

Chronic simple otitis media due to *Vibrio alginolyticus*[☆]



Otitis media crónica simple por *Vibrio alginolyticus*

Simple chronic otitis media (SCOM) is a disease characterised by chronic inflammation of the mucosa of the middle ear and mastoids, tympanic membrane perforation and otorrhoea. Unlike acute otitis media, it is not accompanied by otalgia or fever. It is a rare health condition in developed countries and is a cause of childhood hearing loss in socially disadvantaged populations.

We present the case of a 15-year-old male with a history of bilateral tympanic membrane perforation since he was 16 months old, mild conductive hearing loss, and subclinical hypothyroidism. He had a recent history of a holiday, where he stayed on the island of Menorca and swam in the sea. Three weeks after his return, he went to his primary care doctor due to symptoms of bilateral otorrhoea lasting approximately one month, without accompanying fever. Physical examination revealed mucoid otorrhoea in both external auditory canals without apparent fungal superinfection. Topical antibiotic treatment was started with ciprofloxacin 1 mg/0.5 ml (one drop every eight hours for six days), with no clinical improvement and persistent discharge from both ears, so a sample of ear exudate was collected for aerobic and fungal culture. The sample was sent to the hospital's microbiology laboratory for processing.

At 24 h of incubation, numerous colonies with a mucous and shiny appearance, brownish in colour and with discreet swarming effect, grew in pure culture (Fig. 1) in blood agar and chocolate agar (Becton Dickinson®, Spain) incubated in an atmosphere enriched with CO₂. Culture media did not contain additional nutritional supplements. The oxidase test was positive and the Gram stain showed pleomorphic gram-negative bacilli, showing bacillary, coccobacillary and coccoid forms (Fig. 1). The microorganism was identified as *Vibrio alginolyticus* by mass spectrometry (MALDI-TOF, Bruker®, Beckman Coulter®) with a score of 2.11. The microorganism was sensitive to amoxicillin/clavulanic acid ($\leq 2/1$ mg/l), gentamicin (≤ 2 mg/l), tobramycin (≤ 2 mg/l), ciprofloxacin (≤ 0.25 mg/l), levofloxacin (≤ 0.12 mg/l) and trimethoprim/sulfamethoxazole ($\leq 2/38$ mg/l) (MicroScan® WalkAway System, panel EN51, Beckman Coulter), following the *European Committee on Antimicrobial Susceptibility Testing* (EUCAST) 2021 criteria for *Enterobacterales*. Culture for fungi was negative after 48 h of incubation.

With this microbiological result, the patient was assessed by an ENT specialist and started antibiotic treatment with amoxi-

cillin/clavulanic acid 500/125 mg (one tablet orally every eight hours for seven days) and with ciprofloxacin/fluocinolone acetonide 3/0.25 mg/mL in ear drops (six-eight drops/day for five days). The otorrhoea subsided in both ears.

SCOM in childhood it is a potentially serious condition, so it is important to make an accurate aetiological diagnosis to start targeted and early antibiotic treatment. In the case presented here, the relationship between the aetiological infectious agent and exposure to seawater with its high salt content is documented in the literature, as well as the requirement for the existence of an underlying otic pathology that facilitates infection.^{1–5}

V. alginolyticus is the most halotolerant species of the genus, requiring a minimum NaCl concentration of 1% for optimal growth. This microorganism is not part of the usual saprophytic microbiota of the upper respiratory tract, so its acquisition is by direct contact with seawater or its derivatives, as in the case of our patient. The incubation period of ear infection from aquatic immersion to the onset of symptoms is highly variable, with some cases described with a latency between exposure and disease of up to seven months.³ The clinical manifestations are very similar to those of otitis caused by other more prevalent microorganisms such as *Pseudomonas aeruginosa*, *Staphylococcus aureus* or *E. coli*. Presentation in children and monomicrobial aetiology due to *V. alginolyticus* is extremely rare in our setting, and very few cases have been described in Spain to date. Cases of otitis media have been documented where this microorganism has been isolated together with others, such as coagulase-negative staphylococci, diphtheroids and *Moraxella catarrhalis*,^{2,3} and the clinical symptoms and duration of the infectious process do not vary between one type of infection or another.

