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Pelvic inflammatory disease due to *Streptococcus pneumoniae*☆

Enfermedad pélvica inflamatoria por Streptococcus pneumoniae

Dear Editor,

Invasive pneumococcal disease is the most serious form of disease produced by *Streptococcus pneumoniae*, especially affecting those under 5 and over 65 years of age. It is considered an invasive pneumococcal disease to the isolation and detection of the antigen or nucleic acid of *S. pneumoniae* in a normally sterile location.[1] Pneumonia is the most frequent form of clinical presentation, with an incidence rate of around 6 cases out of 10^2 inhabitants in the Valencian Community,[3] followed by bacteraemia without focus and meningitis.[4] Other less frequent forms of clinical presentation are: spontaneous bacterial peritonitis, arthritis and pelvic inflammatory disease (PID), among others.[4]

We present the case of a 37-year-old patient who went to A&E due to a 3-day history of abdominal pain and fever, without urinary syndrome or alterations of the intestinal rhythm. Her history included two pregnancies and two deliveries, the last of which was two years before with postpartum subtotal hysterectomy due to placenta accreta. On physical examination, the patient presented with a soft, depressible and painful abdomen on palpation. The gynaecological examination showed yellow, non-malodorous vaginal discharge and pain with pressure in the recto-uterine pouch. In the transvaginal ultrasound, a heterogeneous image of 54 × 33 mm, in "gear wheel", compatible with right Fallopian tube, and another heterogeneous image of 57 × 27 mm in left appendage. Blood analysis showed elevated C-reactive protein (124.8 mg/l) and neutrophilia. The patient was admitted to the Gynaecology Department with empirical intravenous antibiotic therapy, including cefotaxime, metronidazole and doxycycline due to suspected PID. A CT scan was requested where suspicion of an abscess due to ovarian tube persisted, so a laparotomy was performed, confirming the findings and performing right salpingectomy and left adnexectomy. In addition, an intraoperative sample was obtained for a long incubation bacteriological culture. The DNA detection of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* was negative, as well as the culture of genital mycoplasmas. After 24 hours of incubation, mucous alpha haemolytic colonies grew in the vaginal bacteriological culture in pure culture in the blood agar plate and in the chocolate agar plate, observing gram-positive cocci in chains in the long incubation culture stain. Growth of *S. pneumoniae* was reported, identified with VITEK MS (bioMérieux, Marcy-l'Étoile, France). The sensitivity study was carried out by disk diffusion, being sensitive to cotrimoxazole, erythromycin, levofloxacin, vancomycin and imipenem and with E-test an MIC of 0.008 μg/ml of ceftriaxone and 0.016 μg/ml of penicillin was observed. After agglutination with antisera (Statens Serum Institut, Copenhagen), serotype 3 was obtained, which fits with the macroscopic characteristics of the colony. The patient was discharged 24 hours after admission with oral levofloxacin.

The natural microhabitat of pneumococcus is the human nasopharynx, transmitted mainly through respiratory droplets. Infants and young children are the main reservoir of this agent, although colonised adults may also be used.[5] *S. pneumoniae* is not part of the usual vaginal microbiota, being isolated in the vaginal discharge in less than 1% of women,[2] meaning that cases of PID by pneumococcus are anecdotal. However, pneumococcus can access the vaginal mucosa due to contamination from the hands or oral-genital sexual practice.[6] Some of the factors that favour colonisation are: having an intrauterine device, use of tampons, recent gynaecological surgery and the postpartum, post-abortion and puerperium periods.[7] These conditions produce changes in the vaginal pH, temporarily allowing pneumococcus to exist as a commensal microbiota, although it can sometimes be complicated and evolve to peritonitis.[8] Other possible routes of access of pneumococcus to the genital tract may be the haematogenous spread and transmural infection through the gastrointestinal tract, which is infrequent since pneumococcus is rarely intestinal commensal. The clinical cases described in the literature agree that the most common form of clinical presentation is abdominal pain with predominance in the hypogastrium, increased vaginal discharge and fever. When PID is suspected, empirical antibiotic treatment based on levofloxacin, ceftriaxone, doxycycline and/or metronidazole should be given to cover the most frequently involved pathogens, and to avoid significant sequelae, as was done in this patient. The detection of pneumococcus and early treatment is necessary, since in many cases it can lead to a serious, complicated and potentially fatal septic event.[9]

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Candidemia and colonization by *Candida auris*, a diagnostic challenge☆

