



# Enfermedades Infecciosas y Microbiología Clínica

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## Scientific letters

### Vertebral osteomyelitis secondary to a *S. schleiferi* infection from a cardiac defibrillator

#### *Osteomielitis vertebral secundaria a una infección del desfibrilador cardíaco por S. schleiferi*

Coagulase-negative staphylococci (CoNS) accounts for 31% of nosocomial bloodstream infections.<sup>1–3</sup> Normally, the course is subtle and non-specific without fulminant signs of infection, however, frank sepsis and fatal outcome may occur, especially in immunocompromised patients and/or if one of the more virulent species is involved.<sup>1</sup> *Staphylococcus schleiferi* were described by Freney<sup>4</sup> and have been reported in nosocomial infections.<sup>1,2,5</sup>

An 82-year-old male presented with a 4-week history of asthenia, stiffness in the pelvic girdle and back pain, which begun insidiously and progressively worsened until compromise his walking ability. Due to symptoms of mild cardiac failure, he was readmitted 3-weeks later. He complained of persistent back pain and the physical examination revealed local tenderness to gentle spinal percussion and reduced back mobility with protective spasm of nearby muscles. His medical history included hypertension, diabetic mellitus, idiopathic dilated cardiomyopathy with implantable cardioverter defibrillator (ICD) placed 3 years ago and a psoas abscess by *S. schleiferi* treated with cloxacillin 2 g/4 h during 6 weeks 2 years before. Laboratory studies demonstrated leukocytosis (12,200/uL) with neutrophilia (10,492/ $\mu$ L) and elevations of erythrocyte sedimentation rate (ESR: 81 mm/h) and C-reactive protein (CRP: 77.4 mg/L). Bone radiography showed destructive changes of L3/L4 vertebral bodies with collapse of the intervening disc space and computed tomography (CT) reported abnormal thickening of the cortical bone of L3/L4 vertebral bodies, with sclerotic changes, end plate irregularities and disc flattening. Blood cultures and the material obtained via needle biopsy by CT guidance from the vertebral lesions yielded *S. schleiferi* susceptible to commonly used antibiotics. He was given cloxacillin 2 g/4 h and rifampicin 600 mg daily. A transthoracic echocardiogram did not demonstrate any vegetation. A positron emission tomography revealed pathological captation in the ICD cable; 3-weeks after the start of antimicrobial therapy, he was scheduled for ICD explantation, whose cable was cultured and it yielded *S. schleiferi*. He received another 4 weeks of intravenous antibiotic, switched to oral therapy with levofloxacin 750 mg/day and rifampicin 600 mg/day, and attained a complete clinical recovery with decreased levels of CRP (2.3 mg/L) and ESR (31 mm/h) at follow-up. He completed a 16-week antimicrobial therapy on account of severe vertebral disease as CT evidenced.

There are many reports of *S. schleiferi* as an infective pathogen, including bacteremia,<sup>2</sup> surgical site infections,<sup>2</sup> sternal osteomyelitis,<sup>6</sup> prosthetic infections,<sup>5</sup> brain empiema<sup>5</sup> and

pacemaker infections,<sup>7</sup> nevertheless, this case is the first confirmed case of vertebral osteomyelitis. The frequency of these infections is extremely low compared with those caused by other species such as *S. aureus* or *S. epidermidis*,<sup>5</sup> but it appears to play a particular and underestimated role in infectious colonization of implanted biomaterials due to erroneous identification of *S. schleiferi* as *S. aureus*<sup>6</sup> because both species produce  $\beta$ -haemolysin and a heat-stable DNase.<sup>2</sup> Also, *S. schleiferi* subsp. *coagulans* produces coagulase, making more difficult the differentiation. This subspecies was first isolated from dogs suffering from external ear otitis, since then it has been reported in a surgical wound infection of the finger, in a disseminated human infection in an immune compromised host<sup>8</sup> and in a left ventricular assist device infection in a patient awaiting heart transplantation.<sup>9</sup> When analyzing other six cases of pacemaker infection,<sup>7,10</sup> the interval between pacemaker implantation and infection varied between 6 weeks and 16 months, with a median of 10–12 months. In the present report, the infection remained latent during 12 months, then it expressed with a psoas abscess and 24 months later with a vertebral osteomyelitis when we discovered the ICD infection, revealing an insidious course and leading to a delayed diagnostic.

In summary, it is important to perform a careful identification of *S. schleiferi* and it should be regarded as an important opportunistic pathogen, particularly in pacemaker-related infections,<sup>7</sup> in which it is necessary to remove the device to avoid recurrences. In addition, it is essential to perform an appropriate preoperative preparation of the skin in view of the possible role of the axillary flora.<sup>7,10</sup>

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### Safety and efficacy of antiretroviral therapy in perinatally HIV-1 infected patients following transition to an adult HIV-care hospital with virological failure in Buenos Aires, Argentina

#### *Seguridad y eficacia del tratamiento antirretroviral en pacientes con infección perinatal por VIH con fallo virológico en un centro de adultos, Buenos Aires, Argentina*

An increasing number of treatment-experienced perinatally HIV-infected patients are being transitioned from pediatric centers to adult HIV-care.<sup>1</sup> Most of them had complex antiretroviral treatment history including mono- or bi therapy.<sup>2</sup> In addition, adolescent adherence is particularly complex because of orphanhood, neurocognitive deficits, severe HIV infection, and stigma and discrimination.<sup>3–5</sup> Unfortunately, few data of the efficacy and safety of antiretroviral-treatment (ART) in these patients are available.

