OCCLUTECH ATRIAL FLOW REGULATOR (AFR) LEADS TO SIGNIFICANT SYMPTOMATIC IMPROVEMENT IN YOUNG PATIENT WITH RESTRICTIVE CARDIOMYOPATHY

Mathias Lange,[1]

[1] Klinikum Osnabrück; Herzzentrum Osnabrück; Cardiology

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Young patient with restrictive cardiomyopathy

A 50-year-old female patient presents to our clinic due to progressive dyspnoea over the last few months (currently dyspnoea NYHA III). She was diagnosed with restrictive cardiomyopathy a few years ago. A cause could not be determined during extensive diagnostics in an external clinic. In the last six months, two inpatient stays for intravenous diuretic therapy were necessary to treat a severe right-sided cardiac decompensation. During these periods, she had severe dyspnoea (NYHA IV). Her reduced performance capacity had led to dismissal by her employer. On admission, the patient was cardiac recompensated. There was no lower leg oedema or ascites and the NT-pro-BNP value was 722 ng/l. Diuretic therapy was in place.

Transthoracic echocardiography (TTE) confirmed the finding of restrictive cardiomyopathy (Fig. 1). In view of the patient's current clinical symptoms (dyspnoea NYHA III) and the previous cardiac decompensations, implantation of an interatrial shunt device (Atrial Flow Regulator Occlutech) was planned. Right heart catheterization excluded pulmonary hypertension: Mean pulmonary arterial pressure was 25 mmHg and systolic 39 mmHg. The diagnosis was mild postcapillary pulmonary hypertension. Consistent with the restrictive cardiomyopathy, the pulmonary arterial wedge pressure (PCWP) was significantly elevated at 18 mmHg at rest which was significantly higher than the mean right atrial pressure (3 mmHg). Thus, all criteria for the implantation of the AFR were fulfilled.

The AFR implantation was performed under sedation. TEE showed the optimal puncture site for transseptal puncture. After TSP, a long Amplatz Super Stiff wire was placed in the left superior pulmonary vein. Atrioseptostomy was performed with a 14 mm balloon advanced over the 0.035" wire. The Atrial Flow Regulator (AFR08M) was then advanced into the left atrium. Under TEE control, retraction to the atrial septum and opening of the entire device was performed. TEE showed an optimal position with a continuous left-right shunt. After implantation, a reduction in left atrial pressure from the previous 18 to 11 mmHg was measured.

The patient was admitted to hospital three months later for follow-up: She reported a considerable improvement in physical performance (dyspnoea NYHA I-II). This had also prompted her to look for a new job. TEE showed a correct position of the shunt device with continuous left-to-right shunt (Fig. 2). The shunt volume measured invasively in the right heart catheterization was 24%. The PCWP remained at 11 mmHg. With unchanged cardiac output, the mean pulmonary arterial pressure was 21 mmHg, slightly lower than in the first right heart catheterization.

Conclusion:

The implantation of an interatrial shunt device is a technically simple and safe therapy option that can achieve a rapid improvement in the clinical symptoms of patients with diastolic heart failure.

