

Migration of central vein stent into the right atrium

Kyoung-Woo Seo and Jin-Sun Park

Department of Cardiology, Ajou University School of Medicine, Suwon, Korea

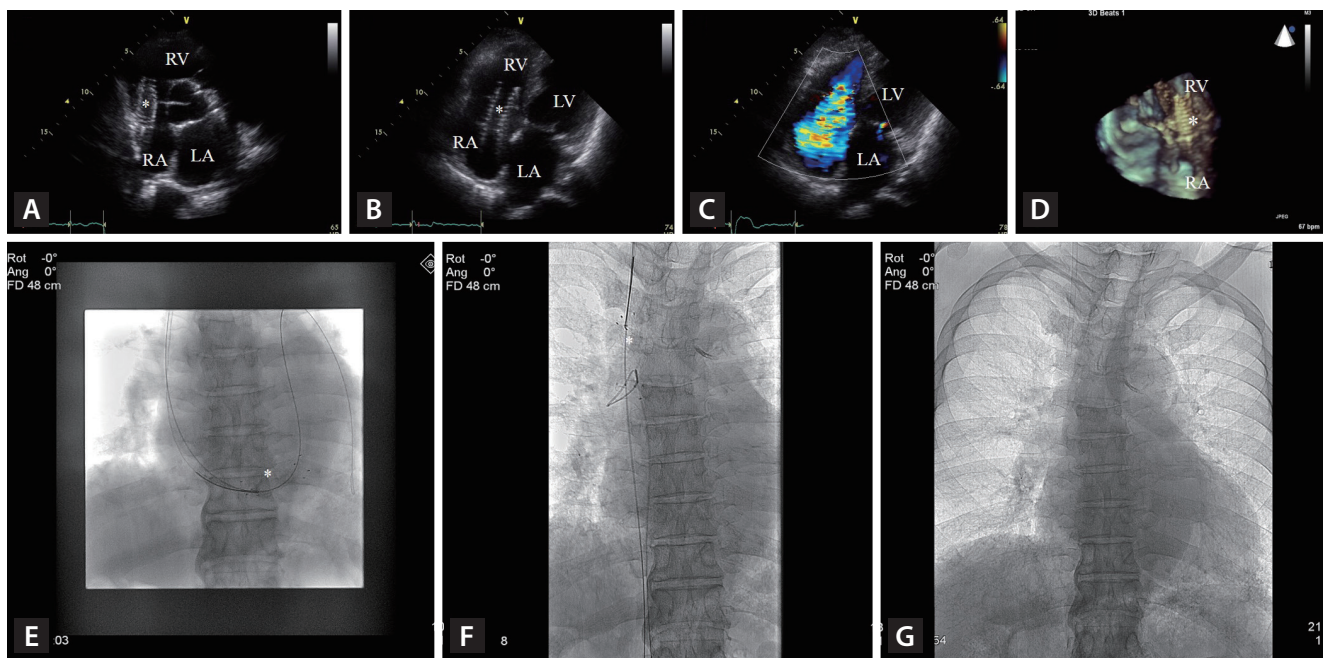


Figure 1. (A, B) Transthoracic echocardiography revealed that a stent (asterisk) was placed in right heart between RA and RV. (C) Modified 4 chamber view with color Doppler echocardiography revealed that the presence of the stent caused severe functional tricuspid regurgitation. (D) The real time three-dimensional echocardiography confirmed the migration of the stent in right heart. (E) The stent was seen in right heart between RA and RV, mostly in RA. The stent was captured with a snare loop from right internal jugular vein. (F) The stent was pulled out into the SVC. The stent in the SVC was captured with another snare from the right femoral vein. (G) The stent was evacuated with another snare from the right femoral vein. LA, left atrium; RA, right atrium; RV, right ventricle; LV, left ventricle; SVC, superior vena cava.

A 72-year-old male, who had a 10-year history of end-stage renal disease on hemodialysis, was referred to our clinic due to a migrated stent. In another clinic, percutaneous stenting for central venous occlusion was attempted, but the stent migrated into the right atrium (RA) during the procedure. This case was approved by the Institutional Review Board as exempt (AJOUIRB-EX-2023-302).

Transthoracic echocardiography revealed that a stent was placed in right heart between RA and right ventricle

(Fig. 1A, B). The presence of the stent caused severe functional tricuspid regurgitation (Fig. 1C). The real time three-dimensional echocardiography confirmed the migration of the stent (Fig. 1D).

Percutaneously, an attempt was made to remove the stent. A snare loop was used from right interval jugular vein to capture the stent (Fig. 1E) and pull it out into the superior vena cava (SVC) (Fig. 1F). The stent in the SVC was captured with another snare loop from the right femoral vein and

evacuated (Fig. 1F, G). After removal of the stent, transthoracic echocardiography revealed no tricuspid regurgitation or tricuspid valve dysfunction.

Central venous occlusion is a frequent complication in hemodialysis patients [1]. Percutaneous stent placement is known as effective and safe in cases of central venous occlusion [2]. Although stent migration is an extremely rare complication during procedure of percutaneous stent placement, it could result in serious consequences including cardiac perforation, pericardial tamponade, pulmonary embolism, tricuspid regurgitation, and heart failure [3]. In the literature, surgical removal of migrated stent was suggested as the first option for most cases. In the present case, central venous stent migration was successfully resolved by percutaneous stent removal using a snare loop.

REFERENCES

1. Eguchi D, Honma K. Results of stenting for central venous occlusions and stenoses in the hemodialysis patients. *Ann Vasc Dis* 2020;13:235-239.
2. Kundu S, Modabber M, You JM, Tam P, Nagai G, Ting R. Use of PTFE stent grafts for hemodialysis-related central venous occlusions: intermediate-term results. *Cardiovasc Intervent Radiol* 2011;34:949-957.
3. Chen B, Lai Q, Fedally S, Wan Z. Migration of covered stents in thoracic central vein obstruction procedures in patients with hemodialysis: case report and literature review. *Front Cardiovasc Med* 2022;9:954443.

Received: July 3, 2023

Accepted: July 10, 2023

Correspondence to

Jin-Sun Park, M.D., Ph.D.

Department of Cardiology, Ajou University School of Medicine, 164 WorldCup-ro, Yeongtong-gu, Suwon 16499, Korea

Tel: +82-31-219-5117, Fax: +82-31-219-5708

E-mail: lavioli@hanmail.net

<https://orcid.org/0000-0002-7775-4092>

CRedit authorship contributions

Kyoung-Woo Seo: writing - original draft; Jin-Sun Park: conceptualization, methodology, writing - review & editing, supervision

Conflicts of interest

The authors disclose no conflicts.

Funding

None