was well tolerated. After 2 weeks of hospitalization the patient was discharged with oral voriconazole. At the follow-up visits, he remained afebrile, with complete resolution of the ear pain, but with a mild temporal headache. Treatment with voricozale monotherapy was continued.

A myringotomy and transtympanic drainage in left ear were performed, obtaining retrotympanic mucus. After the procedure, the patient's hearing loss was reversed, and there was complete resolution of the temporal headache. The patient recovered after 6 months of treatment with voriconazole and without the need for surgical debridement. The study was completed 18 months after diagnosis using MRI (Fig. 1B), which showed that the middle ear was no longer occupied and that there was no enhancement of the originally affected tissues.

The usual clinical course of fungal MEO includes painful inflammation of the external ear canal, associated with purulent otorrhea and granulation polyps. Otalgia is the presenting symptom in 75% of cases and purulent otorrhea in 50–80%.[3] Cranial nerve neuropathies are also seen, with particular involvement of the facial nerve.

Histologically, granulation tissue is characterized by nonspecific inflammation with inflammatory cell infiltration and hyperplasia of squamous epithelium.[3]

It can be confused with bacterial MEO that is caused by P. aeruginosa, and as a result, the diagnosis of fungal disease is often delayed. Suspicion of fungal MEO should be raised if recurrence or no response to appropriate antimicrobial therapy.[3]

However, Aspergillus is also frequently isolated from external auditory canal smears and diagnosis of fungal MEO should be based on culture biopsy or histopathologic confirmation.[2,3]

Aspergillus MEO requires long-term antifungal therapy in association with appropriate management of the underlying condition, which is usually DM. In addition, prompt surgical debridement consisting of radical mastoidectomy is required in many cases.[1–3]

Prolonged voriconazole use is an effective treatment for Aspergillus MEO. However, surgical debridement is still necessary for refractory and invasive Aspergillus MEO.[4]

In another series of 14 patients with MEO that was caused by *Aspergillus* spp, only two patients relapsed after 4 and 8-week treatments with voriconazole.[2]

There is no consensus on the antifungal treatment duration; patients usually receive 6–8 weeks of antifungal therapy or more if clinical examination or imaging follow-up supports extending the treatment.[4,5]

## Bibliografía


1. Clark JH, Lin FR, Salaria SN, Matthew Stewart C, Francis HW. Temporal bone histopathology case of the month malignant otitis externa caused by *Aspergillus fumigatus*: a case report. Otol Neurotol. 2011;32:e22Ye23.
2. Marchionni E, Parize P, Lefevre A, Vironneau P, Bougnoux ME, Poiree S, et al. *Aspergillus* spp. invasive external otitis: favourable outcome with a medical approach. Clin Microbiol Infect. 2016;22:434–7, http://dx.doi.org/10.1016/j.cmi.2015.12.027.
3. Ho HC, Hsiao SH, Lee CY, Tsai CC. Treatment of refractory *Aspergillus otomycosis* with voriconazole: case series and review. J Laryngol Otol. 2014;128:547–51, http://dx.doi.org/10.1017/S0022215114001273.
4. Moniot M, Montava M, Ranque S, Scemama U, Cassagne C, Arthur V. Malignant *Aspergillus flavus* otitis externa with jugular thrombosis. Emerg Infect Dis. 2019;25:830–2, http://dx.doi.org/10.3201/eid2504.180710.
5. Parize P, Chandesris MO, Lanternier F, PoirEE S, Viard JP, Bienvenu B, et al. Antifungal therapy of *Aspergillus invasive* otitis externa: efficacy of voriconazole and review. Antimicrob Agents Chemother. 2009;53:1048–53, http://dx.doi.org/10.1128/AAC.01220-08.



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## First isolation in Spain of *Paracoccus sanguinis* in blood cultures

### *Primer aislamiento en España de* Paracocus sanguinis *en hemocultivos*

The genus *Paracoccus* comprises a group of bacteria that includes more than 40 species, the majority of which are recovered from environmental sources such as soil, mud, sludge, or groundwater.[1] To date, only *Paracoccus yeeii* has been isolated from clinical specimens.[2] A new species, *Paracoccus sanguinis*, was recently identified, with the strains being recovered from blood samples.[3] Few human infections have been attributed to this microorganism. We describe the isolation of this microorganism in the blood of a premature newborn. To our best knowledge, this is the first report on the isolation of *P. sanguinis* in Spain.

