

THROMBUS MANAGEMENT

THE FOUR CORNERS: CLINICAL VIGNETTE CORNER

Percutaneous Aspiration of a Large Mitral Valve Vegetation With Full-Body Protection

A Novel Approach



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ABSTRACT

CASE SUMMARY Mitral valve vegetations carry a significant risk of recurrent thromboembolism, with limited transcatheter treatment options due to concerns for embolization. We present a case of a patient with a large mitral valve vegetation who suffered an acute stroke and was deemed to be at prohibitive risk of surgical intervention. Percutaneous transseptal aspiration thrombectomy was performed using the FlowTrieve system with full systemic embolic protection via the $\bar{O}\bar{N}\bar{O}$ transcatheter retrieval system.

TAKE-HOME MESSAGES Percutaneous transseptal aspiration thrombectomy with the FlowTrieve system in combination with the $\bar{O}\bar{N}\bar{O}$ transcatheter retrieval system can provide full-body embolic protection and is a novel therapeutic approach for high-risk patients. (JACC Case Rep. 2026;31:106412) © 2026 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

An 83-year-old female with a history of coronary artery disease status post coronary artery bypass grafting, atrial fibrillation, and prior mitral and tricuspid valve repair presented with acute ischemic stroke (National Institutes of Health Stroke Scale 4). Brain magnetic resonance imaging revealed multiple new infarcts consistent with an embolic etiology. Transesophageal echocardiography identified a 1.1×0.5 -cm highly mobile echodensity on the anterior mitral leaflet. Infectious workup was negative (Figures 1A and 1B). Given her prohibitive surgical risk, the heart team elected to proceed with percutaneous retrieval of the large mobile mitral valve mass. Considering the marked mobility of the lesion, a strategy for full systemic embolic protection was implemented using the $\bar{O}\bar{N}\bar{O}$ transcatheter retrieval system ($\bar{O}\bar{N}\bar{O}$ COR, Braun Interventional Systems).

Under moderate sedation, right femoral arterial access was obtained, and a 17-F TruSteer sheath was advanced over an Amplatz Super Stiff guidewire into the ascending aorta. $\bar{O}\bar{N}\bar{O}$ transcatheter retrieval system was deployed at the aortic root for embolic protection. Via the right femoral vein, an 8-F Baylis sheath was introduced, and transseptal puncture was performed under intracardiac echocardiographic (ICE) guidance using a 0.035-inch Versacross wire. Septostomy was performed with a 10×40 -mm Armada balloon. Following septal dilation, a 24-F FlowTrieve aspiration catheter was advanced into the left atrium, and the vegetation

