

Right atrial abscess: An unusual complication of intravascular catheter uncovered by transesophageal echocardiography

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Introduction

Perivalvular myocardial abscess is a well-known complication of valvular infective endocarditis (IE) (1). Here, we present an absolutely rare case of right atrial (RA) wall abscess accompanying tricuspid valve (TV) IE which was only revealed by transesophageal echocardiography (TEE). The patient was an end-stage renal disease (ESRD) case who was receiving hemodialysis (HD) via a dual-lumen cuffed venous catheter. The unique feature of this case is the anatomical location of the abscess in the RA wall as well as multiple septic vegetations distant from the TV.

Case Report

A 49-year-old female with ESRD was admitted to our hospital with a history of persistent fever and acute arthritis of the right knee. She was receiving HD via a dual-lumen cuffed catheter in her left subclavian vein. She had a history of catheter-related infection and diabetes mellitus. At admission, her body temperature was 38.5°C. Cardiac auscultation revealed a grade II/VI systolic murmur in the TV focus; however, her lungs were clear. Electrocardiography showed sinus tachycardia, and there were no infiltrates or pleural effusion on chest X-ray. The primary laboratory results showed leukocytosis and elevated C-reactive protein levels and erythrocyte sedimentation rate. Synovial fluid culture revealed the presence of *Staphylococcus aureus*; all blood cultures were sterile. Parental antibiotic therapy was initiated and recurrent arthrocentesis was performed; however, the patient was still febrile on the fifth day of hospitalization. Because catheter-related IE was highly suspected, TEE was performed despite the normal transthoracic echocardiogram (TTE) reported just three days earlier.

Surprisingly, TEE revealed multiple vegetations, including a large mobile one (24×15 mm), attached to the catheter tip (Fig. 1,



Figure 1. Significant thickening surrounding the catheter entrance with multiple vegetations, including a large, mobile one (24×15) attached to the catheter tip as revealed by transesophageal echocardiography

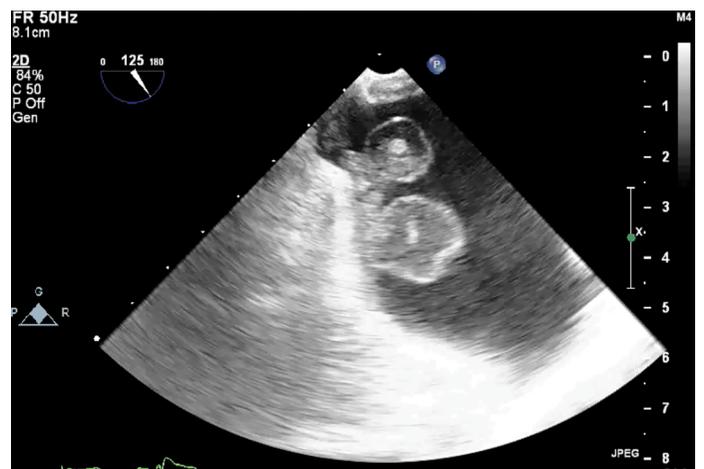


Figure 2. TEE showed two large cystic masses with bright centers and thin echogenic margins (20×16 mm; 12×12 mm) on the RA wall and at the IVC entrance, which suggests RA-free wall abscesses

TEE - transesophageal echocardiography, RA - right atrial, IVC - inferior vena cava

Video 1). Moreover, vegetation on TV and mild tricuspid regurgitation as well as two large cystic masses (20×16 mm; 12×12 mm) on the RA wall and at the inferior vena cava (IVC) entrance were discovered (Fig. 2, Video 2).

The patient underwent surgical intervention via median sternotomy during which the infected catheter was removed, RA wall masses -compatible with myocardial abscesses- were resected, and TV repair was performed (Fig. 3). The cultures of abscesses were positive for *S. aureus*. Intravenous vancomycin and ceftazidime were administered from the first day of admission for the coverage of catheter-related infective organisms; however, subsequently, only vancomycin was continued based on the bacteriological findings. During the treatment course, patient received dialysis via a temporary non-tunneled catheter in the jugular vein.

She was discharged after 4 weeks of hospitalization, and parental vancomycin was extended for another 2 weeks. Postoper-

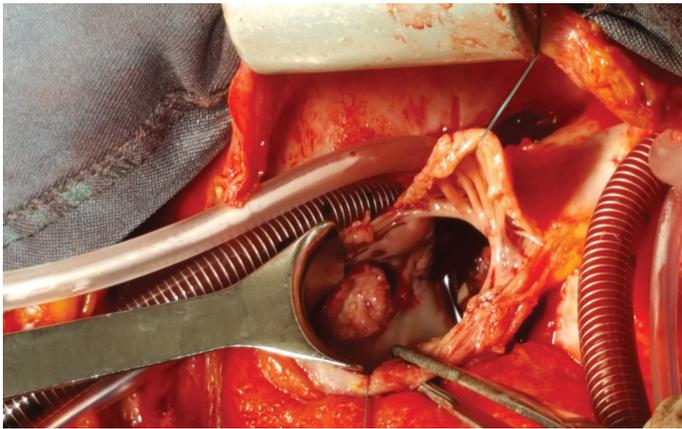


Figure 3. Right atrial-free wall abscess during atrial opening

ative TEE confirmed the eradication of the infective source in RA, and an arteriovenous fistula was embedded as a new HD access.

Discussion

Intravascular devices make the patients susceptible to frequent transient bacteremia, particularly by *S. aureus* as the most common causative microorganism of IE in ESRD patients (2). On the other hand, extension of device-related infections to adjacent cardiac tissues is another mechanism underlying IE and subsequent myocardial abscess in populations undergoing HD (3). However, despite the high prevalence of vascular access-related infection, right-sided valvular IE is still unusual in patients undergoing HD (2).

In the presence of valvular endocarditis, the perivalvular area is the expected site of associated abscess. The formation of a distant myocardial abscess is very rare (4). In the current case, despite TV endocarditis, two large-sized myocardial abscesses were extraordinarily located at the IVC entrance.

We believe that tricuspid IE and abscess formation in our patient was induced by direct inoculation from a septic foci established in RA by an infected intra-atrial catheter. Moreover, a possible initiating factor might be the damage of the RA wall endocardium owing to direct irritation of the catheter or jet stream caused by HD, which made the RA more vulnerable to thrombosis and infection.

Conclusion

Our case demonstrates that neither negative blood cultures nor normal TTE is sufficient to rule out IE or myocardial abscess in a highly suspected patient in the context of HD. As a matter of fact, TEE plays a crucial role in the improvement of patient outcomes by boosting early diagnosis and helping to determine an appropriate treatment plan, particularly for right-sided lesions (5, 6).

Informed consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Video 1. A large, hypermobile vegetation on the catheter tip (24×15 mm) during TEE.

Video 2. TEE view of two RA wall abscesses.

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DOI:10.14744/AnatolJCardiol.2019.54603



Acute fulminant eosinophilic myocarditis due to *Giardia lamblia* infection presented with cardiogenic shock in a young patient

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Introduction

Acute eosinophilic myocarditis is a relatively rare condition that may be associated with various eosinophilic diseases, such as parasitic infection, allergies, drug hypersensitivity, granulomatous disease, connective tissue disease, vasculitis, or primary