

Pneumococcal Peritonitis in Peritoneal Dialysis – Three Case Reports and Literature Review

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INTRODUCTION AND AIMS

- Peritonitis is a frequent complication in peritoneal dialysis (PD), usually driven by comensal microorganisms (MO) and peri-catheter contamination
- Other etiological MO and atypical routes of infection are possible
- There is scarce literature reporting pneumococcal peritonitis in PD; only 4 cases are described.

METHODS


We describe 3 clinical cases, in which 3 different PD patients presented pneumococcal peritonitis, two of which were related with obviously previous or concomitant respiratory symptoms suggesting respiratory infection.

RESULTS

Case 1

- A 58-year-old man on PD started an upper respiratory tract infection and symptomatic approach was initiated
- One week later, patient presented abdominal pain, vomits, fever and cloudy peritoneal effluent
 - C-reactive protein of 8.3 mg/dL and peritoneal cell count (PCC) 4.500 cells/mm³
 - Intraperitoneal (IP) cephazolin and ceftazidime
 - Microscopical direct observation revealed many gram positive coccus bacteria, however blood and peritoneal cultures were negative
- At 14th day, there was peritonitis relapse
 - Therapy was switched to IP vancomycin and gentamicin, maintained 21 days, with cure
 - New peritoneal cultures were negative
 - Molecular identification of the first sample was prosecuted and *S. pneumoniae* was identified

Case 2

- A 41-year-old man, smoker, on PD presented productive cough and was medicated with a macrolide
 - After 2 weeks, patient presented fever, pleuritic chest pain, dyspnea, bloody sputum, abdominal pain and cloudy peritoneal effluent
 - Serum white blood cells count with 18.000 leukocytes/mm³, CRP 29.6 mg/dL and PCC of 32.620/mm³ (93% neutrophils)
 - Chest radiography with lobar pneumonia:
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- Patient was admitted and intravenous levofloxacin and IP cefazolin and ceftazidime were initiated.
 - Peritoneal culture was positive to *S. pneumoniae*, It was associated IP ampicillin to levofloxacin for 14 days, with infection resolution.

Case 3

- A 62-year-old man, smoker, on PD 43 months started generalized myalgias, abdominal pain and cloudy effluent.
 - He presented WBCC of 10.400 leukocytes/mm³, CRP 2 mg/dL and PCC 8.654/mm³ (97% neutrophils)
 - It was initiated IP cephazolin and gentamicin
- After 48 hours, there was no favorable response, with evolution of chills, and patient was admitted.
 - Peritoneal culture confirmed *S. pneumoniae*
 - Antibiotics were changed to IP ampicillin and oral levofloxacin, with success

	CASE 1	CASE 2	CASE 3
AGE	58	41	61
CKD ETIOLOGY	Hypertensive nephrosclerosis	Vesico-ureteral reflux	Hypertensive nephrosclerosis
PD TIME	90 months	2 months	43 months
SPECIFIC RISK FACTORS	None	Smoking	Smoking
ANTI-PNEUMOCOCCAL VACCINATION STATUS	Non-vaccinated	Non-vaccinated	Non-vaccinated
TIME FROM RESPIRATORY TO PERITONITIS SYMPTOMS	1 week	2 weeks	Not applied
INITIAL PERITONEAL CELL COUNT/MM ³	4.500 cells (>95% neutrophils)	32.620 cells (93% neutrophils)	8.654 cells (93% neutrophils)
SYSTEMIC TOXICITY (FEVER, CHILLS)	Yes	Yes	Yes
PERITONITIS RECURRENCE	Yes (14 days)	No	No
TECHNIQUE FAILURE OR DROP-OUT	No	No	No
ORGANISM IDENTIFICATION	Molecular techniques	Peritoneal liquid culture POSITIVE	Peritoneal liquid culture POSITIVE

Table 1 – Clinical and laboratorial characteristics in each case

CONCLUSIONS

- These 3 cases pointed out a probable haematogenous route of infection by a respiratory primary point, resembling an invasive pneumococcal disease
- ESRD and PD status exposes a higher risk of peritonitis during extra-peritoneal infections.
- Appropriate antimicrobial approach and appropriate prophylaxis (e.g. pneumococcal vaccination), when applicable, is necessary.

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