

From infective endocarditis to left ventricular aneurysm

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A 39-year-old man was transferred to our department from a local hospital with the diagnosis of infective endocarditis of the tricuspid valve. Six months earlier, he suffered from gastrointestinal bleeding, and a stomach ulcer was confirmed on gastroscopy. One month following the gastroscopy, his general status deteriorated, and he reported a weight loss of 10 kg. At that time, tuberculosis, rheumatic systemic diseases, as well as drug and alcohol abuse were excluded. Blood culture was positive for methicillin-sensitive *Staphylococcus aureus*. On echocardiography, infective endocarditis of the tricuspid valve (FIGURE 1A) was detected, while thoracic and abdominal computed tomography (CT) revealed active abscesses in the lungs and spleen. Complete blood count showed leukocytosis (white blood cells, $28 \times 10^9/l$), neutrophilia, anemia (hemoglobin, 6.8 mmol/l), and increased levels of inflammatory markers (C-reactive protein, 300 mg/l; procalcitonin, 0.33 ng/l). No other abnormalities were detected on electrocardiography and coronary angiography.

Due to the thickening of the noncoronary aortic cusp, transesophageal echocardiography was performed. The perforation of the cusp and the vegetation in the sinus of Valsalva were found. Antibiotic therapy started in the previous hospital was continued (cloxacillin, 6×2 g intravenously). Because of symptom progression and severe general condition, oral rifampicin (600 mg twice daily) was added. After the patient's stabilization and a significant reduction in the levels of inflammatory markers, the surgery was performed on day 14 since diagnosis. A 23-mm mechanical prosthesis (St. Jude Medical) was implanted in the aortic position, and tricuspid regurgitation repair was performed. Moreover, the whole vegetation from

the tricuspid valve was removed. The postoperative course was complicated by wound infection, treated effectively with a vacuum dressing.

On day 9 after surgery, echocardiography revealed an additional structure, namely, a cavity (diameter, 17×25 mm) within the left ventricular lateral wall, communicating with the left ventricular chamber (FIGURE 1B). Computed tomography angiography revealed the presence of left ventricular pseudoaneurysm (FIGURE 1C and 1D), and this finding was further confirmed by cardiac magnetic resonance imaging (MRI) (FIGURE 1E). The heart team decided on conservative treatment. After 60 days of cloxacillin therapy, the size of abscesses in the lungs and spleen substantially reduced; however, the aneurysm of the lateral wall was still present. The patient was discharged home 50 days after surgery.

Echocardiography performed at 1 and 3 months revealed a gradual reduction in the aneurysm size. Control MRI at 6 months showed no ventricular aneurysm, and some residual fibrous tissue was present at the site of the aneurysm (FIGURE 1F).

The occurrence of left ventricular aneurysms after isolated endocarditis as a result of staphylococcal septicemia is extremely rare (3 cases reported in the literature).^{1,2} Three mechanisms of mycotic aneurysm formation have been described: seeding of the endocardium by a regurgitant jet, septic coronary embolism leading to an infarction and rupture into the ventricular chamber, and dissemination from an adjacent perivalvular abscess.^{3,4} The most likely cause in this patient was the seeding of the endocardium leading to myocardial infection and wall ulceration.⁵ To our knowledge, there have been no previous cases of a similar aneurysm that would resolve spontaneously.

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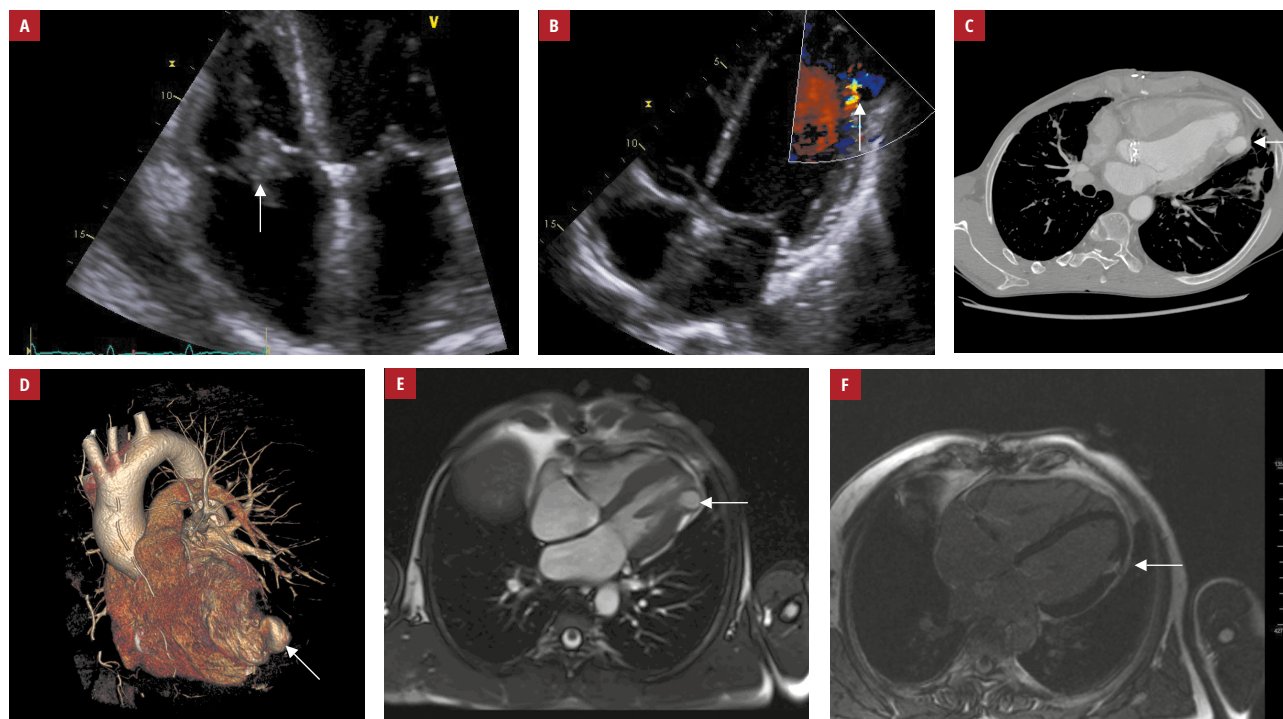


FIGURE 1 **A** – a 4-dimensional echocardiographic image: endocarditis of the tricuspid valve (arrow); **B** – a 2-dimensional echocardiographic image of the left ventricular pseudoaneurysm (arrow); **C** – a computed tomography angiography scan showing the aneurysm of the lateral wall (arrow); **D** – a computed tomography scan showing the aneurysm of the lateral wall (arrow); 3-dimensional reconstruction; **E** – a magnetic resonance imaging (MRI) scan showing a large, thin-walled aneurysm in the left ventricular lateral wall (arrow); a 4-chamber view; **F** – late gadolinium enhancement MRI showing no aneurysm in the lateral wall (arrow); a 4-chamber view

ARTICLE INFORMATION

CONFLICT OF INTEREST None declared.

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