

Pasteurella multocida peritonitis in a CAPD patient case report and a review of literature

Abstract

Bacterial peritonitis is a common complication in CAPD patients. Skin bacteria such as *Staphylococci* are most usually found in PD peritonitis cultures. Also *Streptococci* and Gram negative rods are found. *Pasteurella multocida* is an aerobic Gram negative coccobacillus found as natural oral flora in cats and dogs and other domestic and wild animals. We report a patient who developed peritoneal dialysis associated peritonitis induced by *Pasteurella multocida*, that was isolated from de dialysis effluent. This pathogen is very unfrequent in CAPD infections, in the literature there are about 33 cases. This is the first case reported in Argentina.¹

Keywords: peritoneal dialysis, *Pasteurella multocida*, peritonitis

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Introduction

Pasteurella multocida is a fermentative Gram negative coccobacillus often found in upper respiratory tracts of wild and domestic animals. It can cause infections in humans (specially soft tissues, as a result of scratches or bites).^{2,3} However it can be isolated in cases of pneumonias, lung abscess, and meningitis and very rarely in spontaneous peritonitis in cirrhotic patients. In the literature there are few cases (about 33) of peritonitis associated to CAPD caused by to this bacteria. This is the first case of *Pasteurella multocida* peritoneal dialysis-associated peritonitis reported in Argentina.

Case Report

A 39-year-old male with a history of morbid obesity (BMI 44) hypertension and nephrotic syndrome in CAPD during four years was admitted to our hospital, complaining of intense abdominal discomfort and turbid peritoneal effluent. Physical examination revealed abdominal tenderness and rebound. His temperature was 38.5°C, his blood pressure was 140/80 mm Hg,⁴ heart rate 90 beats/min. The peritoneal catheter did not show evidence of damage, tunnel or exit site infection. Laboratory tests showed white blood cells of 160 cells/mm in the fluid analysis (70% neutrophils). The patient was treated under suspicion of peritonitis of unknown origin. Initial empiric therapy consisted in Vancomycin 1g IP and gentamicin I.P (he had a history of MRSA in cultures of a vascular graft infection and skin lesions). After 48 hours, the patient did not show improvement neither in the aspect of peritoneal fluid, nor in the abdominal pain.^{5,6} White cells number increased to 12700/mm³. Bacteriologists informed that a Gram negative coccobacillus was growing in the cultures and that characterization of the bacteria was very difficult, probably a *Pasteurella*. The antibiotic schedule was changed to ceftriaxone I.P. The sample was sent to Malbran Institute in Buenos Aires where the bacteria was confirmed as *Pasteurella multocida*, subspecies *septica* isolated from the peritoneal effluent. After the switch in the antibiotic treatment abdominal findings and discomfort disappeared, and the white cells in the peritoneal fluid diminished to 5600/mm³, 250/mm³ and 140/mm³. In about 8 days. After two weeks of antibiotic therapy peritoneal effluent was turbid once again and cells were 210/mm³ finally the catheter was removed and patient was transferred to hemodialysis.⁷

Discussion

Peritonitis is a common complication of peritoneal dialysis, infections are originated in skin and then track along the catheter in most cases. In these patients infections with Gram positive cocci such as *Staphylococcus epidermidis* and *aureus* are frequently observed. Another frequent pathophysiological mechanism is transmural migration of intestinal bacteria due to intraabdominal pathology. It has been described that bacteria of zoonotic origin are a rare cause of peritonitis in PD patients. *Pasteurella multocida* is a Gram negative coccobacillus first identified in diseased birds in 1878.⁸ It is usually found in normal flora of cats (70-90% colonization) and dogs (50-60%). It is associated with skin and soft tissue infection following animal bites or scratches. It has also been described as a cause of cellulitis, osteoarthritis, meningitis, pulmonary infections and sepsis. Rarely it has been reported in bacterial spontaneous peritonitis in cirrhotic patients and originating peritonitis in PD patients. To date 33 cases have been published of *Pasteurella multocida* peritonitis in patients in PD, usually in APD. In some cases there is a history of pet bites, licks or scratches and fluid leakage. It is probable that the length of tubes used in theycler and the longer time of exposure to the environments are risk factors in APD. Long tubes seem to be attractive toys for cats which can contaminate them. In our case line puncture or leak could not be documented, but transmission of the *P. multocida* to the patient hands of dialysis bags or tubes could occur from his pets.

In Hospital Provincial Neuquén, *Pasteurella* is isolated in soft tissues infections and blood cultures with a very low incidence (less than one case/year). In the section of Bacteriology of our laboratory about 17.000 samples a year are processed, so this is rarely a very unfrequent microorganism. There is a study in our country in 2006 characterizing 30 *Pasteurella* strains isolated from human and animal samples. (ANLIS, Administración Nacional de Laboratorios e Institutos de Salud, Dr. Carlos G. Malbran). 8 of them were infections in humans associated with skin wounds, thorax abscess, pneumonia and bacteriemia. To our knowledge this is the first case of *P. multocida* peritonitis in a PD patient reported in Argentina.

Conclusion

We report an unfrequent case of peritonitis due to *Pasteurella*

multocida in a PD patient. Many people have pets at home, so it is important to consider they can carry these oropharyngeal pathogens and the possibility of contamination of hands and dialysis supplies. It should be emphasized to maintain strict hygienic measures, hand washing and keeping domestic animals away from PD catheters, bags or tubs and not allowing them to stay in the room during exchanges.

Acknowledgments

None.

Conflicts of interest

The author declares there is no conflict of interest.

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