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Cartas científicas

Empiema intraventricular piogénico por *Veillonella parvula* en un recién nacido prematuro



Pyogenic intraventricular empyema owing to Veillonella parvula in a preterm infant

Los organismos anaerobios son causa excepcional de meningitis en recién nacidos prematuros¹. *Veillonella parvula* (*V. parvula*) forma parte de la flora normal de la orofaringe, tracto gastrointestinal y tracto genital femenino². El 20% de los neonatos están colonizados por *V. parvula* a las 4 semanas de vida³. Las meningitis por *V. parvula* son excepcionales⁴ y en lactantes solo se ha descrito un caso en un niño de 6 semanas de edad con un hoyuelo sacro con médula anclada⁵. Presentamos el primer caso de empiema intraventricular piogénico primario producido por *V. parvula* en un recién nacido prematuro.

Varón nacido a las 29 semanas de gestación con un peso de 1.350 g. Fruto de quinta gestación (3 abortos previos), controlada, que cursa con metrorragia en primer trimestre. No refiere sintomatología infecciosa urinaria ni vaginal. Parto eutócico a las 29 semanas. Apgar 8/9. A las 36 h de vida presenta shock hipovolémico secundario a hemorragia intraventricular grado III bilateral e infarto hemorrágico periventricular frontoparietal derecho que evoluciona a ventriculomegalia poshemorrágica por lo que se trata con punciones lumbares seriadas. A los 19 días presenta cuadro séptico que cursa con mala tolerancia de la alimentación y distensión abdominal, aislándose en hemocultivo *Staph. Staphylococcus haemolyticus* siendo tratado con meropenem. A los 41 días de vida es trasladado a nuestra Unidad de Cuidados Intensivos Neonatales presentando febrícula intermitente, fontanela tensa de 4 × 4 cm, un perímetro cefálico de 36 cm que aumenta 1,5 cm cada 2 días y distensión abdominal. En las pruebas de neuroimagen (ecografía cerebral transfontanelar y RM cerebral) se observa un aumento del tamaño del sistema ventricular más acentuado en el ventrículo derecho que presenta en su interior material que se comporta como hiperintenso en la imagen ponderada en difusión e hipointenso en el mapa del coeficiente aparente de difusión, y que hace efecto masa sobre hemisferio izquierdo desplazando línea media. Se coloca drenaje externo en el asta frontal del ventrículo lateral derecho por el que sale líquido amarillo-verdoso (leucocitos 73.700/microl, PMN 61%, mononucleares 39%, hematíes 136.000/microl, proteínas 1.950 mg/dl, glucosa 0 mg/dl). No se observa crecimiento en cultivos de LCR para bacterias aerobias y hongos, pero se identifica en 2 muestras de LCR *V. parvula* T X84005 mediante amplificación y secuenciación de un fragmento de aproximadamente 1.500 pares de bases del gen ARNr 16S en 2 muestras del LCR, utilizando los primers fd1 (5'-AGAGTTTGATCCTGGCTCAG-3') y rP2 (5'-ACGGCTACCTGTTACGACTT-3'). Las secuencias generadas se compararon con las existentes en la base de datos de GenBank,

usando el software BIBI (<http://pbil.univ-lyon1.fr/bibi>), obteniéndose una similitud del 99,5% con la secuencia de *V. parvula* T X84005. Se añadió metronidazol durante 8 semanas al tratamiento con meropenem que se había iniciado en el hospital de origen. En RM cerebral previa al alta se observa normalización del tamaño del sistema ventricular derecho con gran encefalomalacia quística del hemisferio cerebral ipsilateral.

Las infecciones por *V. parvula* son muy poco frecuentes en niños. Solo excepcionalmente produce infecciones del sistema nervioso central y, hasta la fecha, no se había descrito como causa de infección intraventricular en recién nacidos prematuros.

En algunos de los casos de infección del sistema nervioso central por otros gérmenes anaerobios descritos en neonatos, la puerta de entrada sospechada ha sido la bacteriemia tras una enterocolitis necrosante⁶. En nuestro caso es probable que el origen de la infección también haya sido intestinal tras el probable cuadro de enterocolitis necrosante que presentó a los 19 días de vida; si bien no se puede excluir que la bacteriemia se hubiera transmitido de forma vertical a partir de la colonización del tracto genital de la madre o de manera iatrogénica a través de las punciones lumbares realizadas para controlar la ventriculomegalia poshemorrágica.

A causa de su escasa frecuencia, no existen recomendaciones para el tratamiento del empiema intraventricular primario por anaerobios. Basándonos en los casos descritos en adultos se realizó de drenaje del LCR⁷ y tratamiento con metronidazol y meropenem⁸.