Regarding antibiotic sensitivity, on an ongoing basis, this microorganism is sensitive to quinolones, macrolides, third-generation cephalosporins, and trimethoprim/sulfamethoxazole, as well as aminopenicillins with beta-lactamase inhibitors.^{1–4} Therefore, once the targeted antibiotic treatment has been started, the clinical evolution is always satisfactory.

In this paper we found the limitation of not having an identification of the microorganism through a molecular method, although the degree of precision obtained through MALDI-TOF was adequate for the genus and species, with a high score (>2.0).

To conclude, it is important to consider *V. alginolyticus* in the microbiological diagnosis of ear infections in those patients who have a history of exposure to seawater and underlying ear pathology.

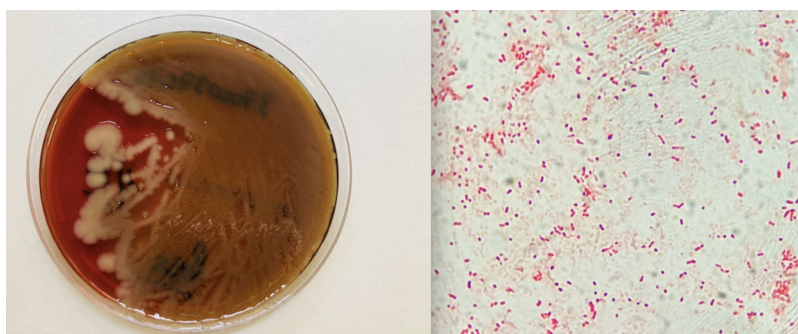


Figure 1. Left: appearance of the colonies after 24 h of incubation in blood agar medium and CO₂ enriched atmosphere. Right: pleomorphic gram-negative bacilli on Gram stain.

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- M. Paula Fernández-Sarratea^{a,*}, Alicia Beteta-López^a, Patricia Ezcurra-Hernández^b, Víctor Vinuesa-Velasco^a
- ^a Sección de Microbiología, Hospital General Nuestra Señora del Prado, Talavera de la Reina, Spain
^b Servicio de Otorrinolaringología, Hospital General Nuestra Señora del Prado, Talavera de la Reina, Spain
- * Corresponding author.
 E-mail address: mpfersar@gmail.com
 (M. Paula Fernández-Sarratea).
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Sphingomonas paucimobilis meningitis in an immunocompetent patient



Meningitis por *Sphingomonas paucimobilis* en un paciente inmunocompetente

The genus *Sphingomonas* belonging to the *Sphingomonadaceae* family (phylum Alphaproteobacteria), contains 139 species (<https://lpsn.dsmz.de/genus/sphingomonas>). However, only *Sphingomonas paucimobilis* (*S. paucimobilis*) and *Sphingomonas parapaucimobilis* (*S. parapaucimobilis*) are considered clinically relevant. *S. paucimobilis* has been found in water and soil and is considered an opportunistic pathogen.¹ However, it can cause infections in immunocompetent individuals. It has been detected mainly in intravenous catheters, mechanical ventilators, nebulizers, contaminated solutions, and dialysis devices in hospital settings.¹ We present a case of meningitis due to this unusual microorganism; only six cases in adult patients have been reported to date.^{2–7} Our patient had hydrocephalus as a complication; nevertheless, he had a satisfactory recovery.

A 30-year-old, previously healthy male student with no risk factor for infectious diseases, presented with headache and vertigo that persisted for 7 days. He received an otorhinolaryngological evaluation and was treated for suspected bacterial pharyngitis with penicillin without improvement. A few days later, the patient started with behavioral disturbances, and neck pain. His vital signs upon admission were as follows: blood pressure: 140/80 mmHg, pulse: 102 bpm, and temperature: 37.2 °C; a neurological examination revealed neck stiffness.