The mother gave birth at 32 weeks by elective cesarean section due to multiple gestation. After the delivery, the newborn rapidly developed respiratory distress that required intermittent positive pressure ventilation for three minutes, and she was immediately transferred to the neonatal ICU to receive continuous positive airway pressure. The medical history of the mother was only remarkable for a positive *Streptococcus agalactiae* screening, with no administration of antimicrobial prophylaxis. Physical examination of the newborn was unremarkable, and transfontanellar ultrasound showed no abnormalities. However, chest-X ray revealed a diffuse granular pattern that disappeared on the third day of admission.

At the delivery, blood analysis results were normal except for a high peripheral leucocyte count (19,120/mm$^3$). A pediatric blood culture (BD BACTEC Peds Plus$^{TM}$, Becton Dickinson, Sparks, MD) was drawn and sent to the microbiology laboratory for processing. At this time, empirical therapy was initiated with ampicillin (100 mg/kg/6 h) plus gentamicin (4 mg/kg/day). This treatment was stopped after 48 h, because no clinical signs of infection were observed. The sample was inoculated onto the BACTEC FX 40 (Becton Dickinson, Franklin Lakes, NY) monitorization system for culture. On day 4 of incubation, the blood culture was found to be positive. The sample was subcultured in aerobic blood agar (BD Columbia Agar with 5% Sheep Blood, Becton Dickinson, Franklin Lakes, NY) and chocolate agar (BD Chocolate agar, Becton Dickinson). The plates were incubated at 37 °C in an atmosphere of 5% $CO_2$. Gram staining of the blood cultures exhibited abundant Gram-negative rods and, on the second day of incubation, abundant circular, convex, moist, pale yellow non-hemolytic colonies were observed in

pure culture on both plates. These colonies proved to be catalase- and oxidase-positive. Application of MALDI-TOF MS version 9 (8468 msp) (Bruker Biotyper, Billerica, MA) was not able to identify the strain. Only three *Paracoccus* species have inputs in its database (*P. dentrificans*, 1; *P. versutus*, 2; and *P. yeei*, 7). No other identification system was applied for this strain, and the isolate was submitted to the National Center of Microbiology (ISCIII, Madrid, Spain) and identified by means of 16S rRNA sequence analysis using a previously reported method.[4] The obtained fragment of 1382 bp showed 99.93% similarity (1358/1359 nucleotides) with *P. sanguinis* strain 05503 (GenBank accession number NR_135883.1), with only one discrepant nucleotide (1345A→G). The sequence was deposited in GenBank under accession number MT827286.

Antimicrobial susceptibility testing was performed by Etest®, obtaining the following MIC values: amikacin (0.25 mg/L), cefepime (0.5 mg/L), piperacillin-tazobactam (<0.016 mg/L), ceftazidime (0.75 mg/L), meropenem (0.012 mg/L), ertapenem (0.006 mg/L), gentamicin (0.023 mg/L), tobramycin (0.125 mg/L), ciprofloxacin (0.003 mg/L) and colistin (0.75 mg/L). To date, neither EUCAST nor CLSI have defined breakpoints for this microorganism, but this isolate seemed to be susceptible to all antimicrobials tested when EUCAST breakpoints for *Pseudomonas* spp. or *Acinetobacter* spp. were applied.

The clinical course of the newborn was favorable, and she was discharged one month later.

*P. sanguinis* is a facultative anaerobe Gram-negative rod of 0.5–1 mm that appears in pairs or chains in the Gram stain and, to our knowledge, it has not been associated with human infection to date. We report the first case of bacteremia due to *P. sanguinis* isolated in pure culture in Spain. A key question related to this case report is whether the isolate corresponds to a true pathogen, given the delayed growth of the bacterium (after 4 days of incubation) and the recovery of the patient in absence of a specific treatment, although the patient previously received ampicillin plus gentamicin, according to the treatment protocol for respiratory distress in premature newborns. The *Paracoccus* genus is a microorganism of low pathogenicity and mainly causes infections in immunocompromised patients, such as premature newborns.

