

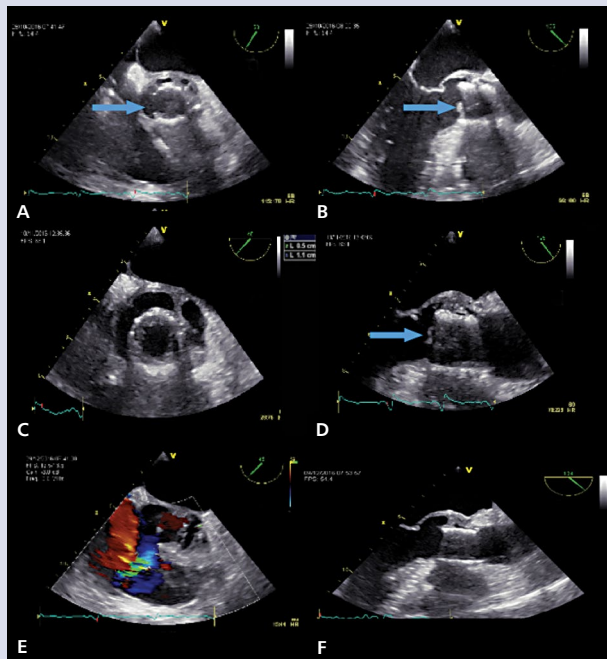
## CLINICAL VIGNETTE

# Prosthetic valve endocarditis and acute heart failure in a patient after transcatheter aortic valve implantation procedure

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An 88-year-old Caucasian man with a history of severe aortic stenosis treated with transcatheter aortic valve implantation (TAVI) was referred to our hospital due to a suspicion of prosthetic valve endocarditis (PVE). Previously the patient had undergone coronary artery bypass graft surgery (in 1993). The TAVI (using a 27-mm LOTUS bioprosthesis) was performed two months prior to admission, via transfemoral approach, and a third-degree atrioventricular block occurred during the procedure; therefore, a dual-chamber pacemaker was implanted immediately in a hybrid suite. Cefazolin was administered (2 g i.v.) as an antibiotic prophylaxis. The patient had had a recurrent fever (38°C) and progressing fatigue for two weeks before hospital admission. The C-reactive protein (CRP) level was 85 mg/L, white blood cell count was 13,000/μL, and haemoglobin level was 8.8 g/dL. Trans-thoracic echocardiography performed on admission showed slightly reduced left ventricular ejection fraction (50%), no malfunction of the aortic prosthesis, and no signs of PVE. Empiric antibiotic therapy with vancomycin was introduced. Transoesophageal echocardiography (TEE) revealed vegetations on the bioprosthetic leaflets and a large abscess in perivalvular tissues (Fig. 1A, B) infiltrating the native aortic root, aortic-mitral curtain, and the tricuspid annulus. Additionally, a mobile vegetation on the tricuspid valve was present, but there were no vegetations on the pacemaker leads. The blood culture test detected the presence of methicillin-resistant *Staphylococcus epidermidis* (MRSE). Vancomycin was continued and tigecycline was added to the therapy. Despite intensive treatment, the patient's clinical condition worsened — he developed septic shock and acute heart failure (New York Heart Association [NYHA] class IV). On physical examination a new diastolic murmur was discovered (3/6 in Levine scale). Pressor amines were administered. TEE was immediately repeated, and a large perivalvular perforated false aneurysm penetrating through fistula to right ventricle (RV) with a significant left-right leak was detected (Fig. 1C–E). Because of high risk (62.8% by EuroSCORE), the patient was excluded from surgery by a cardiothoracic surgeon. Intensive antibiotic and heart-failure therapies were continued for six weeks. The patient's condition improved — there was a decrease in NYHA (IV → II/III), no fever, and reduced fatigue. The control blood culture test was negative, CRP level was 9 mg/L, in TEE the LOTUS prosthesis had no signs of dysfunction (Fig. 1F), mild rocking, or paravalvular leak, the perivalvular abscess was almost empty, and the aorta-RV shunt was still present but not haemodynamically significant. The patient was discharged from hospital in good condition after nine weeks of therapy. He was prescribed rifampicin (based on antibiogram; 2 × 300 mg, p.o.) until the follow-up visit, enoxaparin due to atrial fibrillation, and heart failure treatment according to European Society of Cardiology guidelines. Unfortunately, six weeks after discharge a severe gastrointestinal bleeding followed by acute renal injury occurred and the patient died. Patients undergoing a TAVI procedure are often frail, and have various other comorbidities and a high EuroSCORE risk of cardiothoracic surgery [1]. PVE in this group is a rare but severe complication, occurring in 1% to 3% of patients. The options in those cases are limited: either an extremely risky surgery (in our case almost 63% by EuroSCORE) or a conservative treatment with antibiotics, which has very limited efficacy. The mortality after conservative treatment is high — both in-hospital and one-year — ranging from 47% to 64% and 66% to 75%, respectively [2]. Therefore, the prevention of PVE is crucial to avoid severe adverse events.



**Figure 1.** Transoesophageal echocardiography; **A, C.** Short axis view, aortic valve — abscess (arrow); **B, D.** Long axis view, aortic valve — vegetation (arrow); **E.** Short axis view, aorto-right ventricular fistula; **F.** Long axis view; aortic valve — regression of vegetation

## References

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### Conflict of interest: none declared

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