

contrast, high hs-TnT concentrations could indicate a more diffuse and active rejection and therefore more severe AR. The study also shows that in the first months after HT, the high hs-TnT concentrations decrease in inverse proportion to time after HT, but may remain elevated for more than 6 months. This phenomenon may be explained by the high hs-TnT concentrations before HT, by myocardial damage due to the transplant procedure, or by subclinical rejection undetectable by biopsy but detectable by hs-TnT concentrations. The low specificity of hs-TnT for detecting AR has been described in another study that demonstrated its low reliability for diagnosing AR.⁶

In conclusion, the results suggest that the determination of hs-TnT concentrations may be useful to rule out AR, especially if concentrations are < 17 ng/L.

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Lactococcus Garvieae Infective Endocarditis: Report of 2 Cases and Review of the Literature



Endocarditis infecciosa por *Lactococcus garvieae*: presentación de 2 casos y revisión de la literatura

To the Editor,

Lactococcus garvieae has previously been reported as a major pathogen in the aquaculture environment with low virulence for humans. Nevertheless, various episodes of human infections have been described in the literature. We report the first 2 cases of *Lactococcus garvieae* infective endocarditis (IE) in the Spanish population.

The first patient is a 70-year-old woman without cardiovascular risk factors who was admitted because of progressive heart failure without registered fever or infectious symptoms. Physical examination revealed a previously unknown holosystolic murmur in the apex irradiating to the axillae. Anemia, leukocytosis, and elevated C-reactive protein levels were detected at admission.

Intravenous diuretic therapy was initiated with good response. Blood cultures were performed (×4) and empirical antibiotic therapy was initiated with amoxicillin-clavulanic acid plus gentamicin. Transthoracic echocardiography showed 2 vegetations attached to the anterior and posterior mitral leaflets with severe mitral regurgitation. Blood cultures were all positive for *Lactococcus garvieae* sensitive to cefotaxime, ciprofloxacin,

erythromycin, daptomycin, and vancomycin. Antibiotic therapy was switched to vancomycin. There was no history of raw fish consumption prior to admission or gastrointestinal disorders. New transthoracic (Figure 1A) and transesophageal (Figures 1B and 2) echocardiography were performed, showing several vegetations attached to both the posterior and anterior mitral leaflets with severe mitral regurgitation and severe pulmonary hypertension. Because heart failure treatment was ineffective, the patient underwent urgent cardiac surgery and a biological prosthesis was implanted (Mosaic N°27). After 6 weeks on intravenous antibiotic therapy, she was discharged and 1 year later remains asymptomatic and without relapsing IE episodes.

The second patient is a 77-year-old woman with a history of hypertension, chronic lymphatic leukemia, and colorectal cancer surgery complicated with *Lactococcus garvieae* bacteremia who was admitted 2 months after colorectal surgery due to persistent back pain and fever. X-ray, bone gammagraphy, and magnetic resonance imaging showed inflammatory disease involving the L4-L5 vertebrae and paravertebral soft tissues. Blood cultures were positive for *Lactococcus garvieae*. Transesophageal echocardiography showed severe aortic stenosis without signs of IE. There was no history of raw fish consumption prior to admission and the patient was managed with outpatient parenteral antimicrobial therapy.

Three months later she was admitted due to purpuric lesions, physical discomfort, and fever within the last 48 hours and acute

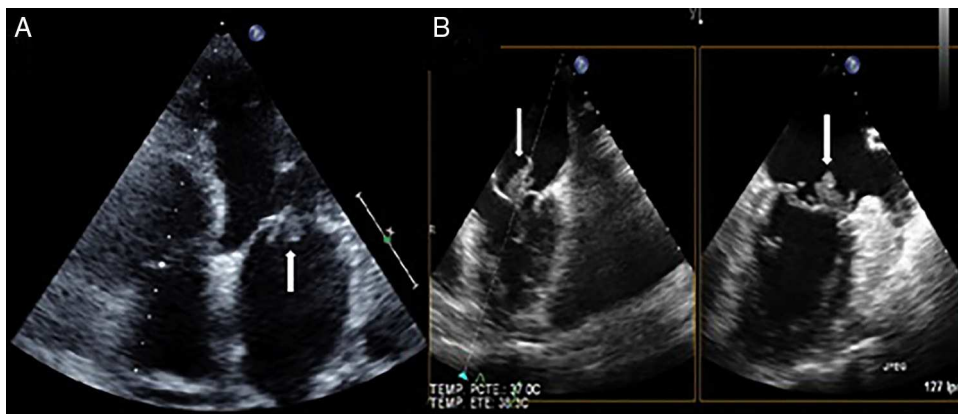


Figure 1. A: Transthoracic echocardiography. B: X-plane transesophageal echocardiography. Mitral vegetations (arrows).

renal failure (creatinine, 3.24 mg/dL). Blood cultures ($\times 3$) were positive for *Lactococcus garvieae* sensitive to penicillin, amoxicillin-clavulanic acid, ciprofloxacin, and vancomycin. A transesophageal echocardiography showed vegetations attached to the aortic and mitral valves with severe aortic stenosis, severe mitral regurgitation, and severe pulmonary hypertension. Intravenous diuretic and antibiotic therapy with ampicillin plus gentamycin was initiated and skin biopsy of the purpuric lesions showed leukocytoclastic vasculitis. Surgery was ruled out due to the patient's high surgical risk and finally the patient died due to heart failure resistant to medical treatment.