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

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ABBREVIATIONS AND ACRONYMS

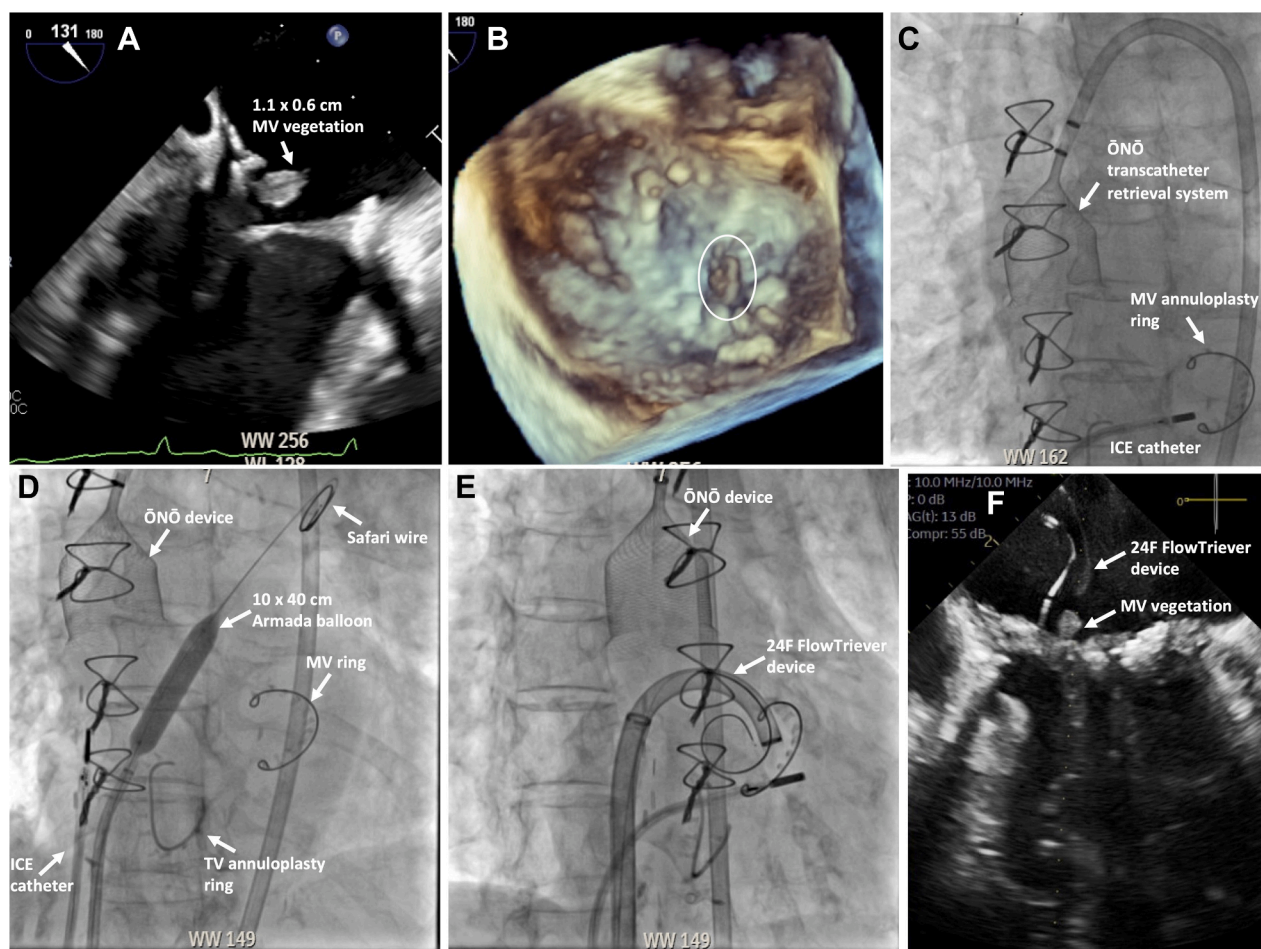
ICE = intracardiac
echocardiography

TEE = transesophageal
echocardiography

was successfully retrieved over multiple aspiration passes under continuous ICE guidance (Figures 1C to 1F). The $\bar{O}\bar{N}\bar{O}$ delivery system was withdrawn as a whole into the descending aorta and subsequently re-sheathed within the catheter to minimize the risk of embolization. Upon removal of the $\bar{O}\bar{N}\bar{O}$ device, small amounts of captured debris were noted. The procedure achieved complete vegetation removal, confirmed by postprocedural ICE (Video 1) and specimen analysis (Figures 2A and 2B). No periprocedural complications occurred, and pathology confirmed absence of infectious endocarditis and the presence of thrombus.

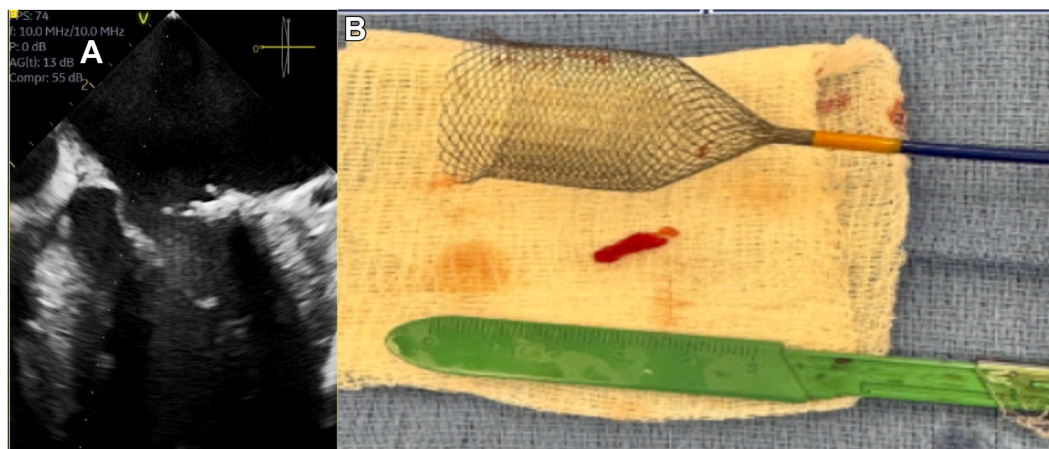
Mitral valve vegetations—infectious or sterile—pose a substantial risk of recurrent thromboembolism, particularly in patients with recent cerebrovascular events and elevated surgical risk. This case illustrates the feasibility of percutaneous transeptal aspiration thrombectomy using the FlowTrievers system in conjunction with the $\bar{O}\bar{N}\bar{O}$ transcatheter retrieval system device for comprehensive embolic protection. This combined strategy offers a novel, minimally invasive therapeutic option for high-risk patients presenting with acute stroke due to large, mobile, noninfectious mitral valve masses, and it may be extended to treat similar lesions in the left atrium or ventricle.

FIGURE 1 Procedural Imaging and Steps



(A) Transesophageal echocardiography (TEE) demonstrating hypermobile mitral valve vegetation. (B) Three-dimensional TEE highlighting involvement of anterior mitral leaflet. (C) Deployment of the $\bar{O}\bar{N}\bar{O}$ transcatheter retrieval system. (D) Delivery of the FlowTrievers system into the left atrium. (E and F) Intracardiac echocardiography-guided percutaneous aspiration of vegetation.

FIGURE 2 Postprocedure



(A) Intracardiac echocardiography demonstrating complete removal of mitral valve vegetation. (B) Gross specimen retrieved from the ONO device.

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KEY WORDS FlowTrieve, mitral valve vegetation, ONO device, percutaneous mitral valve aspiration

APPENDIX For a supplemental video, please see the online version of this paper.