

Case Report

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Infective Endocarditis of the Superior Vena Cava and Right Atrium in Chronic Renal Failure



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Abstract

Infective endocarditis is a life threatening disease if not treated; high incidence is found in patients with immune system compromised and prolonged time with intraluminal catheter. We present a case of a patient with renal chronic disease and an acute gout attack with cardiovascular symptoms and further diagnosed with infective endocarditis.

Keywords: Infective endocarditis; Renal failure; Echocardiography; Transesophageal

Background

Infective endocarditis has an estimated annual incidence of 3 to 9 cases per 100,000 persons in industrialized countries [1]. The highest rates are observed among patients with prosthetic valves, intracardiac devices, unrepaired cyanotic congenital heart diseases, or a history of infective endocarditis, although 50% of cases of infective endocarditis develop in patients with no known history of valve disease. Other risk factors include hemodialysis, and coexisting conditions [2]. More than one third of the cases of infective endocarditis in the United States in recent years were reported to be health care-associated (nosocomial or nonnosocomial) [3]. More than 200 cases of *Pseudomonas aeruginosa* endocarditis have been reported [4,5].

Case

A 69 years-old woman with history of diabetes mellitus type 2 and arterial hypertension diagnosed over 30 years ago who has presented microvascular complications of diabetes retinopathy and nephrotic, in renal failure stage V in hemodialysis 1 per week for 3 hours with catheter in right jugular vein. She presented 3 weeks prior her hospitalization with pain in right knee, she came to the emergency room for edema, erythema, redness, warmth, swelling and disability in the right knee, reason why she was hospitalized and evaluated by the service of rheumatology who decided to perform arthrocentesis, finding intracellular

monosodium urate crystals in synovial fluid compatible with acute gout, a part of the liquid was sent for culture, reporting sensible strain of *Pseudomonas aeruginosa*, so it was decided to start levofloxacin. During her staying a supraventricular tachycardia was evidenced, with heart rate of 150b.p.m. and remitted with single dose of adenosine I.V. Through her reevaluation a temperature of 38.5°C and a mitral heart murmur grade II/IV were detected. New laboratories were performed, detecting CK-MB of 1.47UI/l. BNP >25.000pg/mL, leukocytes 8.7/L, c-protein reactive 40mg/dL, globular sedimentation rate 122mm/hr and 2 blood cultures with *Pseudomonas Aeruginosa* strain sensible as the one in the arthrocentesis culture. Thoracic radiography showed cardiomegaly.

Discussion

Based on the duke criteria the decision for transesophageal echocardiogram was made, multiple vegetations were found in right atrial and superior vena cava (Figure 1 & 2) and the diagnosis of infective endocarditis was made. Based on her chronic kidney disease stage and hypertension a multidisciplinary group conformed by cardiology, cardiovascular surgery, internal medicine, infectology and nephrology decided that the surgical approach wasn't appropriate and she underwent with antibiotic cephalosporin of 4th generation.

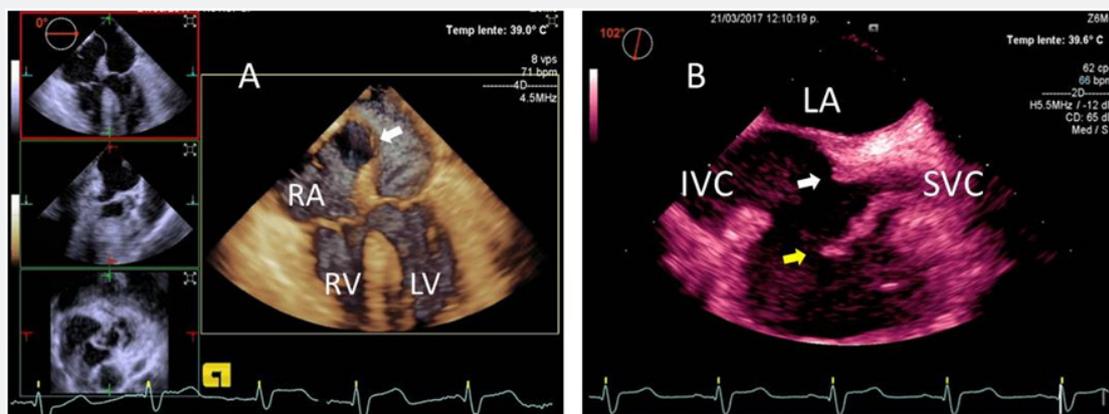


Figure 1: Transesophageal study: A) Three-dimensional transesophageal four chamber view at 0° showing aneurysm of the interatrial septum (white arrow), without any vegetation in the auriculoventricular valves. RA: Right Atrium; LV: Left Ventricle; RV: Right Ventricle. B) Transesophageal two dimensional image at 102° showing a large vegetation attached in the superior vena cava (yellow arrow) and also an thickness in the interatrial septum suggesting an abscess (white arrow).

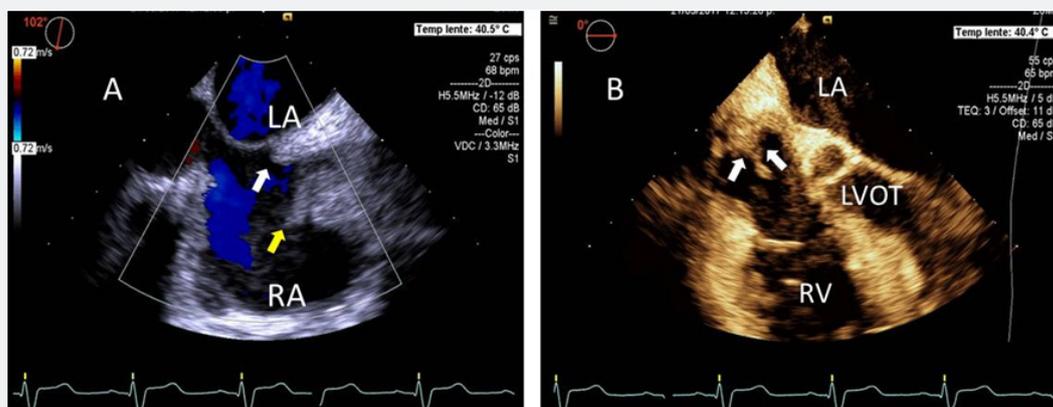


Figure 2: Transesophageal study: A) Transesophageal two dimensional image with color Doppler at 102° showing the both atria. In the superior vena cava large vegetation is observed (yellow arrow) and a thickness of the superior portion of the interatrial septum suggesting an abscess (white arrow). B) Transesophageal four chamber view showing vegetations attached to the roof of the right atrium (white arrows). RA: Right Atrium; LV: Left Ventricle; RV: Right Ventricle; LVOT: Left Ventricular Outflow Tract.

Patient remained with cefepime I.V. in high dose for 8 weeks and allopurinol for her gout event, with clinical improvement of her right knee and no further cardiovascular events, she was discharged. She is still in vigilance in the out-patient nephrology clinic with alarm signs in case of fever or cardiovascular symptoms.

Conclusion

This is a very interesting case of a woman with secondary renal failure in treatment with hemodialysis, who developed infective endocarditis of the superior vena cava and right atrium. In this patient, the clinical judgment and echocardiogram played a very important role in her diagnosis and treatment.

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