The *Lactococcus* genus belonged to the *Streptococcus* genus due to its microbiological characteristics until 1985, when, with the help of genetic analysis of DNA and 16S rRNA sequencing data, the former *Lactic acid streptococci* became known as *Lactococcus*.¹ There are 8 recognized *Lactococcus* species, of which *Lactococcus lactis* and *Lactococcus garvieae* are the most frequently found in human infections.²

Lactococcus garvieae is a Gram-positive, catalase-positive, facultative anaerobic cocci grouped in short chains. Although previously described as a major pathogen in the Asian aquaculture environment, it has been recognized as an emerging zoonotic pathogen, with several cases of infection in humans having been reported in the last few decades.³ *Lactococci* can be misidentified as *Enterococci* due to problems with phenotypic methods and therefore the incidence of infections in humans

may be higher than previously reported.³ The identification of this microorganism has been improved by 16S rRNA gene sequencing. Regarding its antimicrobial sensitivity, it has been shown to be resistant to clindamycin and sensitive to penicillins and aminoglycosides.⁴

Lactococcus garvieae has been related to different opportunistic infections in humans: bacteremia, IE, osteomyelitis, liver abscess, and peritonitis. The exact mechanism leading to infections in humans is not well-established but has been related to gastrointestinal disorders, such as colonic polyposis and diverticulosis and raw fish consumption.⁵ The most common infectious disease related to this microorganism is IE. To date, only 13 cases have been published on IE due to this microorganism. Of these, 46% occurred in Asia, 62% in males, and 69% were native IE episodes. Gastrointestinal disorders were present in 5 cases (38%) (3 colonic polyposis, 1 colonic diverticulosis, 1 gastric ulcer) and 46% had a history of prior raw fish/bone fish consumption. The clinical course was good with intravenous penicillins and/or aminoglycosides for 6 weeks. Six patients required cardiac surgery (46%) (4 urgent and 2 elective after hospital discharge due to the residual effects of the IE). Unlike previous mortality rates related to IE among the Spanish population (30%),⁶ in-hospital mortality due to this microorganism was low (8%), with 1 death being due to massive intracranial bleeding and another death occurring 3 weeks after hospital discharge due to unidentified causes.

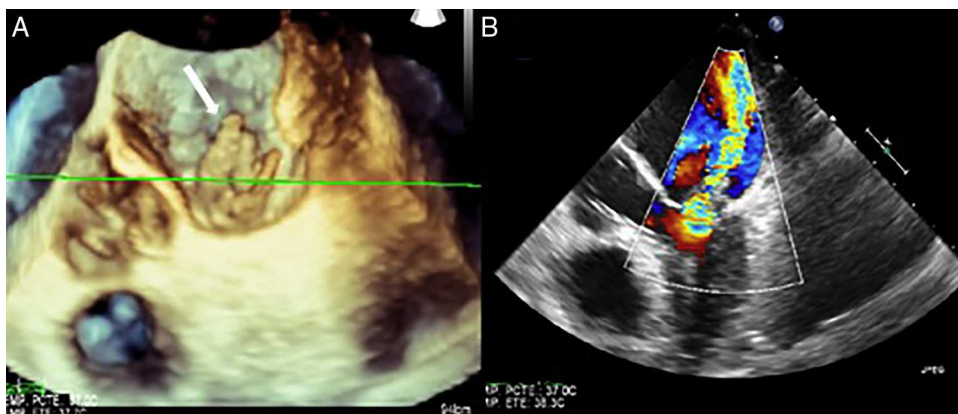


Figure 2. A: 3-dimensional transesophageal echocardiography; mitral vegetation (arrow). B: Transesophageal echocardiography showing severe mitral regurgitation.

