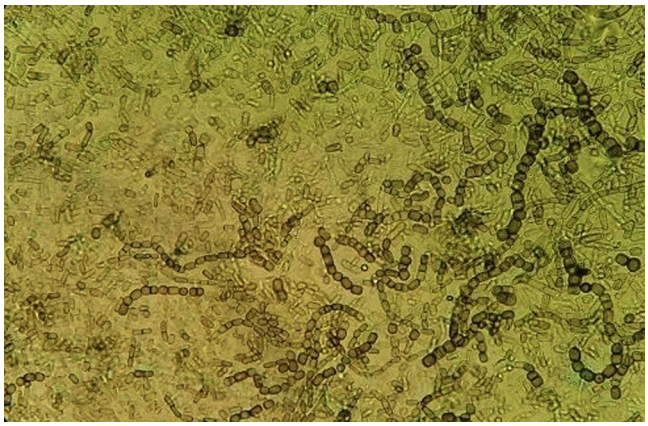

Fig. 2. *N. dimidiatum* arthroconidia, as observed under the microscopic.

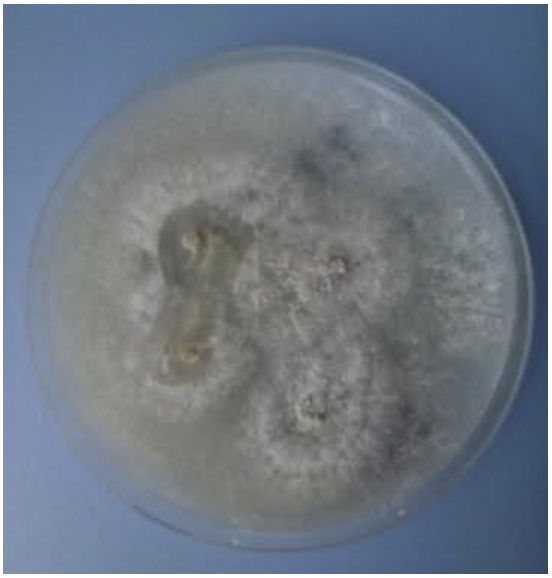

Fig. 3. *N. hialinum* colony in Potato Dextrose Agar.

residents in Spain, and had travelled to endemic areas. Its frequency in Spain is low,[3] although an increase has been observed in recent years mainly due to increased immigration from endemic areas, increased tourist travel to these areas and also due to improved clinical and microbiological diagnosis of ringworm caused by non-dermatophyte fungi. The increase in cases of this fungus leads us to believe it is a causing agent of nail and skin infections.

It must be considered that for the isolation of this dematiaceous, a medium without actidione must be used. Thus, adequate processing of the sample in the laboratory will help ensure this pathogen is not overlooked.

Moreover, skin lesions caused by *Neoscytalidium* are clinically indistinguishable from dermatophytosis (ringworm)[3,4]; hence the initial empiric treatment of choice is usually terbinafine. However, while this fungus is sensitive to various antifungal agents *in vitro* – including terbinafine – *in vivo* the response is quite low, particularly in ungual infections.[4,5] Treatment with topical azoles (isoconazole, clotrimazole) and amphotericin B solution, they tend to be more responsive, especially in lesions that do not affect nails.[5]

In conclusion, we would like to highlight the increasing isolation of unusual fungi in our environment and whose suspicion will help in the etiologic diagnosis of dermatomycosis.

Conflict of interest

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First description of late recurrence of catheter-associated bacteraemia due to *Cellulosimicrobium cellulans*

Primer caso de bacteriemia asociada a catéter con recurrencia tardía debido a Cellulosimicrobium cellulans

Cellulosimicrobium cellulans (formerly *Oerskovia xanthineolytica*), a nocardia-like bacillus widely distributed in the environment, is rarely associated with human infections.[1] Cases reported so far in the literature are mostly related with the presence of foreign bodies in immunocompromised patients.[2] We describe a case of long-term recurrent catheter infection by *C. cellulans*.

