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## Letter to the editor

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# Detection of bacterial pathogens in sterile fluids with the FilmArray Meningitis/Encephalitis identification system

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Sir,

Rapid detection of pathogens in serious infections is a very important issue in terms of establishment of correct antimicrobial therapy, increase of patient survival, shorten hospital stay, and reduce health care costs [1]. Due to several circumstances, the culture of the sample may be negative or the result may be delayed, so rapid and sensitive identification techniques could be more useful and to serve as alternative in the management of the disease. Recently, we were confronted with three cases diagnosed by the FilmArray Meningitis/Encephalitis (ME) panel (BioFire Diagnostics, Salt Lake City, UT, USA) [2]. We would like to highlight the possibility of use of this technique for pathogen detection in some sterile fluid samples.

**Case 1.-** A 76-year-old man presented with a chronic pleural effusion. His clinical history was remarkable for a gastric carcinoma, diabetes mellitus and chronic pulmonary obstructive disease. The pleural fluid was drained and sent to the microbiology laboratory for culture. Due to the absence of pathogen growth and the poor clinical situation of the patient, a FilmArray ME panel was performed and a positive result for *Streptococcus agalactiae* was obtained. The subsequent subculture from the thioglycollate fluid also demonstrates *S. agalactiae* growth. The patient was treated with amoxycillin (500 mg/8 h) for 10 days and quickly improved.

**Case 2.-** A 3-year-old man presented pneumonia and pleural effusion. On his vaccination history, the pneumococcal vaccine was not included. The pleural fluid was drained and sent to the microbiology laboratory for culture. The sample culture was negative, and both a FilmArray ME panel and a determination of pneumococcal antigen (Uni-Gold *S. pneumoniae*, Trinity Biotech, Carlsbad, CA, USA) in the pleural fluid were performed, with a positive result for *Streptococcus pneumoniae* in both cases. The child was treated with cefotaxime during 10 days with a positive outcome at 3 month of follow-up.

**Case 3.-** A 33-year-old female was admitted due to fever and headache. The patient was pregnant with a twin pregnancy of 14 weeks. An abdominal ultrasound was performed and a diagnosis of single fetal death twin was established. A vaginal bleeding was demonstrated and an amniocentesis technique was carried out in order to discard chorioamnionitis. The amniotic fluid from the dead fetus was sent to the microbiology laboratory for analysis with suspicion of *Listeria* infection. An initial FilmArray ME panel was performed and a positive result for *Listeria monocytogenes* was obtained. On the second day of incubation the growth of *L. monocytogenes* was reported in pure culture. A sample of placental biopsy was also taken and sent to study. The sample resulted in a negative culture after 5 days of incubation. A FilmArray technique was also performed for this sample being, however, positive to *L. monocytogenes*.

The FilmArray ME panel is a multiplexed nucleic acid test used for the simultaneous qualitative detection and identification of multiple viral, yeast and bacterial nucleic acid targets in cerebrospinal fluid (CSF) samples [2]. This panel is a rapid tool for detection of 14 pathogens (ME producers) directly from CSF specimens. Bacteria included in this panel are *Escherichia coli* K1, *Haemophilus influenzae*, *Neisseria meningitidis*, *S. pneumoniae*, *S. agalactiae*, and *L. monocytogenes*. A multicenter evaluation of this panel demonstrated a sensitivity or positive percentage of agreement of 100% for 9 of 14 pathogens [2]. Sensitivity for *L. monocytogenes* was not obtained because of this microorganism was not observed in the study [2]. However a study using the FilmArray technology showed a positive result for *L. monocytogenes* in a boy with symptomatology of meningoencephalitis with negative cultures (from blood

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and CSF) [3]. Other recent studies have focused on the use of this technology both in adults and children [4, 5]. As in our cases, some authors have reported the use of FilmArray Blood Culture Identification multiplex PCR system for pathogen detection from both synovial and pleural fluid, detecting *S. pyogenes* and *S. pneumoniae*, respectively [6]. Other studies have used FilmArray test for pathogen detection in other clinical specimens such as pleural, synovial and ascitic fluids [7-9].

Although these fluids are still not optimized as specimens for the detection of pathogens in the ME panel, the present report shows the potential utility of this panel for the rapid diagnosis of a variety of infectious microorganisms from direct testing of clinical specimens.

## FUNDING

None to declare

## CONFLICT OF INTEREST

The author declare that they have no conflicts of interest

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