Este caso ilustra la importancia de obtener cultivos aeróbicos y anaeróbicos de LCR en casos de recién nacidos prematuros con infección del sistema nervioso central, sobre todo si existe el antecedente de enterocolitis necrosante, y enfatiza la utilidad de los métodos moleculares de identificación en aquellos infecciones por gérmenes de difícil cultivo

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Ruminococcus gnavus infection of a metal-on-metal hip arthroplasty resembling a pseudo-tumour in a 72 year-old woman with no intestinal symptoms



Infección por *Ruminococcus gnavus* de prótesis de cadera metal-metal asemejando un pseudotumor, en una mujer de 72 años sin síntomas intestinales

A 72-year-old woman was referred to the emergency department of a tertiary hospital under suspicion of left total hip infection and/or urinary infection. The patient complained of dysuria and left groin pain of several days duration, as well as temperature up to 39.5°C, with no trauma. She had been implanted with a metal-on-metal big-head total hip arthroplasty five years ago. Physical exam revealed pain with groin palpation and with passive motion, and she had difficulty to walk. Blood analysis showed 18,980 g/l leukocytes, 87% neutrophils, C-reactive protein 180 mg/l and procalcitonin 4.12 ng/ml. Intravenous empiric antibiotic treatment was begun with cephazolin 1 g/8 h, gentamycin 240 mg/24 h and clindamycin 600 mg/8 h. After 3 days urine culture yielded >100,000 CFU of *Klebsiella pneumoniae* and treatment was changed to oral amoxicillin-clavulanate 875 mg for 10 days. The patient improved clinically and returned to walk without hip or groin pain. Along the following two months she suffered three episodes of left hip dislocation treated conservatively with closed reduction under general anaesthesia. The radiographic control after the last episode showed incomplete reduction (lack of full seating of head inside cup). The total hip was surgically revised to a conventional metal-on polyethylene because of suspicion of pseudotumor interposition inside the joint.

One-stage uncemented exchange was performed, but only the acetabular cup and the femoral head were replaced. At the time of surgery, all biochemical parameters resulted normal. The removed periarticular tissue was examined histopathologically by microscopy to confirm the presence of a chronic inflammatory process with coagulation necrosis, hemosiderin and replacement of normal tissue with scar tissue. Five intraoperative specimens were obtained for microbiological purposes: three tissue samples of the periarticular and intraarticular granuloma/pseudotumour, the retired prosthetic components (big head and old acetabulum), and bone tissue from the reaming of acetabular bone.

Specimens were aseptically collected and sent for microbiological analysis and culture within 2 h. All samples were processed independently. Microscopic examination of the samples showed an absence of polymorphonuclear cells and/or microorganisms. Saline solution was added to the biopsies prior to homogenization. Ultrasonication of the removed prosthetic implants was performed. The resulting suspensions obtained were plated onto 5% sheep blood Columbia agar medium incubated at 36°C under aerobic and anaerobic conditions; onto Chocolate agar incubated at 37°C in a 5% CO₂ atmosphere; and onto Schaedler agar + 5% sheep blood, Pheniletanol blood agar and Schaedler Neomycin Vancomycin agar + 5% sheep blood incubated at 36°C under anaerobic conditions (all

media were from bioMérieux, Marcy l'Etoile, France). Additionally, 1 ml of the suspensions were injected into a pair of aerobic and anaerobic culture bottles BACTEC Plus Aerobic/F and Plus Anaerobic/F incubated for 7 days in a BACTEC 9240 Blood Culture System (Becton Dickinson Microbiology Systems, Sparks MD, USA).

Four samples yielded positive cultures after 3 days of direct incubation on anaerobic conditions: the three granuloma/pseudotumor samples and the sonicate from the prosthetic components. Microorganisms appeared as translucent small colonies and Gram staining showed short Gram-positive diplococci. Few colony forming units grew from the direct solid medium and positive cultures were also obtained from anaerobic bottles from the granuloma/pseudotumor samples and from the prosthesis sonicate; the same colonies appeared in the subcultured anaerobic plates after 48 h.

The microorganism was identified as *Ruminococcus gnavus* (score: 2.2) by matrix-assisted laser desorption/ionization time of flight mass spectrometry, Maldi-TOF MS (Maldi Byotyper 3.0 System, Bruker Daltonics GmbH, Leipzig, Germany). The test was confirmed twice with the same result. Susceptibility of *R. gnavus* to antimicrobial agents was performed using agar diffusion epsilometer testing (Oxoid, Basingstoke, UK) on 5% sheep blood Columbia agar medium at 37°C in anaerobic atmosphere. Minimum inhibitory concentrations (MIC) were determined for penicillin (MIC=0.064 µg/ml), tigecycline (MIC=0.064 µg/ml), vancomycin (MIC=0.19 µg/ml) and linezolid (MIC=1.5 µg/ml). It was also tested against amoxicillin-clavulanic acid, meropenem, clindamycin and metronidazole but results could not be interpreted due to a contamination and the strain could not be recovered from the frozen vial. According to the European Committee on Antimicrobial Susceptibility Testing criteria, the isolate was found to be susceptible to penicillin and vancomycin.

Intravenous empiric antibiotic treatment was begun with cephazolin 1 g/8 h, gentamycin 240 mg/24 h and clindamycin 600 mg/8 h during the immediate post operative period. Seven days later, de-escalation was done and oral clindamycin 600 mg/8 h along 6 months was prescribed by treating orthopaedic surgeries according to the protocols established in the Hospital.¹ At last revision in out-patient clinic (10 months post-surgery), erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) resulted normal, the patient was absolutely asymptomatic, did not need any walking aid, climbed stairs and used public transportation, was able to walk up to 1 km without stopping, and showed no signs of left hip prosthesis dysfunction.

R. gnavus is a strictly anaerobic Gram-positive non-spore-forming coccus that may be motile or non motile. It belongs to the Clostridia class of the Firmicutes division. *R. gnavus* is found to be part of the intestinal flora in humans and in the rumen of animals such as sheep, cattle and goats.²

The only previously described human infections were two cases of bacteremia associated with diverticulitis in men,³ one case of total hip arthroplasty infection in a man with ulcerative colitis,⁴ and one case of septic arthritis⁵; all these infections were described