A 59-year-old woman with rectal adenocarcinoma and lung metastases, treated with bevazizumab through a Port-a-Cath™, presented to the emergency department with a 24-h history of fever. On examination, her temperature was 37.8 °C and diffuse abdominal pain, related to current treatment, was observed. Inflammatory signs were not observed in catheter's insertion. C-reactive protein (CRP) levels were elevated (63.4 mg/L) with

Table 1
Clinical and microbiological characteristics of the 22 cases of *C. cellulans* infections reported up to date.

Reference	Age/Sex	Basal condition	Type of infection	Foreign body/ removal	Antibiotic therapy	Antimicrobial resistance	Clinical outcome
Hussain, 1987	47, M	None	Endophtalmitis	Metallic piece/Yes	AFB + GEN → PEN → CFL	CDA, GEN	+
Kailath, 1988	38, F	Ventricular shunt	Meningitis	Shunt/Yes	PEN + RIF	None	+
Rihs, 1990	70, M	ESRD	Peritonitis	PC/Yes	VAN + GEN	GEN, ERO, CDA, CTX, DOX, CFT	+
Truant, 1992	40, M	Cirrhosis	Bacteraemia	None	CFT + CDA → CFT + VAN → +GEN	ERO, CDA, GEN	+
McDonald, 1994	54, F	Solid organ cancer	Bacteraemia	CVC/No	CXM → VAN	PEN, AMP, OXA	+
Funke, 1995	72, M	Cholecystitis	Bacteraemia	ERCP	FOX	PEN, ERO, CDA, GEN, CIP	+
Funke, 1995	53, F	Arthropathy	Soft tissue infection	Intramuscular Injections	DOX	PEN, ERO, CDA, GEN, CIP	+
Maguire, 1996	49, F	Solid organ cancer	CRB	CVC/No	VAN	Unknown	+
Harrington, 1996	72, M	Knee prosthesis	Prosthetic joint infection	Prosthesis/Yes	VAN + SXT	PEN, ERO, CDA, SXT, CIP	+
Shah,1996	28, F	None	Keratitis	Contact lens/Yes	GEN + CFZ	ERO, SXT	+
Borra, 1996	59, F	ESRD, DM	Peritonitis	PC/No	VAN + TOB → DOX	PEN	+
Ellerbroek, 1998	53, F	Lymphoma in BMT	CRB + endocarditis	CVC/Yes	DOX → CDA → MER → AMX + SXT → PEN	CFT	-
Lujan-Zilbermann, 1999	13, F	ESRD	Peritonitis	PC/No	VAN	PEN, AMP, OXA, CFT, CDA, TOB	+
Niamut, 2003	64, F	Immunocompromised	Bacteraemia	None	P/T → +NET → NET + VAN→ P/T	PEN, ERO, NET, TET	+
Urbina, 2003	31, M	Renal transplant, ESRD	Endocarditis	None	VAN + A/S	PEN, AMP, CFT, CDA	+
Heym, 2005	48, M	HIV +	Chronic tongue ulcer	None	AZT + PEN	None	+
Rowlinson, 2006	13, M	Short-bowel syndrome	CRB	CVC/No	VAN → +RIF	CFT, CTX, CDA	+
Yilmaz, 2006	44, M	Ventricular shunt	Meningitis	Shunt/Yes	VAN + RIF	Unknown	+
Tucker, 2008	5, M	None	Pyogenic flexor tenosynovitis	None	CFL → SXT + RIF	CFZ, CIP	+
Casanova-Román, 2010	0, M	None	Neonatal sepsis	None	CTX + AMP → VAN	PEN, AMP, CTX, ERO, CDA, CIP	+
Haydushka, 2010	0, M	Premature	Pneumonia	None	GEN + CTX	PEN, AMP, CIP, RIF, TET, CTX, CDA	-
Magro-Checa, 2011	81, M	Chronic renal disease, HT	Septic Arthritis	Palm tree thorn/Unknown	LEV → VAN	None	+
Kim, 2015	50, F	ESRD	Peritonitis	PC/Yes	CAZ + CFZ → TOB + CAZ → +VAN → VAN	CFZ	+