The aim of this study was to evaluate the efficacy and the safety of ART initiated for virologic failure in a cohort of perinatally HIV-infected adolescents after being transitioned to an adult HIV-care. We performed a single-center retrospective study of treatment-experienced HIV-1 perinatally infected adolescent patients with a virologic failure who started a new ART at the adult HIV-care center, 'Cosme Argerich' Hospital, Buenos Aires, Argentina (2005–2011). Immunological, virological and clinical data was assessed at baseline and after 48 weeks of ART initiation. Only patients with an ongoing virologic failure and a baseline genotypic-test performed were included. Patients with missing data at 48 weeks were excluded. Baseline genotypic-tests were interpreted using the Stanford genotypic-algorithm and the Genotypic sensitivity score (GSS) was calculated for each new ART. Adherence was measured according to physician's evaluation.

During the study period a total of 37 perinatally HIV-infected adolescents were transitioned to our institution, of whom 23 (62%) had an ongoing virologic failure. Of these 23 patients with virologic failure, 11 patients were included to the study. Twelve patients were excluded due to lost to follow-up or missing data at 48 weeks. Male sex was observed in 4 (36%) subjects. The median age was 18 years (IQR 16–19). CDC-stage C was observed in 5 (45%) subjects. Median CD4 T-cell count (IQR): 385 cells/mL (247–555). Median HIV-1 RNA viral load (IQR): 3927 copies/mL (1534–6380). Four patients had no history of undetectable viral load in their lives. The median of previous ART regimens was 3 (IQR 3–6) and the total duration under ART was 15 (IQR 12–16) years. Triple-class experienced-patient was observed in ten (91%) subjects. The median of NNRTIs, NNRTIs and PIs drugs previously used (IQR) was 5,<sup>4–6</sup> 1 (1–1) and 2<sup>1–3</sup> respectively.

The most frequent HIV resistance associated mutations (RAM) observed at baseline genotypic-tests were: 1)NRTI-RAMs: D67N (64%), M184V/I (55%), M41L (45%), L210W (45%), T215Y (45%); 2)NNRTI-RAMs: K103N/S (55%), L100I (27%), Y181C (9%); 3)PI-RAMs: V82A (45%), L90M (36%), V32I (18%), M46I (18%), I47V (18%), I54L (18%). Triple-class resistance was observed in five (45%) of the patients. In only two (18%) patients genotypic-tests performed for virologic failure previous to the transition (while on pediatric care) were available.

New ART based on genotypic-test including etravirine, darunavir/ritonavir, raltegravir or enfuvirtide was initiated in eight (73%) patients. GSS  $\geq 2$  and  $\geq 3$  of the new ART was achieved in eleven (100%) and six (55%) patients respectively. Three out of seven women initiated ART during pregnancy.

At week 48, the median CD4-T cell count (IQR) was 447 cells/mL (261–1121) and a viral load <50 copies/mL was observed in 5 (45%) patients. All except one subject with virologic failure had suboptimal adherence during the study period. Regarding adverse effects, only one episode of rash (grade 2) was observed, whereas no grade 4 or AIDS-related events were observed during the study period. [Table 1](#) summarizes demographic, clinical characteristics and ART outcomes of the 11 perinatally HIV-infected adolescents.

Despite the limited number of patients, these preliminary data show a high prevalence of heavy treatment-experience patients with highly drug-resistance viruses. Although all the patients had at least 2 active drugs in their ART a high virologic failure rate was observed at week 48. These findings are similar to other studies that reported lower rates of HIV-1 virologic suppression and higher rates of loss to follow-up in HIV-infected adolescents and young adults compared with adults. However, the majority of these studies excluded or included a small number of subjects with perinatally acquired HIV infection.<sup>6–10</sup> For example, a recently published study reported a 58.7% of virologic suppression at 6-months in 46 HIV-infected adolescents and young adults, but only 7 perinatally HIV-infected patients were included.<sup>10</sup>

The high rate of virologic failure observed in our study could be attributed to the suboptimal adherence observed in almost all patients of the study. In the same way, suboptimal adherence to ART has been reported in the majority of the perinatally HIV infected adolescents cohort studies from both resource-rich and limited settings.<sup>9</sup>

A high proportion of the women initiated ART during pregnancy what highlights the need of sexual and family planning education in this population.

The management of perinatally HIV infected adolescents remains a challenge for adult HIV clinics. Thus, a multidisciplinary approach is necessary to maximize the likelihood of a successful treatment in this population.