

Coagulase - negative staphylococcal meningitis: a cause of prolonged fever after spinal anaesthesia

Egidia Miftode¹,
Olivia Dorneanu²

1. Infectious Disease Department,
University of Medicine
and Pharmacy "Gr. T. Popa" Iasi,
Romania

2. Microbiology Department,
University of Medicine
and Pharmacy "Gr. T. Popa" Iasi,
Romania

Correspondence:
Miftode Egidia
e-mail: emiftode@yahoo.co.uk

Abstract

We report a patient with coagulase-negative staphylococcal meningitis developed after spinal anaesthesia performed for the correction of a cystocele. She has a two week course of post-operative fever without signs of meningeal irritation but after the diagnosis was established she responded well to vancomycin plus meropenem.

Keywords: spinal anaesthesia, meningitis

Introduction

Meningitis is recognized as an iatrogenic complication following spinal anaesthesia. The incidence is very low - among 38,000 spinal anaesthesia 3 cases of meningitis were identified, but the evolution could be fatal if the adequate treatment is not started early. In the study of Baer are enumerated 75 cases of meningitis following lumbar puncture since 1952 and the majority was due to *Streptococcus salivarius*¹.

Case report

A 73-years woman with an underlying cystocele was admitted to the Obstetrics and Gynecology Hospital, Iasi on 11 mars 2009 for surgical correction. The operation, with spinal anaesthesia, was performed on 12 mars, with a successful outcome and she was discharged.

Three days after the operation the patient developed fever and ofloxacin was given as a treatment of a presumed local infection. During the first 6 days of treatment the fever decreased but reappeared when the treatment was stopped. She remained 2 days without treatment and on the 12-th day after the operation moxifloxacin was given orally. The evolution was similar: patient became afebrile soon after the beginning of the treatment but after 3 days she developed high fever. During the daily peak of fever the patient complained of mild headache but without any sign of meningeal irritation.

On day 15 after the operation the patient presented photophobia and exacerbation of headache.

On admission in the Hospital of Infectious Diseases, physical examination revealed: temperature -38°C, blood pressure -130/80mmHg, and minor signs of meningismus, the patient's clinical status being good.

Lumbar puncture revealed turbid cerebrospinal fluid (CSF), 2,000 white blood cells (WBC)/mmc (neutrophil 82%), protein 1,2g/l, glucose 0,4g/l and NaCl 7,4g/l. Her peripheral WBC count was $10,6 \times 10^3$ /mmc with 89% neutrophils.

After taking blood cultures antimicrobial therapy was started with vancomycin 2g/day plus meropenem 3g/day and antiedematous perfusions. She showed rapid clinical improvement within 48 hours.

In the 7th day of therapy the results of culture and antibiogramme was available: coagulase-negative staphylococcus resistant only to penicillin and erythromycin (susceptible to fluoroquinolones).

Lumbar puncture 6 days after the admission: 108 leukocytes/mmc, 100% lymphocytes and the therapy was continued 19 days, until the level of CSF leukocytes was 40/mmc.

Discussion

Coagulase-negative staphylococci (c.n.s.) are frequently associated with invasive procedures, catheters and prosthetic devices. Skin contaminants are rarely reported as causative pathogens of infection after lumbar puncture.

Patients and personnel constitute the hospital reservoir for c.n.s. and frequently the mechanism for meningeal infection is the direct inoculation into the subarachnoid space during lumbar puncture.

Contamination of the needle has been mentioned as a possible source of infection with a 16,7% rate of needle colonization after spinal anaesthesia and a 25% rate after epidural anaesthesia².

Infection may, also, occur during a period of bacteraemia when the needle passes through the small vessels and introduces the microorganism into the cerebrospinal space. Inadequate precautions during lumbar puncture, such as washing puncture site with povidone-iodine solution less than 30 seconds, may play an important role in the development of nosocomial meningitis³.