Abbreviations: F: female, M: male, BMT: bone marrow transplantation, DM: diabetes mellitus, ESRD: end-stage renal disease, HIV: human immunodeficiency virus, CVC: central venous catheter, ERCP: endoscopic retrograde cholangiopancreatography, AFB: amphotericin B, AMP: ampicillin, AMX: amoxicillin, A/S: ampicillin-sulbactam, AZT: azithromycin, CAZ: ceftazidime, CDA: clindamycin, CIP: ciprofloxacin, CFL: cephalexin, CFT: ceftriaxone, CFZ: cefazolin, CRB: catheter-related bacteraemia, CTX: cefotaxime, CXM: cefuroxime, DOX: doxycycline, ERO: erythromycin, FOX: cefoxitin, GEN: gentamicin, HT: hypertension, LEV: levofloxacin, MER: meropenem, NET: netilmicin, OXA: oxacillin, PEN: penicillin, PC: peritoneal catheter, P/T: piperacillin-tazobactam, RIF: rifampicin, SXT: trimethoprim-sulfamethoxazole, TET: tetracycline, TOB: tobramycin, VAN: vancomycin.

normal blood cell count. A chest X-ray showed no other findings except those related with patient's basal condition. After admission, two sets of aerobic and anaerobic BD BACTEC Plus Blood Culture Bottles (Becton Dickinson, Sparks, MD) were obtained and antipyretics were initiated. Twenty-four hours later, both blood cultures (BC) were positive for *C. cellulans*. Differential quantitative BC were subsequently obtained and an intravenous vancomycin regimen (15 mg/kg/12 h) was initiated. On day +3 after admission, a differential time to positivity (DTP) between both BC was recorded, demonstrating a catheter-related bloodstream infection caused by *C. cellulans*. Antimicrobial therapy was immediately switched to vancomycin plus imipenem and conservative management of the catheter with antibiotic lock therapy was carried out. Lock therapy consisted of a 14-day course of instillations (5 mL of solution) with vancomycin (2 mg/mL solution) plus heparin (20 IU/mL solution). On day +5, the patient was discharged considering her clinical improvement. Lock therapy was completed after 14 days and control-BC were negative. However, 15 months later she returned to the emergency department with a 5-day history of fever, and was diagnosed of a device-related sepsis. Biochemical tests showed elevated levels of CRP (327 mg/L) and procalcitonin (2.17 μg/L), which suggested a more severe infectious process than the precedent. *C. cellulans* grew again from both the peripheral-BC and the catheter-BC, exhibiting the same antimicrobial susceptibility pattern than the previous isolate. Vancomycin regimen (15 mg/kg/12 h) was initiated, catheter's removal was carried out, and the infection was finally eradicated.

In both episodes, Gram staining of positive BC showed Gram-positive filamentous rods. BC aliquots were plated onto blood agar, which showed growth of smooth, yellow colonies after overnight incubation. Identification of the isolate was primarily carried out using MALDI-TOF (Brucker Daltonics, Leipzig, Germany; score > 2). Furthermore, identification was confirmed by API®Coryne (bioMérieux, Marcy-l'Étoile, France; code = 7572727) and 16S rRNA gene amplification and sequencing[3] (100% identity according to GenBank database). The isolates exhibited *in vitro* resistance to rifampicin, gentamicin, clindamycin, tetracycline and ciprofloxacin, and susceptibility to vancomycin, following EUCAST disk diffusion criteria for *Corynebacterium*.

Table 1 summarizes the 23 cases of *C. cellulans* infection reported so far in the literature. As shown, most patients had some kind of immunosuppression or severe underlying condition, in particular end-stage renal disease (ESRD) ($n = 5$; 22%). Focus of infection was mostly related to the presence of a foreign body ($n = 16$; 70%), which was finally removed in the majority of cases ($n = 11$; 69%) for complete recovery. Antibiotic susceptibility testing showed universal

susceptibility to vancomycin, which was the antibiotic of choice in most cases. All cases in which it was not necessary to remove the foreign body, vancomycin was included as a part of the antibiotic regimen.