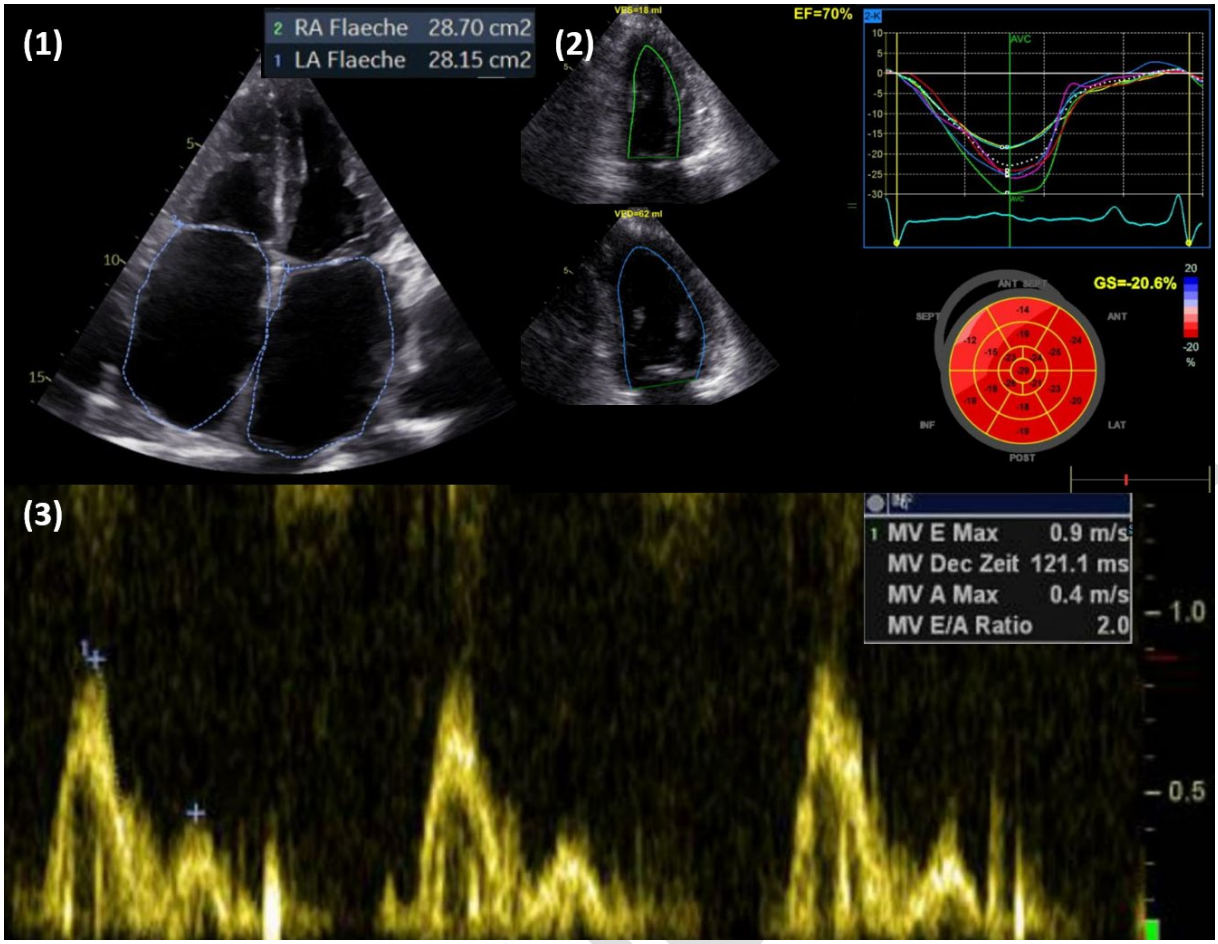

Figure 1: TTE showed biatrial dilatation (1), preserved systolic left ventricular pump function (2) and advanced diastolic left ventricular dysfunction in the restriction stage (3).

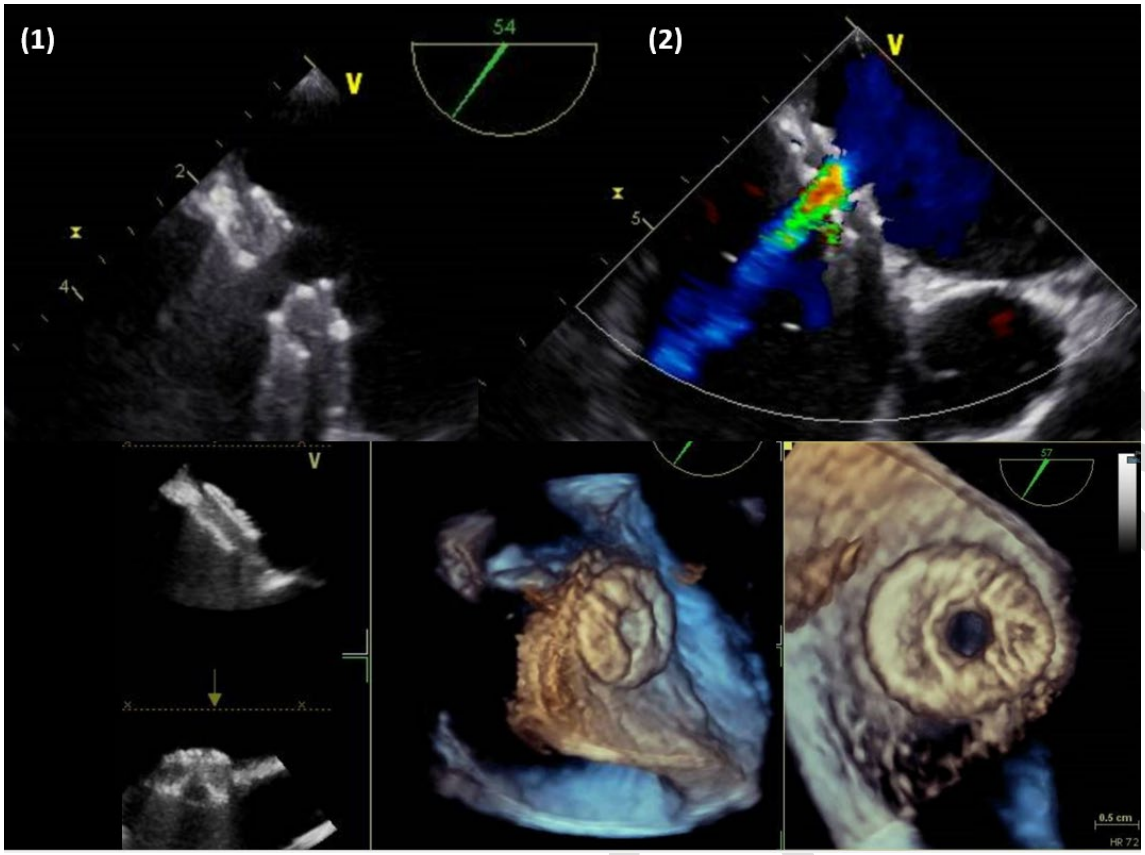

Figure 2: Three months after implantation, 3D-TEE shows a correct position of the AFR (1) with continuous left-right shunt (2).

Dr. med. Mathias Lange, FESC

Geschäftsführender Oberarzt

Leiter Abteilung Strukturelle Herzerkrankungen

Medizinische Klinik I, Klinik für Kardiologie

Klinikum Osnabrück – Herzzentrum Osnabrück

Am Finkenhügel 1

49076 Osnabrück

Mail: mathias.lange@klinikum-os.de

Phone: 0049-541-405-606405