The need for anesthesiologists to wear masks while performing spinal anaesthesia is widely debated and seems prudent during performance of lumbar punctures only in some higher-risk situations: when the operator has an upper respiratory tract infection, during instruction of students, during the introduction of a device or in an operating room⁴.

Clusters of meningitis associated with individual anesthesiologists have been previously described. Rubin et al. reported 6 cases that occurred over the course of 5 years and all of them had presented within 24 hours after spinal anaesthesia performed by the same anesthesiologist^{1,3}.

Mortality rate is high (up to 36%) when iatrogenic meningitis is associated with virulent organisms such as *Staphylococcus aureus* or *Aspergillus* spp and the outcome is favourable if low virulence bacteria are involved (viridans streptococci or c.n.s.). Antimicrobials to which most c.n.s. are susceptible in vitro include vancomycin, linezolid, quinupristin/dalfopristin, minocycline, but recently a lot of reports described strains that have reduced susceptibility to glycopeptides.

Surprisingly, the strain isolated from CSF was methicillin-susceptible in a region where more than 60% of c.n.s. are methicillin-resistant⁵.

This case presentation underlines the atypical, torpid evolution of a potential fatal infection, meningitis, which could be explained by the previous usage of orally fluoroquinolones, or by the involvement of a low virulent pathogen.

It is vital that meningitis should be considered in the differential diagnosis of fever and headache in the postoperative period, and in the absence of the positive culture results the therapy should be active, also, against coagulase-negative staphylococci, despite their rare involvement⁶. ■

References

1. Baera E.T., Iatrogenic Meningitis: The case for Face Mask, *Clin Infect Dis*, 2000; 31: 519-521.
2. Raedler C., Bacterial contamination of needles used for spinal and epidural anaesthesia, *Br J Anaesth* 1999; 83: 657-658.
3. Rubin L., Sprecher H., Kabaha A., et al. Meningitis following spinal anaesthesia: 6 cases in 5 years, *Infect Control Hosp Epidemiol*, 2007; 28: 10, 1187-1190.
4. Black S. R., Weinstein R. A., The Case for Face Mask-Zorro or Zero? *Clin Infect Dis* 2000; 31: 522-523.
5. Cochior L., E. Miftode, D. Dorneanu, E. Năstase, D. Teodor, V. Luca, Clinical and therapeutical implications in methicillin-resistant staphylococcal infections, *Therapeutics, Pharmacology and Clinical toxicology*, 2008; 1: 133-136.
6. Black S. R., Weinstein R. A., The Case for Face Mask-Zorro or Zero? *Clin Infect Dis* 2000; 31: 522-523.

Pregnacare

pentru a da naștere sănătății

Perioada frumoasă a sarcinii este marcată de multiple modificări hormonale și nevoi speciale ale gravidei. Nu trebuie să neglijați nici una dintre ele, dar mai ales nevoile nutriționale, pentru că de ele depinde și sănătatea viitorului copil.

Sunt anumite minerale și vitamine esențiale în această perioadă. Deficitul acestora poate avea efecte negative ireversibile pentru făt, poate determina naștere prematură sau diferite afecțiuni ale gravidei.

Unele dintre ele însă nu se găsesc în alimente sau nu se pot asimila în cantități corespunzătoare. De aceea, este recomandat să se administreze un supliment nutritiv care conține aceste elemente în doza zilnică recomandată (DZR) de specialiști în domeniu, deoarece este bine de știut că, așa cum deficitul de substanțe nutritive are efect negativ, la fel și surplusul lor poate dăuna fătului. Alege PREGNACARE + complex de 19 vitamine, minerale și acid folic care acoperă 100% DZR, pentru sănătatea ta și a copilului tău!

Acest supliment se poate administra și în perioada de concepție pentru a pregăti organismul femeii pentru sarcină.

Pregnacare este lider de piață în Marea Britanie printre suplimentele nutritive pentru sarcină.

1 tabletă de Pregnacare zilnic - pentru a da naștere sănătății! ■

