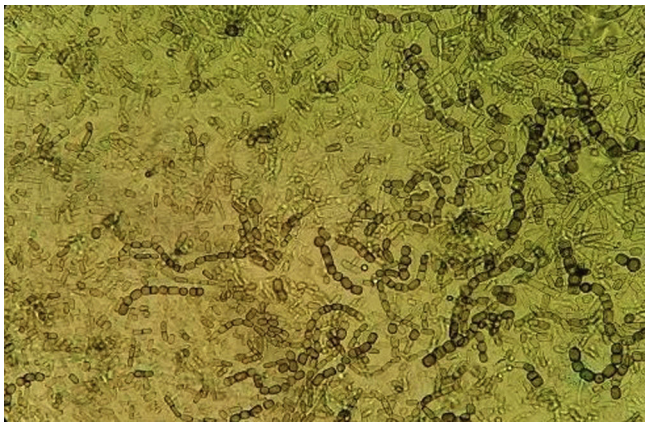

Fig. 2. *N. dimidiatum* arthroconidia, as observed under the microscopic.

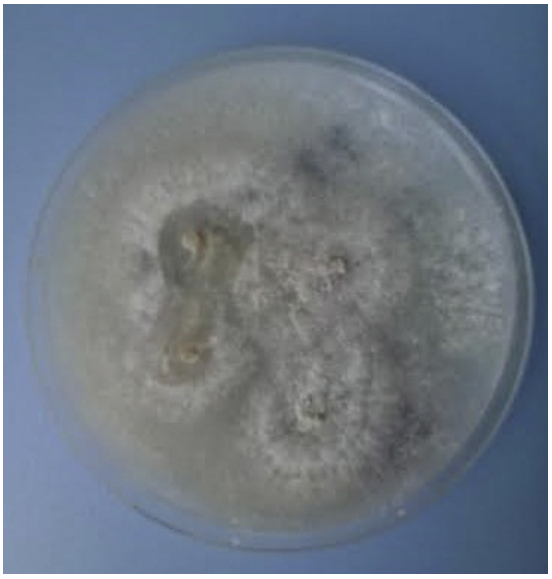

Fig. 3. *N. hialinum* colony in Potato Dextrose Agar.

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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2529-993X/

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 normal blood cell count. A chest X-ray showed no other findings except

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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.

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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2529-993X/

Community acute respiratory infections caused by enterovirus in the paediatric population☆

Infecciones respiratorias agudas comunitarias causadas por enterovirus en la población pediátrica

Dear Editor,

Enteroviruses are a family of viruses that predominantly infect the paediatric population, with non-specific clinical manifestations occurring in many cases. Infections generally present as flare-ups during the summer months, or as sporadic cases throughout the year. The main clinical manifestations are meningitis, self-limited febrile syndromes, exanthema, diarrhoea and neuromuscular diseases,[1,2] although there are very few data on their involvement in acute respiratory infections (ARIs).

Some studies seem to indicate that they may be the leading viruses that cause these infections during the winter months.[3,4] As such, we conducted a prospective study on their detection in these diseases. During the period between July 2015 and March 2016, we performed a prospective study on the presence of enterovirus in respiratory samples from all paediatric patients (<15 years of age) admitted to the Emergency Department with a suspected ARI. Clinical diagnoses were made based on the patients' symptoms and chest X-rays,[3,4] while viral detection was performed using a commercially available real-time RT-PCR gene amplification technique (Allplex® Respiratory Full Panel Assay; Seegene, South Korea). This technique differentiates between enterovirus and rhinovirus, but cannot serotype different enteroviruses. The enterovirus-positive samples were sent to the National Microbiology Centre of Madrid, where the final serotyping was performed.

2827 samples were analysed over the course of the study, of which 1646 (58.2%) tested positive. Of these, 98 (5.9%) corresponded to enterovirus and only 80 strains could be serotyped (81.6%). These 80 cases amount to 4.8% of the positive samples and 2.8% of the total samples analysed.

Serotyping showed that 18.7% were *Echovirus*, 38.7% *Coxsackievirus A*, 10% *Coxsackievirus B* and 32.5% other enteroviruses (Table 1). The most commonly detected types were: *Coxsackievirus A6* (17.5%), enterovirus group B (15%) and EV-D68 (11.2%). Among the *Echoviruses*, type *E11* was most common (33.3%); of the group A and B *coxsackieviruses, A6* (19.3%) and *B4* (50%) were the most prevalent. Moreover, in 7 cases (8.7%), co-infections with other viruses were detected, predominantly rhinovirus.

The aforementioned 80 patients comprised 63 boys (78.7%) and 17 girls (21.3%), the mean age of whom was 2.2 years (range: 6 days to 9 years). The majority of cases were detected between the months of November and February, and the main related conditions were: cold symptoms (51.2%), bronchiolitis (16.2%), bronchitis (10%), pharyngitis (8.2%), pneumonia (7.5%) and bronchospasm (6.2%).

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