The case we report here reflects not only the expected features of an infection caused by *C. cellulans* but also the probable long-term asymptomatic colonization of the catheter for more than a year, and the subsequent recurrence. It seems unlikely that both episodes could be independently trigger from a peripheral focus. Certain features of the microorganism such as low pathogenicity and biofilm formation could be involved in that long-term colonization. The presence of biofilm implies not only the lower effectiveness of antibiotics but also a diminished host immune response.[4] Most cases of *C. cellulans* infections led to catheter's removal for the complete eradication of the pathogen, whereas some authors have reported fully recovery by using vancomycin therapy (alone or in combination) and conservative management of the catheter.[2,5-8] However, in the case we report, this strategy was discouraged. Persistence of these microorganisms despite the use of antibiotics with *in vitro* activity may be partially explained by biofilm formation into the catheter's lumen.[4,9] Opportunistic pathogens like *C. cellulans* could increasingly being encountered due to the extensive use of long-term medical devices and a high survival rate of immunocompromised patients.

Conflict of interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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Infecciones respiratorias agudas comunitarias causadas por enterovirus en la población pediátrica

Community acute respiratory infections caused by enterovirus in the paediatric population

Sr. Director:

Los enterovirus constituyen un grupo vírico que infecta preferentemente a la población infantil, ocurriendo en muchas ocasiones manifestaciones clínicas inespecíficas. Las infecciones se presentan generalmente como brotes durante los meses de verano, o como casos esporádicos a lo largo de todo el año. Las principales manifestaciones clínicas son meningitis, síndromes febriles autolimitados, exantemas, diarreas y enfermedades neuromusculares[1,2].

No existen muchos datos sobre su participación en las infecciones respiratorias agudas (IRA). Algunos estudios parecen indicar que podrían ser los principales virus causantes de estas infecciones durante los meses de invierno[3,4]. Debido a ello hemos realizado un estudio prospectivo sobre su detección en estas enfermedades.

Durante el período de julio de 2015 y de marzo de 2016 se ha estudiado, de forma prospectiva, la presencia de enterovirus en las muestras respiratorias de todos los pacientes pediátricos (< 15 años) con sospecha de IRA, que acudían a urgencias. El diagnóstico clínico se realizó en base a la clínica y la radiografía de tórax[3,4].

La detección viral se realizó mediante una técnica de amplificación genómica comercial, tipo RT-PCR en tiempo real (Allplex® Respiratory Full Panel Assay; Seegen, Corea del Sur). Esta técnica diferencia entre enterovirus y rinovirus, pero no tipifica los diferentes enterovirus. Las muestras positivas a enterovirus fueron remitidas al Centro Nacional de Microbiología de Madrid, donde se realizó el tipado definitivo.

A lo largo del estudio se han analizado 2.827 muestras; 1.646 (58,2%) fueron consideradas positivas. De ellas, 98 (5,9%) correspondieron a enterovirus; solo pudieron tiparse 80 cepas (81,6%). Los 80 casos representan el 4,8% de las muestras positivas y el 2,8% de todas las muestras estudiadas.

El tipado mostró que el 18,7% eran *Echovirus*, el 38,7% *Coxsackievirus A*, el 10% *Coxsackievirus B* y el 32,5% otros enterovirus (tabla 1). Los tipos detectados con mayor frecuencia fueron: *Coxsackievirus A6* (17,5%), los enterovirus grupo B (15%) y EV-D68 (11,2%). De entre los *Echovirus* el tipo *E11* fue el más frecuente (33,3%), de los *Coxsackievirus A* el *A6* (19,3%) y del *Coxsackievirus B* el *B4* (50%). En 7 (8,7%) casos se detectó coinfección con otro virus, predominando el rinovirus.

Los 80 pacientes correspondían a 63 niños (78,7%) y 17 niñas (21,3%); la edad media fue de 2,2 años (rango: 6 días-9 años). La mayoría de los casos se detectaron entre los meses de noviembre y febrero. Las principales enfermedades asociadas fueron: cuadro catarral (51,2%), bronquiolitis (16,2%), bronquitis (10%), faringitis (8,2%), neumonía (7,5%) y broncoespasmo (6,2%).