

Culture-negative Endocarditis: *Mycoplasma hominis* Infection



Endocarditis con hemocultivos negativos: infección por *Mycoplasma hominis*

To the Editor,

We report the case of a 54-year-old man with history of vasospastic Prinzmetal angina and hypertension who underwent surgery in April 2014 for severe symptomatic aortic stenosis. There were no immediate postoperative complications. Following discharge, he was followed up in the cardiac surgery clinic with frequent serial echocardiography.

In November 2014, the patient attended the emergency department with sudden nonirradiating oppressive central chest pain, without other associated symptoms. The pain did not improve with nitroglycerin. In the emergency department, the patient was unstable with fever and hypertension. He was moved to the resuscitation room and required noninvasive respiratory support. Because the respiratory support was ineffective, endotracheal intubation was required. Blood cultures were obtained and repeated chest radiography showed acute bilateral lung edema with right-sided predominance compared with that taken on admission.

The patient was admitted to the intensive care unit in cardiogenic shock. Urgently performed transthoracic and transeophageal echocardiography revealed a massive aortic regurgitation due to detachment of two-thirds of the perimeter of the aortic prosthesis. Due to technical limitations, none of the imaging modalities appreciated valve erosions. No contractility abnormalities or ventricular dysfunctions were seen. New blood cultures were obtained and antibiotic therapy was empirically started with daptomycin, ceftriaxone, and gentamicin.

An urgent surgical intervention by cardiac surgeons confirmed the breakage of the attachments of the previous prosthesis. After debridement of the broken ring, the aortic valve was replaced with a new metal prosthesis.

The patient was discharged from the recovery room to internal medicine, where 2-week treatment of possible early endocarditis of the prosthetic valve was completed using daptomycin, gentamicin, and rifampin. However, the patient showed persistently elevated acute-phase reactants and occasional fever. Given the negative blood culture results, confirmed using blood obtained before antibiotic treatment, and the high suspicion of endocarditis, a serological study was performed, which included *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, Q fever, *Bartonella henselae*, *Brucella*, and *Legionella pneumophila*. All microorganisms were negative.

The explanted prosthetic valve was analyzed to detect bacterial and fungal genomes. A 16s rRNA sequence was detected and, after amplification, was identified as *Mycoplasma hominis*. No anatomopathological study of the valve was performed.

Once positive polymerase chain reaction results were obtained for *M. hominis*, targeted treatment was begun with doxycycline in combination with levofloxacin due to its bactericidal effects and good biofilm penetrance. An 8-week outpatient treatment course was completed, with a favorable clinical course and normalization of the C-reactive protein levels and erythrocyte sedimentation rate. After the treatment course, the patient maintained an adequate functional class and showed favorable echocardiography follow-up.

Depending on the series, between 2.5% and 31% of patients with infectious endocarditis have negative cultures. The main causes of

negative cultures are the slow growth of the microorganism or the need for special media, fungal endocarditis, and administration of antibiotics in the days prior to the collection of blood culture samples.¹ In patients with a valvular prosthesis with negative blood cultures and serology and with a high suspicion of infectious endocarditis,² we recommend that the microbiological study of the valve prosthesis be extended via analysis of C-reactive protein levels and amplification of generic 16s rRNA after ensuring that the blood was obtained before antibiotic administration. The results should be carefully analyzed due to the possibility of a false-positive result from contamination of the material being analyzed or the presence of a bacterial population from a previous infection that was considered cured.

M. hominis endocarditis is extremely rare. Just 10 previous cases can be found in the literature, one of which occurred in a 4-year-old girl.³

Mycoplasmas are cell wall-less microorganisms that usually colonize the mucosae, particularly the respiratory and genitourinary mucosae. In particular, *M. hominis* is a normal urogenital flora that is often associated with infections of these mucosae, particularly in women with bacterial vaginosis or pelvic inflammatory disease.

The mechanism of infection and hematogenous spread is unknown. It may be associated with invasive procedures such as endotracheal intubation or vesical catheterization in carriers of this organism. In our patient, as in 9 other published patients,⁴ endocarditis occurred at an early stage; there is only 1 case of delayed endocarditis, which occurred 9 years after cardiac surgery.⁵

Other reports advise against beta-lactam therapy with aminoglycosides or glycopeptides because they are ineffective against *Mycoplasma*.⁶ Doxycycline, given its bacteriostatic action, appears to be the antibiotic of choice in the literature in combination with another antimicrobial. In some cases, the combination involves clindamycin or rifampicin and, in others, fluoroquinolone. The duration of treatment varies between 6 and 8 weeks and, if the infection affects the prosthetic material, valve replacement surgery seems advisable after analyzing the published case series.

Juan María Romeu Prieto,^{a,*} Ana María Lizcano Lizcano,^b Ismael López de Toro Martín Consuegra,^a José Largo Pau,^b Luis Fernando López Almodóvar,^c and Eva García Camacho^d

^aUnidad de Cuidados Intensivos, Hospital Virgen de la Salud de Toledo, Toledo, Spain

^bServicio de Medicina Interna, Hospital Virgen de la Salud de Toledo, Toledo, Spain

^cServicio de Cirugía Cardiovascular, Hospital Virgen de la Salud de Toledo, Toledo, Spain

^dServicio de Cardiología, Hospital Virgen de la Salud de Toledo, Toledo, Spain

* Corresponding author:

E-mail address: jmromeup@gmail.com (J.M. Romeu Prieto).

Available online 9 October 2015

REFERENCES

- Ferrera C, Vilacosta I, Fernández C, López J, Olmos C, Sarriá C, et al. Revaluación de la endocarditis con hemocultivos negativos: su perfil es similar al de la endocarditis con hemocultivos positivos. Rev Esp Cardiol. 2012;65:891–900.
- Vallés F, Anguita M, Escribano MP, Pérez Casar F, Pousibet H, Tornos P, et al. Guías de práctica clínica de la Sociedad Española de Cardiología en endocarditis. Rev Esp Cardiol. 2000;53:1389–90.

3. Dominguez SR, Littlehorn C, Nyquist AC. Mycoplasma hominis endocarditis in a child with a complex congenital heart defect. *Pediatr Infect Dis J*. 2006;25:851-2.
4. Hidalgo-Tenorio C, Pasquau J, López-Checa S, López-Ruz MA. Endocarditis due to Mycoplasma hominis. *Enferm Infecc Microbiol Clin*. 2006;24:469-74.
5. Jamil HA, Sandoe JAT, Gascoyne-Binzi D, Chalker VJ, Simms AD, Munsch CM, et al. Late-onset prosthetic valve endocarditis caused by Mycoplasma hominis, diagnosed using broad-range bacterial PCR. *J Med Microbiol*. 2012;61:300-1.
6. Blasco M, Torres L, Marco ML, Moles B, Villuendas MC, García JB. Prosthetic valve endocarditis caused by Mycoplasma hominis. *Eur J Clin Microbiol Infect Dis*. 2000;19:638-40.

<http://dx.doi.org/10.1016/j.jrec.2015.07.018>