



# Enfermedades Infecciosas y Microbiología Clínica

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Diagnosis at first sight

## Bacteraemia in a two month-old infant<sup>☆</sup>



Bacteriemia en lactante de 2 meses

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### Case report

A two-month-old male admitted to the paediatric ICU following cardiorespiratory arrest. The parents report previous episode of hypotonia and facial flushing after breastfeeding, along with epistaxis, decreased level of consciousness and shallow breathing, so they decided to call SUMMA (*Servicio de Urgencias Médicas de Madrid* [Madrid Ambulance Service]), who performed advanced cardiopulmonary resuscitation for 20 min.

On admission, the patient was in a coma, with fixed, dilated pupils. Laboratory tests showed: 7900 leucocytes/mm<sup>3</sup>, 2240 neutrophils/mm<sup>3</sup>, 5530 lymphocytes/mm<sup>3</sup>, CRP < 2.9 mg/l and PCT 0.07 ng/ml. Samples were taken for blood cultures and antibiotic therapy was started with intravenous cefotaxime 200 mg/kg/day and intravenous metronidazole 150 mg/kg/day. In the end, a neurological examination was performed and the brain death of the patient was certified with the diagnosis of sudden death.

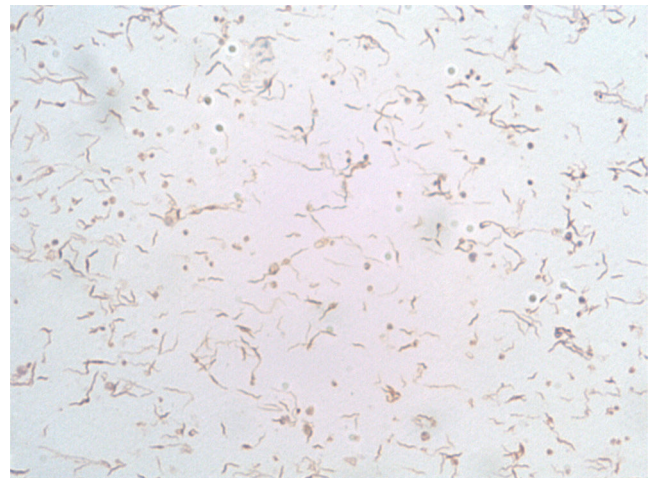


Fig. 1. Gram stain.

### Microbiology results

Blood cultures were inoculated into two BD BACTEC Peds Plus bottles, which were incubated in the BACTEC FX automated system (Becton, Dickinson) under standard conditions. Both bottles were positive after incubation for 150 h, and were subcultured in blood agar and chocolate agar and incubated for 48 h at 37 °C in a CO<sub>2</sub>-enriched atmosphere. Gram staining showed thin, curved Gram-negative bacilli (Fig. 1). After 48 h, in the absence of growth in solid culture bottles were subcultured in CPD agar (blood agar with *Helicobacter pylori* selective supplement Dent) at 37 and 42 °C in microaerophilic atmosphere. After incubating for 7 days, growth was observed in the spread plates at 37 °C (Fig. 2).



Fig. 2. Culture.

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The definitive identification was performed by sequencing the 16s rRNA gene, after which the microorganism was identified as *Helicobacter canis*.

#### Final comment

*Helicobacter canis* is a gram-negative, curved, oxidase-positive, catalase- and urease-negative bacillus which can grow on bile but does not reduce nitrates to nitrites, nor does it hydrolyse hippurate. It requires a microaerophilic atmosphere at 37–42 °C to grow.

Six episodes of *H. canis* infections in humans have been reported to date. The first two published cases were of bacteraemia secondary to multifocal cellulitis.<sup>1,2</sup> The third was a case of intermittent fever in a seven-month-old immunocompetent girl,<sup>3</sup> while the fourth was of *H. canis* bacteraemia in a patient on chemotherapy.<sup>4</sup> The next case was reported in 2011 by Tankovic et al.<sup>5</sup> in a patient with Crohn's disease, and the most recent was published in 2012, with *H. canis* isolated in a blood culture from a patient with fever without a source.<sup>6</sup>

In four of the six published articles, the patients had contact with dogs or cats, which are the main reservoirs of this microorganism, as demonstrated by Stanley et al.<sup>7</sup> who isolated it in their faeces. We were unable to confirm contact with dogs or cats in our case.

Although we obtained the final identification through molecular biology, it is important to note that the Gram staining guided us towards spreading the sample onto plates and using suitable environmental conditions to facilitate its growth in solid medium.

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None.

#### Conflicts of interest

None.

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