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Emerging infectious diseases: *Streptococcus suis* meningitis

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Sir,

Community-acquired bacterial meningitis is a serious infection with a high mortality rate. This disease is defined as a neurological emergency. Thus, early diagnosis and targeted treatment are of vital importance. *Streptococcus suis* is an important infectious agent of zoonotic origin bacterial meningitis, with a high incidence of auditory complications secondary to the development of labyrinthitis, and occasionally septic shock, with pig cattle being the main source of infection [1].

The number of human infections caused by this microorganism has increased substantially. Traditionally, it has been considered a sporadic disease. However, it can be the cause of outbreaks and epidemics, such as those detected in some Asian countries [2]. In contrast, the number of cases reported in Spain is limited [3-5].

We present the case report of meningitis with associated secondary bacteremia due to *S. suis* in a 56-year-old man, obese, smoker and occasional alcohol drinker, treated at our Hospital Emergency Department.

At the Primary Care center, the patient presented oppressive holocranial headache of strong intensity, fever of five days' duration (38°C), hearing loss, vomiting, and dysthermic sensation. The onset of the disease was after the preparation, handling, and intake of roast pork. The following treatment was administered by medical personnel: an anxiolytic (diazepam), analgesics (metamizole, tramadol) and an antiemetic (metoclopramide). Subsequently, he was referred to our Hospital Emergency Department for persistent headache despite the medication dispensed. On initial physical examination, the patient displayed 85% oxygen saturation, diaphoresis, signs of meningeal irritation, and a progressive state of agitation.

A cranial computed tomography scan without pathological findings of interest and a lumbar puncture showing an outflow of cerebrospinal fluid (CSF) with a cloudy-whitish appearance were performed. The CSF sample was sent to the laboratory for bacteriological culture and cytochemical study. In addition, samples were collected for blood culture.

In the initial analytical tests, the following results were obtained: white blood cell count $18.7 \times 10^3/\mu\text{L}$ ($4.0\text{-}10.5 \times 10^3/\mu\text{L}$), hemoglobin 15.2 g/dL (13.5- 18.0 g/dL), platelet count $115 \times 10^3/\mu\text{L}$ ($130\text{-}450 \times 10^3/\mu\text{L}$), glucose 141 mg/dL (60-110 mg/dL), creatinine 0.8 mg/dL (<1.25 mg/dL), lactate 15.7 mg/dL (5.7-22 mg/dL), C-reactive protein 7 mg/dL (<0.5 mg/dL), procalcitonin 0.45 ng/mL (<0.5 ng/mL).

CSF cytochemical characteristics showed the following results: glucose <10 mg/dL (50-80 mg/dL), total protein 950 mg/dL (15-45 mg/dL) and 13,720 leukocytes/ μL (98% polymorphonuclear neutrophils). Gram-positive diplococci were observed on the Gram stain.

Due to his clinical situation, the patient was admitted to the Intensive Care Unit (ICU). The initial differential diagnosis suggested purulent meningitis with septic encephalopathy, immediately initiating administration of dexamethasone (8 mg / iv / 6 h) and broad-spectrum antimicrobial therapy with ampicillin, ceftriaxone, vancomycin, and acyclovir.

After 24 hours, the Microbiology Laboratory reported alpha-hemolytic streptococci isolation in CSF and blood cultures, identified as *S. suis* using the commercial Vitek-2 system (Biomérieux®). In addition, the antibiotic resistance profile was determined using epsilon-test strips (Biomérieux®). The bacterial isolate presented antibiotic susceptibility to penicillin [Minimal Inhibitory Concentration (MIC) = 0.064 mg/L], cefotaxime (MIC = 0.064 mg/L), levofloxacin (MIC = 0.5 mg/L) and vancomycin (MIC = 0.15 mg/L). The results were interpreted using the clinical breakpoints established by European Committee on Antimicrobial Susceptibility Testing (EUCAST). According to antibiogram results, antimicrobial targeted treatment with cefotaxime was initiated.

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After six days of ICU admission and favorable clinical evolution, he was referred to the Internal Medicine Service and stayed for three weeks.

The patient referred hearing loss at admission. Hence, an inter-consultation with otorhinolaryngology was performed to complete the study with audiometry and complementary tests. Although all these tests appeared normal, he manifested an exacerbation of hearing loss and appearance of tinnitus.

Due to favorable clinical evolution, the patient was discharged after four weeks in treatment with amoxicillin / clavulanic acid and scheduled follow-up with the specialists involved.

Human *S. suis* infections are mainly due to recent contact with sick or asymptomatic pigs, and the consumption of its contaminated meat derivatives. Consequently, the infection appears mainly among pig cattle workers, being considered in many countries as an occupational disease [6, 7].

The development of different strategies to prevent this disease through animal control implies the use of metaphylactic agents or vaccination [8]. Furthermore, the improvement in the hygienic conditions of pig cattle also affects the decrease of *S. suis* pork infections and its transmission to humans. [1].

Likewise, the instruction and training of personnel working with pigs or their derivatives is essential. Measures aimed at reducing this disease include the use of barrier methods during animal handling, hand washing, and proper cooking of meat before ingestion [1].

The relative inexperience in this zoonosis and the difficulty of the microbiological diagnosis [9], emphasize the importance of a complete anamnesis to obtain crucial information and guide clinical suspicion towards this infection. As an example, the early use of dexamethasone seems to reduce the incidence of hearing loss and patient neurological sequelae in these cases [10].

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None to declare.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.

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