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Scientific letters

Breast abscess due to *Actinomyces turicensis* in a non-puerperal woman

Absceso mamario debido a Actinomyces turicensis *en una mujer no puerpera*

Actinomyces spp. are Gram-positive bacilli belonging to the Actinomycetales order which are part of the normal microbiota of the oropharynx and both the urogenital and gastrointestinal tracts.[1] Although *A. israelii* is the most prevalent species isolated in human infections,[1,2] there are new species which have been associated with particular clinical syndromes.[2,3] *A. turicensis* has been implicated with a range of infections such as urogenital and a variety of skin-related infections.[2,3]

Only three cases of breast abscess due to *A. turicensis* have been documented in the medical literature,[4•6] but only one of them was isolated in pure culture.[6] We report a new case of breast abscess caused by this microorganism in a non-puerperal women found as isolated pathogen.

A 44-year-old women refers six days history of pain, fever and a fluctuating abscess in the right breast. Her clinical history was unremarkable except for several episodes of mastitis. The patient was in treatment with levofloxacin (500 mg/12 h) and analgesics for 5 days. The fluid was drained and sent to the microbiology laboratory for culture. After centrifugation, the sample was inoculated in blood agar (either aerobic or anaerobic) (BD Columbia Agar 5% Sheepblood©r), Becton Dickinson), chocolate agar (BD Choco Agar, Becton Dickinson) and thioglycolate broth (BD™ Fluid Thioglycollate Medium, Becton Dickinson), all incubated at 37 °C.

Gram staining of the fluid no exhibited microorganisms, but on the second day of incubation the growth of round and flat colonies was reported specially in the anaerobic blood agar. Greyish and glistening colonies were observed in pure culture (Fig. 1) and a mass spectrometry method (Bruker Biotyper, Billerica, MA, USA) was employed to identify the strain as *A. turicensis* (score 2.5). The MIC of the bacteria to different antibiotics was carried out by the E-test method in Brucella agar supplemented with hemin, vitamin K1 and laked sheep blood incubated at 37 °C, anaerobically. According the CLSI 2016 criteria,[7] the strain was susceptible to penicillin (0.19 α/4g/mL), amoxicillin•clavulanate (0.25 α/4g/mL), piperacillin•tazobactam (1.5 α/4g/mL), clindamycin (0.032 α/4g/mL), meropenem (0.38 α/4g/mL), imipenem (0.064 α/4g/mL), and moxifloxacin (1 α/4g/mL), and resistant to metronidazole (>256 α/4g/mL). Antimicrobial treatment was changed to amoxicillin (500 mg/8 h) for 10 days and at 3 month of follow-up the patient remained well.

A. turicensis produces a wide variety of infections such as genital, urinary, skin-related infections and bacteremias,[3] although isolation in breast samples is uncommon. Previously, three reports have shown *A. turicensis* in breast infections,[4,5] and only one in pure culture.[6]

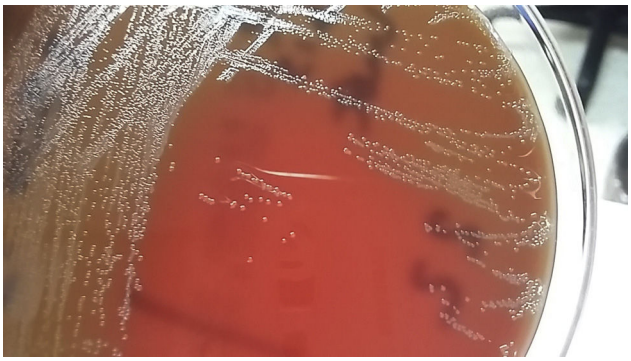

Fig. 1. Aspect of greyish colonies of *Actinomyces turicensis* in anaerobic blood agar.

The diagnosis of *A. turicensis* is mainly based on culture of an adequate sample obtained from the site of infection. Identification using conventional laboratory methods such as biochemical profiles of strains might be difficult, although *A. turicensis* is considered aero-tolerant and may clearly be discriminated with the API Coryne (Biomèc)rieux).[3] The recent introduction of mass spectrometry for routine analysis in the clinical laboratories may strongly help in the final identification due to it accuracy, as in our case.

Overall, drug resistance in *Actinomyces* spp. may be initially not considered a problem. They are usually susceptible to β-lactams, especially to penicillin G or amoxicillin, which are considered the drugs of choice for the treatment.[8] As alternatives, macrolides and clindamycin have been used successfully. On the other hand, metronidazole and aminoglycosides have not activity against *Actinomyces* spp.[8]

Regarding *A. turicensis*, there are some reports on antibiotic susceptibility against this bacillus.[9,10] In these studies, all isolates were susceptible to penicillin and amoxicillin, and a high number of isolates were resistant to fluoroquinolones.[9,10] A study demonstrated a number of isolates of *A. turicensis* resistant to erythromycin,[9] and in the other almost uniformly resistance to metronidazole was found.[10] Thus, monitoring through susceptibility testing is always advisable.

