

## Short Report

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# Successful surgical management of aortic valve insufficiency after retrograde transaortic radiofrequency ablation

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### Abstract

Aortic valve leaflets damage after radiofrequency ablation is a rare in practice. Aortic valve repair should be performed to gain benefits in this patient category.

**Keywords:** Aortic valve insufficiency; Aortic valve repair; RFA.

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### Introduction

Perforation of aortic cusps after Radiofrequency Ablation (RFA) was firstly described by M. Seifert et al. in a 15 yo girl with Wolf-Parkinson-White syndrome [1]. Aortic valve cusps damage after left sided RFA with retrograde approach across the aortic valve varies between 1% and 8%, and is more common in young patients [2]. Considering the rarity of the complications, we decided to share our observation, describing surgical tactic in a patient with severe aortic insufficiency after RFA.

### Case presentation

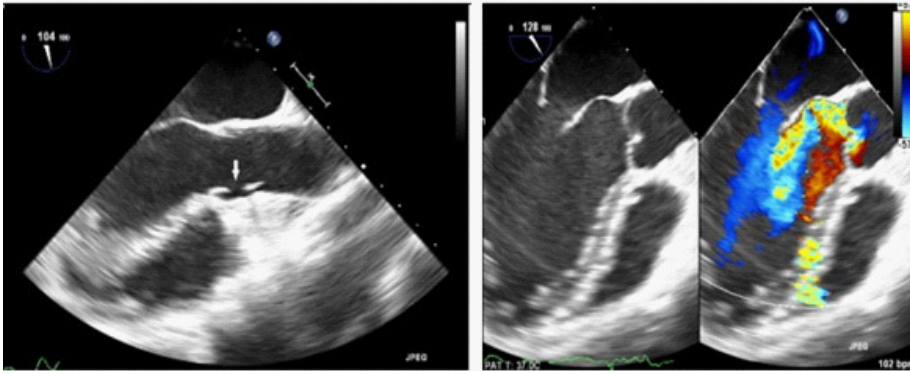
The article was approved the Institutional Review Ethics Committee of the National Research Cardiac Surgery Center (#01-151/2023 from 02/03/2023). Written informed consent was obtained from the patient to report related clinical information in this given medical publication.

A 38 y.o. female was admitted to our hospital for an elective valve procedure 15 months after RFA for Ryan grade 2 ventricular extra systoles. She experienced NYHA functional class 3

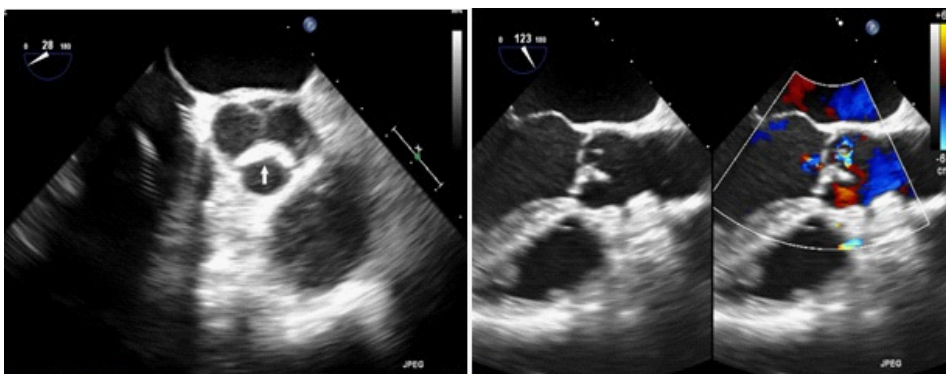
heart failure, retrosternal pain without irradiation, vertigo, and fatigue. Her blood pressure was 95/65 mmHg. Grade IV diastolic murmur presented in the right 2nd intercostal space. Transthoracic echocardiogram showed dilated Left Ventricle (LV) (LV end diastolic volume index 89.94 ml/m<sup>2</sup>), compromised LV ejection fraction - 51.97%; and the transesophageal echocardiogram (before surgery) (Figure 1) revealed severe aortic regurgitation, defect of the right coronary cusp, and flow reversal in the descending aorta.

### Operation findings and surgical technique

The operation was performed through a full median sternotomy, right atrium - aorta cannulation for cardiopulmonary bypass, and blood based cardioplegia administration. Intercomissural laceration of Right Coronary Cusp (RCC) at the basis level prolapsing into the left ventricle was revealed during surgery. Treated autologous pericardial flap was used to patch the RCC using over lock polytetrafluoroethylene (Gore-Tex, W. L. Gore & Associates, Inc.) 7,0 suture.



**Figure 1:** Intraoperative TEE before surgery. AR, eccentric jet (before surgery), the arrow points the defect.



**Figure 2:** Intraoperative TEE after surgery. Intraoperative TEE, (after surgery) the arrow points the repaired cusp.

The intra operative transesophageal echocardiogram (after surgery) (Figure 2) showed good left ventricular function and no aortic regurgitation, with good excursion of the 3 cusps. Post-operative period was uneventful. The patient was discharged home on the sixth postoperative day. At the 6-month follow-up, she does not have any symptoms and the echocardiogram data on aortic valve remained the same.

### Discussion

Aortic valve insufficiency rarely occurs after RFA and is usually trivial and a self-limiting condition. In our case, the patient had gradually developed Aortic Regurgitation (AR), and symptoms. Acute AR with rapid patient deterioration dictates the early timing of operation to avoid heart and systemic complications. Unfortunately, absence of early worsening of the symptoms does not guaranty torpid development of aortic valve insufficiency. Therefore, the dynamic monitoring (including echocardiography) of patients after catheter ablation procedures is wise in order to timely detect complications, including valvular apparatus damage. Transthoracic echocardiography is a universal method to be recommended routinely for all patients 6 months and 1 year after the procedure.

When the native valve iatrogenic laceration of the cusp happens, either valve replacement or repair is possible. If the valve anatomy is normal, the repair is preferred due to anatomic issues and clinical preferences. For the relatively young patients the balance between a mechanical prosthesis with the anticoagulation-related complications, or biological prosthesis with long term durability cautions and leaflet repair either short or

long term would have suggested. In order to gain benefits, aortic valve repair should be performed in experienced valve reference centers [3].

The long-term results for such iatrogenic valve lesions are unknown due to rarity of patients and published data therefore warranting stable clinical interest.

**Conflicts of interest statement:** No conflicts of interest.

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