this pathogen (7-13).



## CASE REPORT

A insulin depended diabetic male, 59 age, on peritoneal dialysis over 12 months due to end-stage renal disease, was admitted to our hospital because of strong abdominal pain followed by cloudy peritoneal fluid. His medical history excluded previous episodes of peritonitis and exit site infections. He conducts four daily exchanges with fill volume of 2000ml (PET test showed d/p creatinine 0.62 -low average transport status) - 3x1.36%, with night exchange with 2.27% of glucose. He uses conventional solutions (Dianel®; Baxter), and he has satisfied parameters of dialysis adequacy -KT/V was 2.1, weekly creatinine clearance was 72.6 l/7 days; he also has preserved residual diuresis (approximately 1250-1500 ml/24hours).

Actually, initially analysis of blood sample showed C-reactive protein level 129 mg/dL, dialysis fluid showed 266 cell's elements and Gram stain of the fluid showed white blood cells. He was immediately started on empirical therapy -cefazolin and amikacin (our center specific initial treatment protocol for patients without residual renal function). After 48 hours, pains were reduced; effluent became purified with regression of fluid's WBC count (86 elements) when he discontinued aminoglycosides. Initial antibiotic susceptibility testing was unsuccessful due to the slow bacterial growth, but the culture was identified after 5 days as *Moraxella catarrhalis* (BacT/Alert). The organism was sensitive to ampicillin, amoxicillin/clavulanate, cefazolin, ceftazidime, ceftriaxone, erythromycin, trimethoprim/sulfamethoxazole and tetracycline, but it was resistant to vancomycin. Treatment with cefazolin was continued for 14 days which resulted in recovery of the patient's symptoms and complete healing of peritonitis (peritoneal fluid WBC count and culture became negative after 7 days, CRP level completely normalized after 10 days). We did not find the source of infection (nasal, sputum and exit site culture results were negative; US scan of the catheter's tunnel and X ray of lungs were correct). Repeated cultures of peritoneal fluid over the next 3 months have remained negative. Patient was continued on CAPD in good clinical condition.

## DISCUSSION

*Moraxella* species are gram negative, aerobic catalase negative, oxidase-positive diplococci which were first described in 1896. Human beings are exclusive hosts of this organism which is normally present in the oropharynx, mucous membranes, skin, and genital tract - almost 75% of children and 1-3% of healthy adults are carriers of the bacterium (14). These organisms usually cause respiratory tract infections but can also cause bacteraemia, meningitis, suppurative arthritis, osteomyelitis, endocarditis, keratitis, periorbital cellulitis and urethritis (15-20).

Until now, there were only 8 published cases of peritonitis due to this pathogen (7-13). Identification of these

organisms requires culture on blood or chocolate agar plates and usually takes 24 to 48 hrs. Most strains (>90%) are susceptible to penicillin with exception of *Moraxella catarrhalis* which is susceptible to amoxicillin-clavulanate, expanded-spectrum or broad-spectrum cephalosporins, tetracyclines, rifampin and erythromycin (15-18, 21). Empirical choice of antibiotic therapy with cephalosporins which is recommended by the International Society of Peritoneal Dialysis guidelines/recommendations is sufficient and appropriate for the initial treatment of *Moraxella* related peritonitis (1). Further treatment should be continued with an appropriate antibiotic for 14 days, based on ISPD recommendations.

## CONCLUSIONS

Peritonitis remains a most serious complication of peritoneal dialysis. Accurate and prompt identification of the causative organism, along with previous starting of appropriate empiric treatment, is necessary for positive outcome of this complication of peritoneal dialysis patients.

I have presented a case of infrequent *Moraxella catarrhalis* peritonitis and commented on the methods of diagnosis and appropriate treatment without catheter removal.

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