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Percutaneous Closure of Coronary Fistulas in Elderly Patients With Complex Vascular Anatomy



Cierre percutáneo de fístulas coronarias en pacientes de edad avanzada con anatomía vascular compleja

To the Editor,

Coronary fistulas are uncommon congenital or acquired anomalies that have a low incidence in the general population (0.3%–0.8%). Most of them originate in right coronary artery (50%–60%) or anterior descending artery (30%–40%); the circumflex artery (Cx) is the vessel least often affected.¹ Closure of symptomatic fistulas is indicated from the time of their diagnosis or when associated with myocardial ischemia, arrhythmias, or ventricular dilation or dysfunction, regardless of their size. The treatment in asymptomatic patients is controversial, and some

authors recommend closure because of the risk of late complications.^{1,2} The detection of these anomalies in adults is associated with higher surgical risk and an increased rate of comorbidities. For decades, surgery was the standard treatment, and transcatheter closure was performed only in patients in whom surgery was not an option and/or those having a favorable anatomy. Nevertheless, percutaneous treatment is feasible in experienced centers. We report 2 cases of transcatheter closure of fistulas in the circumflex artery in adult patients with major comorbidities and complex vascular anatomy, who had refused to undergo surgery.

The first patient was a 77-year-old man with hypertension and permanent atrial fibrillation who was receiving oral anticoagulation therapy. He was referred to us because of dyspnea on mild exertion. Transthoracic echocardiography revealed marked dilatation of right chambers and severe tricuspid regurgitation. Cardiac catheterization showed a normal pulmonary artery pressure and left-to-right shunt with a pulmonary flow to systemic flow ratio (Qp/Qs) of 1.7. Coronary angiography revealed a tortuous, dilated Cx

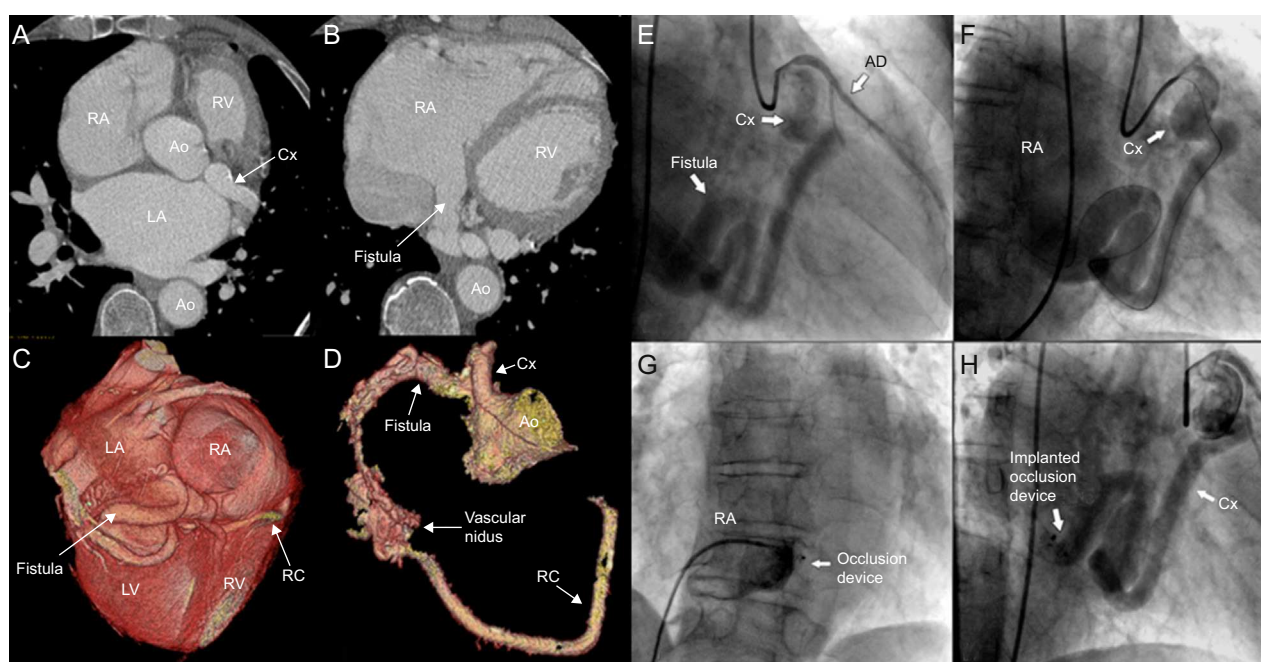


Figure 1. Computed tomography (A and B) with 3-dimensional reconstruction (C and D), showing a dilated circumflex artery draining into a highly dilated right atrium, its anatomical position, and its distal connection to right coronary artery via a tangle of vessels. Angiographic images of the fistula between circumflex artery and right atrium (E), the arteriovenous loop (F), and the delivery of the occlusion device (G), which resulted in the absence of significant residual flow (H). AD, anterior descending artery; Ao, aorta; Cx, circumflex artery; LA, left atrium; LV, left ventricle; RA, right atrium; RC, right coronary artery; RV, right ventricle.