Candidemia y colonización por Candida auris*, un reto diagnóstico*

Candida auris is a yeast that was first described in Japan in 2009 from an exudate of the ear and which, in recent years, for unknown reasons, has emerged simultaneously in several continents.[1–3] Therefore, health alerts have been issued in different countries due to its resistance to multiple antifungals.[4,5]

Recently, at the Hospital La Fe in Valencia (Spain), the first cases in Europe were described of nosocomial fungemia caused by *C. auris*.[6] The objective of this letter is to communicate one case of candidemia and *one* of colonisation by *C. auris* in another Spanish hospital, geographically very far from the other, and with the peculiarity that in our centre the characteristics of transmissibility and virulence of this emerging pathogen did not coincide totally with those previously described in the literature.

In October 2016, a yeast was isolated in the blood cultures, catheter tip and urine of a patient admitted to the intensive care unit (ICU) of the Hospital Universitario Río Hortega of Valladolid, who presented with seizures during the course of a pneumonic process. The growth in chromogenic medium ID (bioMérieux) showed a colour similar to that of *Candida parapsilosis*. When trying to identify it through mass spectrometry (Vitek® MS MALDI-TOF, bioMérieux), although a quality spectrum was obtained, no results were obtained, since this yeast was not included in the database of the version used. Identification with the Vitek® 2 system (bioMérieux) was also attempted, with this *Candida haemulonii* with a 95% reliability. The strain was sent to the Microbiology Department of the Hospital Universitario La Paz in Madrid, where, with MALDI-TOF Bruker®, *C. auris* was obtained. However, the score was unsatisfactory (1.4). This identification was repeated several times using cultures of different ages (24 and 48 hours). Since neither of the two mass spectrometry systems provided adequate reliability, the strain was sent to the National Microbiology Centre for study by molecular methods.

Six weeks after the detection of the first isolates, a yeast of similar characteristics was isolated in a surveillance sample (axillary smear) of a patient also admitted to the ICU. It also could not be identified with Vitek® MS, and the Vitek® 2 system identified it as *C. haemulonii*. The strain was resent to the National Reference Centre and to the Hospital Universitario La Paz in Madrid. In this latter centre, the MALDI-TOF Bruker® system corroborated the isolate as *C. auris* yet again. This second patient presented with liver cirrhosis of autoimmune origin and had already died due to liver failure and septic shock when the yeast grew in the surveillance culture. Finally, at the National Microbiology Centre, the identification of both isolates was confirmed by sequencing as *C. auris*. Table 1 summarises the clinical characteristics of both patients.

We investigated retrospectively, from the month of admission of the first patient until the appearance of the second case, the rare *Candida* species identified by the Vitek® 2 system in our laboratory, and two other isolates from surveillance cultures were found, the result of which was *C. haemulonii*. Both belonged to patients admitted to the ICU, had been detected before the last case and were no longer hospitalised, so the identifications could not be confirmed, since the strains had not been stored. However, it is possible that both isolates were mistakenly taken as *C. haemulonii* and that they were actually two other cases of colonisation by *C. auris*. This assumption is based on the fact that the Vitek® MS system (MALDI-TOF) did not identify the yeasts and therefore the Vitek® 2 card was used, so the sequence of events was the same as in the two confirmed cases.

The determination of antifungal sensitivity of the two strains was carried out by the marketed broth microdilution method (Sensititre® Yeast One). The reading was made by changing the colour after 24 hours of incubation. The results are presented in Table 2. Of note are the high MICs of fluconazole obtained with respect to both strains (at present no cut-off points have been established by the Clinical and Laboratory Standards Institute or by the European Committee on Antimicrobial Susceptibility Testing for *C. auris*).

The first patient presented candidemia probably associated with the central catheter and was empirically treated with fluconazole for two days. Despite the resistance of the yeast to fluconazole, the clinical response was satisfactory, probably because the catheter was also removed. Subsequently, at discharge and for eleven days, posaconazole was administered orally. There were no positive blood cultures, since the candidemia cleared up when the central line was removed. The empirical antifungal treatment was established by clinicians of the Neurology Department, and when the final diagnosis was made, it had been days since the patient had received the medical discharge. After three months, the patient went to a follow-up consultation for his epilepsy. He was in good general condition and was given a new appointment for a six-month follow-up.

After seven months since the last case, no other case has been detected, yeasts with similar characteristics have not been isolated,

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