

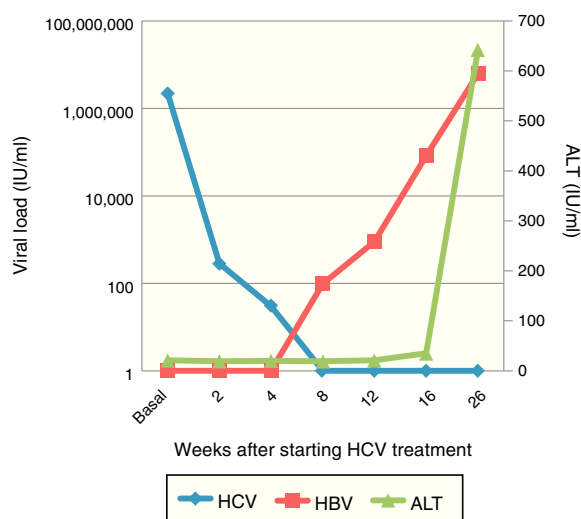


Fig. 1. Viral load of HCV and HBV after start of treatment and transaminase levels (AST).

the inhibition stops when the HCV is treated. Another theory is the possible increase in the space available for replication of the B virus after HCV treatment. The most accepted theory for the moment, however, is that chronic HCV replication produces an immune status in the body which helps to control HBV replication, but that this is interrupted by treatment with DAA.

In conclusion, this is the first reported case of fulminant HBV-related liver failure in the context of treatment with the new DAAs in a patient with HIV. The patient had been pre-treated with IFN for 4 weeks with no evidence of reactivation of HBV, so it might be argued that in view of their action against HBV, IFN-based therapies might be safer in this regard, at the expense of more adverse effects. In addition, there was no evidence of reactivation when TDF was withdrawn, which gives more weight to a relationship between the DAA treatment and the reactivation of HBV. We do not know whether the HBV reactivation or poor clinical outcome might be related to HIV infection, particularly when patients are not on 3TC/TDF treatment. Moreover, it must be taken into account that a large number of co-infected patients are treated with nucleoside/nucleotide analogues, which could prevent the reactivation of HBV. Also, our patient had no anti-HBs, so it would be interesting to assess the isolated risk in people with negative anti-HBs. At

present, we are still uncertain about how to optimally manage these situations.^{7–9} We therefore believe that protocols are required for strict monitoring of patients taking DAAs for HCV who have old or active HBV infection (isolated HBcAb or HBsAg), regardless of the stage, genotype or type of DAA, in order to prevent the risk of HBV reactivation in these situations.

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Spondylodiscitis due to *Aerococcus urinae* infection in an elderly immunocompetent patient



Espondilodiscitis debida a Aerococcus urinae en paciente anciano inmunocompetente

In January 2015, a 79-year-old man visited the emergency room complaining of increasingly severe low lumbar pain, which he had had during the previous 2 weeks. The patient presented

leg pain, originating from the buttock region and radiating into the whole thigh, leg and foot. He was afebrile and had lost 18 kg. He had no particular antecedents except for a prostatic adenoma. The patient was hospitalized to control pain. Three days after admission to hospital, blood and urine specimens were taken for culture and magnetic resonance imaging (MRI) was performed. MRI revealed increased signal intensity at the L4–L5 position, compatible with a diagnosis of spondylodiscitis at this location (Fig. 1). Blood cultures were negative, although a urine culture yielded growth of *Enterococcus faecalis*. The patient was initially treated with intravenous ampicillin and gentamicin, assuming that *E. faecalis* was responsible for the discitis. Twelve



Fig. 1. Magnetic resonance imaging of the spine of a 79-year-old patient with infection due to *Aerococcus urinae*. This sagittal image of the lumbar spine demonstrates the classic appearance of a disk space infection at L4-L5.