A blood test showed the following results: white cell count, $14.2 \times 10^9/L$; neutrophils, $13.5 \times 10^9/L$; lymphocytes, $1.3 \times 10^9/L$; hemoglobin, 15.4 g/L; platelets, $252 \times 10^9/L$; erythrocyte sedimentation rate, 35 mm/h; C-reactive protein, 6.92 mg/dL. Blood chemistry test results showed no significant alterations; serological tests for human immunodeficiency virus, hepatitis B and C viruses, and urine toxicology tests were negative.

Empiric antibiotic therapy was prescribed, with ceftriaxone 4 g daily, vancomycin 30 mg/kg/day, and acyclovir 10 mg/kg as meningoencephalitis was suspected. Cranial computed tomography (CT) results did not show relevant findings, and to rule out other sources of infection, a thoracoabdominal CT was performed, which was normal. After a lumbar puncture, the following were observed: clouded fluid; white blood cell count, $165/mm^3$; neutrophils, 97%; glucose, 11 mg/dL; protein, 1110.2 mg/dL. Cerebrospinal fluid (CSF) India ink staining was negative; however, Gram-staining showed

gramnegative rods. Therefore, the antibiotic treatment was changed to meropenem (6 g daily). The CSF was seeded on sheep blood agar and after 48 h, yellow-pigmented flat colonies with irregular, watery, and slippery shapes with a tendency to converge were observed. Microbial identification using VITEK®2 Compact 60 with the GN ID card reported *S. paucimobilis*. The susceptibility test was performed by the VITEK®2 Compact 60 with the GN69 susceptibility card, based on the breakpoints of the current Clinical and Laboratory Standards Institute document M100,⁸ showing the following results: resistance to ceftriaxone, cefepime, and aztreonam with minimal inhibitory concentration (MIC) $\geq 64 \mu g/mL$; susceptibility to piperacillin/tazobactam ($\leq 4/4 \mu g/mL$), meropenem ($\leq 0.25 \mu g/mL$), amikacin ($\leq 2 \mu g/mL$), gentamicin ($\leq 1 \mu g/mL$), tobramycin ($\leq 1 \mu g/mL$), ciprofloxacin ($1 \mu g/mL$), tigecycline ($\leq 0.5 \mu g/mL$), and trimethoprim/sulfamethoxazole ($\leq 1/20 \mu g/mL$).

On hospitalization day 8, the patient's condition deteriorated, and he developed symptoms suggestive of intracranial hypertension. CT imaging of the brain revealed hydrocephalus, requiring a subsequent ventriculoperitoneal shunt. After 2 weeks of antibiotic treatment, another lumbar puncture was performed. CSF cultures were negative. He was discharged from the hospital after a 14-day-long course of meropenem. His mental function returned to normal, and he was sent for physical rehabilitation. After 5 weeks of follow-up, he was asymptomatic and reinstated to his normal activities.

S. paucimobilis is a strictly aerobic, gramnegative bacillus with weak oxidase and catalase activities, and has slow motility because of a single polar flagellum. *S. paucimobilis* grows well on non-selective media, such as blood agar and chocolate agar, although it does not grow on MacConkey agar.⁹ After 24 h of incubation on a blood agar medium, their colonies are small, approximately 1 mm in diameter, convex, smooth, and produce a yellow insoluble pigment. Notably, its susceptibility to vancomycin is unusual in gramnegative non-fermenting rod-shaped bacteria. This microorganism has been isolated from blood, sputum, urine, bile, and CSF, among others, in patients with risk factors, such as malignancy, chronic kidney disease, diabetes mellitus, immunosuppressive drug usage, and alcoholism.¹⁰

Our patient did not have any risk factors associated with *S. paucimobilis* infection; nevertheless, as *S. paucimobilis* is ubiquitous in soil and water, they could be likely sources. The patient's clinical presentation suggested meningitis without other foci of infection, while most other reported cases of *S. paucimobilis* meningitis did not show another source and presented the classic triad