In summary, the clinical implications of *A. turicensis* have been clearly established since many infections caused by this pathogen are monomicrobial and have been isolated from various clinical samples. In our case, the isolation of this pathogen also suggest that it is clinically relevant since it was found in pure culture. Physicians and microbiologists should be aware of these new strains of *Actinomyces* especially if the new diagnostic technologies are applied.

Conflict of interest

The author declare no conflict of interest.

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Fernando Cobo

Department of Microbiology, Instituto Biosanitario de Granada, Hospital Virgen de las Nieves, Granada, Spain

E-mail address: fernando.cobo.sspa@juntadeandalucia.es

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Treatment with dalbavancin in a patient with septic thrombophlebitis of the internal jugular vein due to *Staphylococcus aureus* after insertion of an implantable cardioverter defibrillator☆

Tratamiento con dalbavancina en paciente con tromboflebitis séptica yugular por Staphylococcus aureus *tras la inserción de un desfribilador automático implantable*

Infections of cardiac electrical stimulation devices result in prolonged intravenous treatment with derived complications. In patients with cardiac electrical stimulation, bacteraemia due to *Staphylococcus aureus* is associated with high morbidity and mortality.[1] Definitive antibiotic treatment should be based on the recommendations for endocarditis. Therapeutic failure is common.[2]

We present a case of bacteraemia due to methicillin-susceptible *S. aureus* (MSSA) in a patient fitted with an implantable cardioverter defibrillator (ICD) with septic thrombophlebitis of the internal jugular vein, treated with dalbavancin. This antibiotic offers dosage advantages and has demonstrated its activity in bacteraemia and in foreign body infections, although its use has still not been approved for these indications.

This case discusses a 46-year-old male who was hospitalised to investigate chest pain. He had a history of acute myocardial infarction which had occurred six months previously, and an ICD was placed through the left subclavian vein two weeks prior to this admission. On the second day of hospitalisation, he had an episode of fever at 39 °C associated with phlebitis in the peripheral venous catheter. Treatment was started with amoxicillin-clavulanic acid. After the first dose, having observed growth of MSSA in 2/2 blood cultures, 2 g of intravenous cloxacillin was established and repeated every 6 h. A transthoracic and transoesophageal echocardiogram was performed, which did not show endocarditis or infection of the ICD lead. Given bacteraemia due to *S. aureus*, assessment of the removal of the device was requested by Cardiology. The removal was initially rejected as the procedure was deemed to be too risky to be undertaken at our centre. After three days of antibiotic therapy, the fever persisted and MSSA was isolated again in the blood culture. Therefore, 10 mg/kg of daptomycin every 24 h was added to the previous treatment. A computerised axial tomography of the cervical-thoracic region was requested. This showed findings compatible with thrombosis of the left internal jugular vein which extended to the sigmoid sinus and bilateral pulmonary septic emboli (Fig. 1). It was decided to discontinue cloxacillin and start cefazolin (2 g/8 h) to minimise manipulation of the venous catheter. Treatment with daptomycin was maintained. After three days of treatment, the patient presented with a new episode of phlebitis and it was impossible to channel new peripheral venous access. Due to the need for intravenous antibiotic therapy for six weeks, given the possibility of infection of the ICD lead, and considering the difficulty maintaining venous access, it was decided to discontinue treatment and start 1500 mg of dalbavancin every two weeks, for six weeks in total. This was administered on an outpatient basis, with excellent clinical course and blood tests. Control blood cultures were requested up to week 12 post-treatment, which were sterile, and a PET-CT scan was performed at the end of treatment, with no bacterial collection in the lead or in the heart valves, with reduction in the size of the thrombosis and complete resolution of the lung lesions.

Dalbavancin is a lipoglycopeptide approved for the treatment of skin and soft tissue infections. It offers dosage advantages given its prolonged half-life,[3] allows for weekly intravenous administration, and there are studies which show similar efficacy in single-dose regimens of 1500 mg.[4] Although the only indication approved by the FDA/EMA is for skin and soft tissue infections, there are data which show its activity at other levels. A phase 2 clinical trial on patients with catheter-related bacteraemia revealed an overall success rate for dalbavancin greater than that for vancomycin (87 *vs* 50%).[5] There are studies in animal models of endocarditis due to *S. aureus* which show that dalbavancin has greater activity than teicoplanin and vancomycin,[6] and other studies show its activity in foreign body infections due to *S. aureus*[7] and in subcutaneous device-associated infections.[8] Recent studies demonstrate efficacy in *in vitro* reduction of biofilms to concentrations that may be obtained easily *in vivo*,[9] which supports the previous findings published on the likely potential of this drug in the treatment of device-associated infections. In the case of our patient, in whom, exceptionally, the device was not removed, dalbavancin has proven to be effective at controlling the infection, with no adverse effects. Thanks to the regimen used, the risk and healthcare cost, which a prolonged admission would have involved, were avoided.

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