

A right atrial arteriovenous hemangioma excision under a beating heart after percutaneous catheter cardiac ablation

Mohammad Alşalaldeh¹, Mehmet Koray Adalı²

¹Department of Cardiovascular Surgery, Pamukkale University Faculty of Medicine, Denizli, Türkiye

²Department of Cardiology, Pamukkale University Faculty of Medicine, Denizli, Türkiye

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ABSTRACT

Percutaneous catheter ablation treatment is an interventional treatment method for atrial fibrillation. Herein, we report the case of a 38-year-old male patient who developed a right atrial mass after two percutaneous catheter ablations. The mass was excised by the beating heart technique, later diagnosed as arteriovenous hemangioma. Arteriovenous hemangioma had not been encountered before as a complication of catheter ablation.

Keywords: Arteriovenous hemangioma, atrial mass, paroxysmal atrial fibrillation, pulmonary vein isolation cryoablation, radiofrequency ablation.

Percutaneous catheter ablation is the most effective treatment nowadays for patients with recurrent tachyarrhythmias who are not responding to medical treatment. It can be used for symptomatic supraventricular tachycardia, unifocal atrial tachycardia, atrial flutter, atrial fibrillation with lifestyle-impairing symptoms, and symptomatic idiopathic ventricular tachycardia.^[1] However, pulmonary vein stenosis, esophageal perforation, phrenic nerve injury, heart block, stroke, vascular access injury, heart perforation, and rarely death are the possible complications of the catheter ablation.^[2,3] Herein, we report a case of a right atrial arteriovenous hemangioma (AVH) in a patient admitted for pulmonary embolism with a history of two percutaneous catheter ablations.

CASE REPORT

A 38-year-old male patient presented to the cardiology outpatient clinic for routine control with minimal symptoms of dyspnea and palpitation. The patient had a history of paroxysmal atrial fibrillation. Two years ago, he underwent percutaneous radiofrequency ablation after unsuccessful cardioversion; however, his palpitation complaints continued. The patient was admitted to another cardiac center four months later, and pulmonary vein isolation cryoablation was done successfully. Anticoagulant medication was discontinued on discharge. On

admission to our hospital, electrocardiography revealed atrial fibrillation. At the same time, transthoracic echocardiography was performed, and it demonstrated a right atrial compounded mass (one was about 19×17 mm attached to the interatrial septum, and the other was 18×11 mm), which was not observed in the previous investigations. The appearance was compatible with a thrombus. A pulmonary computed tomography scan with contrast showed a segmentary pulmonary embolism. The patient was admitted to the intensive care unit, and anticoagulant medications were started. When the patient's status became stable, he was taken to the operation theatre for mass excision.

Under general anesthesia and intratracheal intubation, the operation started. After median sternotomy, the pericardium was vertically opened, and under full heparinization, aorto-bicaval cannulation was done. A cross-clamp was not applied, and the operation was carried on under the beating heart technique. The right atrium was opened via its

Corresponding author: Mohammad Alşalaldeh, MD. Pamukkale Üniversitesi Tıp Fakültesi Kalp ve Damar Cerrahisi Anabilim Dalı, 20070 Kınıklı, Denizli, Türkiye.

Tel: +90 554 - 334 98 51 e-mail: dr-alshalaldeh@hotmail.com

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Figure 1. Right atrial mass (arteriovenous hemangioma).

appendage, and a mass of two segments, covered with thrombus, was excised from the interatrial septum (Figure 1). It was attached to the lower part of the interatrial septum above the tricuspid valve by a pedicle. The right atrium was closed, and after decannulation and hemostasis control, the sternum was closed by steel wires. The patient was transferred to the cardiovascular intensive care unit.

On the first postoperative day, the patient's daily dressings and blood investigations were done. One week after the operation, as he was well with no complaints, the patient was discharged on anticoagulant medications to be seen one week later as an outpatient. About 10 days later, the histopathologic report of the cardiac mass revealed an AVH.

DISCUSSION

Cardiac masses can be primary or secondary. The prevalence of primary tumors is about 0.0001 to 0.03%, and 75% of them are benign, while secondary tumors are malignant and 20 to 40-fold more common. Myxoma, lipoma, papillary fibroelastoma, and fibroma are the most common benign tumors. Angioma, teratomas, and mesotheliomas are rare primary cardiac tumors.^[4]

Cardiac hemangiomas are very rare primary benign cardiac tumors that are usually asymptomatic, and they

may originate from any heart layer. They are classified according to the histomorphological structure into capillary, cavernous, arteriovenous, and extremely rare venous ones.^[5]

In our case, the patient was young and had several echocardiography reports from before, but none of them showed any cardiac mass. Only the recent echocardiography demonstrated this cardiac mass. Thus, the question was whether there is any relation between this atrial AVH and the transcatheter pulmonary vein cryoablation that he had two years ago. We have browsed the literature but found nothing relating to such complications. Usually, the well-known major complications of such a procedure are pericardial effusion/tamponade, pulmonary vein stenosis, emboly, cardiac block, phrenic nerve injury, vascular access injury, and atrioesophageal fistula.^[6]

In our case, there was no early complication of the radiofrequency ablation, which was done 26 months ago, or after pulmonary vein isolation cryoablation 22 months ago.

After the second ablation, the patient had been told to stop his anticoagulant medications. The patient was free of any symptoms for about two years until he suddenly started complaining of dyspnea and

palpitation. During the routine investigations, a right atrial mass was accidentally found.

We performed our operation under the heart beating technique, while all preparations were done to switch to complete cardiopulmonary bypass and arrest the heart if needed. Bicaval venous cannulation was selectively performed, making the mass's excision easy. There was a pedicle attaching the mass to the interatrial septum above the tricuspid valve, and the mass was found compounded by two segments with a thrombus above. The tricuspid valve was preserved from any damage during the excision.

In conclusion, cardiac AVHs are very rare benign cardiac tumors that can be excised under the beating heart technique if possible. We suggested a relationship between AVH and catheter cryoablation. However, this relation remains unclear and should be studied widely. We simply wanted to shed light on the possibility of developing atrial AVH after pulmonary vein isolation cryoablation.

Patient Consent for Publication: A written informed consent was obtained from patient.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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