MALDI-TOF MS can be highly useful for the identification of bacteria and the detection of new species responsible for infections. However, in some circumstances, as in the present case, it yields no results. Frequent updating of MALDI software update is recommended to introduce new inputs and to optimize the diagnosis of new microorganisms that can cause potentially severe infections. In the meantime, species identification must be confirmed using other diagnostic techniques such as 16S rRNA gene sequencing.

In conclusion, this is the first report of *P. sanguinis* isolated in pure culture as a cause of bacteremia and indicates that this new pathogen could be responsible for human infections. This case highlights the need to confirm results when MALDI-TOF scores are inadequate.

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## Conflict of interest

Authors declare no conflict of interest.

## Bibliografía

1. Kelly DP, Rainey FA, Wood AP. The genus *Paracoccus*. In: Dworkin M, Falkow S, Rosenberg E, Schleifer KH, Stackebrandt E, editors. The Prokaryotes: a handbook on the biology of bacteria. 3rd ed. New York: Springer; 2006.
2. Daneshvar MI, Hollis DG, Weyant RS, Steigerwalt AG, Whitney AM, Douglas MP, et al. *Paracoccus yeeii* sp. nov. (formerly CDC group EO-2), a novel bacterial species associated with human infection. J Clin Microbiol. 2003;41:1289–94.
3. McGinnis JM, Cole JA, Dickinson MC, Mingle LA, Lapierre P, Musser KA, et al. *Paracoccus sanguinis* sp. nov., isolated from clinical specimens of New York State patients. Int J Syst Evol Microbiol. 2015;65:1877–82.
4. Drancourt M, Bollet C, Carlioz A, MartelinR GJP, Raoult D. 16S ribosomal DNA sequence analysis of a large collection of environmental and clinical unidentifiable bacterial isolates. J Clin Microbiol. 2000;38:3623–4530.

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## Bacteriemia secundaria por *Kingella kingae* asociada a gingivoestomatitis herpética

## *Occult bacteremia due to* Kingella kingae *associated with herpetic gingivostomatitis*

*Sr. Editor:*

Presentamos el caso de una lactante de 18 meses de edad, previamente sana, que acude a urgencias de nuestro hospital por un cuadro de 48 h de fiebre, decaimiento y lesiones en la mucosa oral. En la exploración presentaba temperatura axilar de 38,5 °C, auscultación cardiopulmonar normal, sin visceromegalia, reactantes de fase aguda normales, no mostraba exantema y no mostraba alteraciones neurológicas. Se solicitó urocultivo, que fue negativo, y hemocultivo. Se realizó punción lumbar, y los análisis citoquímico y microbiológico del líquido cefalorraquídeo fueron normales. No se realizó cultivo de las lesiones orales. Se hospitalizó a la paciente con un diagnóstico compatible con gingivoestomatitis herpética y se instauró tratamiento con cefotaxima y aciclovir. A las 48 h se positivizó el hemocultivo, donde se observó crecimiento de un cocobacilo gramnegativo que se identificó como *Kingella kingae*. La niña no presentó signos de infección osteoarticular ni cardiológicos, y el hemocultivo de control a los 4 días fue negativo. Al cabo de 5 días se suprimió el tratamiento con cefotaxima i.v., completando una semana adicional con amoxicilina-ácido clavulánico oral a domicilio durante 5 días. Durante los siguientes 6 meses no hubo recidiva del proceso.

En la actualidad *K. kingae* es el patógeno más frecuente causante de artritis séptica en niños menores de 2 años[1]. En este grupo de edad se ha descrito que el 10% de los niños son portadores orofaríngeos de esta bacteria[2]. En estos niños portadores la invasión de la mucosa respiratoria y su acceso al tejido esquelético, a través del sistema circulatorio, se vería favorecida por la destrucción de