days after admission to hospital, disk fluid were obtained by aspiration. Gram staining of the substance obtained from the aspiration revealed abundant leukocytes with a few gram-positive cocci. After 24 h, cultures performed on blood agar (bioMérieux, Marcy l'Étoile, France) yielded small alpha-hemolytic colonies. The isolate was identified by matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) mass spectrometry system (Bruker Daltonics, Leipzig, Germany) as *Aerococcus urinae*. 16S rDNA PCR revealed the presence of *A. urinae* in this sample, confirming a diagnosis of *A. urinae* spondylodiscitis. After isolation of *A. urinae*, gentamicin was discontinued and the patient remained with intravenous ampicillin for 3 weeks. Susceptibility was determined using Clinical Laboratory Standards Institute (CLSI) *Aerococcus* spp. criteria.¹ The following minimum inhibitory concentrations (MIC) were obtained: penicillin, 0.015 mg/L; ampicillin, 0.125 mg/L; cefotaxime, 0.094 mg/L; levofloxacin, 0.5 mg/L; vancomycin, 0.5 mg/L; erythromycin 1 mg/L; and clindamycin, 2 mg/L. The isolate was susceptible to all antimicrobials tested, except to erythromycin and clindamycin. No interpretive criteria for aerococci had been set for erythromycin and clindamycin at that time, so CLSI viridans group streptococci interpretive criteria was used.² During antibiotic therapy, the patient obtained relief from the back pain. Five weeks after admission to hospital, the patient was discharged with oral therapy of amoxicillin (5 months). The follow-up MRI 5 months after discharge showed reduction of the space between the L4-L5 vertebrae and loss of disk space height, but no sign of infection. The patient was followed up during a year and the resolution of the disease was complete, with no severe functional sequelae or neurological deficit. He was autonomous and independent.

Aerococcus species are Gram-positive cocci that grow predominantly in tetrads and clusters, but unlike staphylococci, they are catalase-negative.³ When grown on blood agar media in 5% CO₂, *A. urinae* forms small, alpha-hemolytic colonies that may be confused with viridans group streptococci or enterococci. Due to these similarities, these organisms have often been misidentified, leading to the causes of human infection being underestimated.⁴ Before the introduction of new methods of species identification, only occasional clinical case reports were noted. With the introduction of MALDI-TOF into routine laboratory analyses, however, awareness of aerococci as human pathogens has increased.⁵ When *A. urinae* was isolated from urine culture, the proportion of patients with symptoms indicating urinary tract infection (UTI)

and without symptoms (classified as colonized) was almost the same.⁶ Hence, the isolation of *A. urinae* from urine in symptomatic patients does not formally prove that this is the pathogen causing UTI. However, a UTI focus is frequently suspected in invasive *A. urinae* infections.⁵ The most common presentation of invasive *A. urinae* infection is endocarditis, with a relatively favorable prognosis.⁷ Patients with invasive *A. urinae* infections are typically older men with underlying urinary tract disease, many with a urinary tract catheter.^{5,7} To date, two spondylodiscitis cases caused by *A. urinae* have been reported, probably associated with endocarditis, and the organism was recovered from blood samples.^{8,9} Although gram-positive vertebral infections are frequently associated with endocarditis when a routine echocardiographic study is performed,¹⁰ the absence of bacteremia suggest that this case is the first isolation of *A. urinae* in disk fluid not associated with endocarditis.

Although some studies suggest favorable outcomes with 4–6 weeks treatment course in uncomplicated vertebral osteomyelitis,¹⁰ we treated our patient for a long period, because there are no treatment studies on aerococcal infections.⁴ The β -lactam-aminoglycoside combination is not entirely clear because, although this combination has been shown to be synergistic in vitro for *A. urinae* isolates, a recent study could only demonstrate this synergy in a few cases.⁴ Hence is importance to distinguish *Aerococcus* from *Enterococcus* in these infections, because bone enterococcal infections are difficult to cure and require combination therapy, including ampicillin-aminoglycoside.

The introduction of MALDI-TOF as a routine part of laboratory work will be very helpful for the identification of *A. urinae* in clinical samples. *A. urinae* is only occasionally isolated in clinical specimens, hence this clinical report of spondylodiscitis due to *A. urinae* isolated from disk fluid helps reveal the pathogenic potential of this bacterium as a cause of bone infection.

Conflict of interest

The authors declare no conflict of interest.

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