

Unexpected Complication in an ESKD Patient during AVG Thrombectomy

Jasmeet Gill,¹ Akinwande Akinfolarin,² and Harold M. Szerlip¹

KIDNEY360 2: 400–401, 2021. doi: <https://doi.org/10.34067/KID.0004272020>

Case Description

A 64-year-old man, with a history of ESKD on hemodialysis, presented to an outside hospital for thrombectomy of a thrombosed, right-upper-extremity, arteriovenous graft. He underwent an endovascular thrombectomy, angioplasty, and expandable stent placement in the venous limb, which was complicated by fracturing of a stent and migration into the left main pulmonary artery. The patient was asymptomatic, hemodynamically stable, and was transferred for retrieval of the migrated stent. Computed tomography scanning of the chest showed a fractured vascular stent, 2.4 cm in length, within the left main pulmonary artery, extending into the descending limb (Figure 1, A and B). The migrated stent was retrieved *via* an endovascular approach, under fluoroscopic guidance (Figure 1C), by an interventional radiologist, with a cardiothoracic and vascular surgeon on standby. The pulmonary-artery catheter was placed through the right common femoral vein and advanced through the right atrium and ventricle into the main and then

left pulmonary artery. A loop snare was used, which resulted in the stent fracturing into two symmetric pieces. A clover loop snare was exchanged for the loop snare to capture the two fractured stent segments.

Over the last decade, the role of stent placement in maintaining dialysis-access patency has significantly increased. The migration of stents is rare and the reported incidence is around 2%–5% (1). The most common locations of stents that have migrated from venous circulation are the superior vena cava, right ventricle, and the pulmonary arteries. The reported incidence for stent migration to the pulmonary artery is <3% (2). Reviewing the English literature on PubMed for the last 30 years revealed less than ten case reports of hemodialysis-access stent migration to the pulmonary artery. Migrated stents can cause vessel occlusion, serve as a nidus for thrombus formation, and embolize to the central circulation (1). Risk factors for stent migration are undersizing of the stent or premature stent-balloon dislodgement. Excessive limb movement and increased respiratory-cycle movements can also

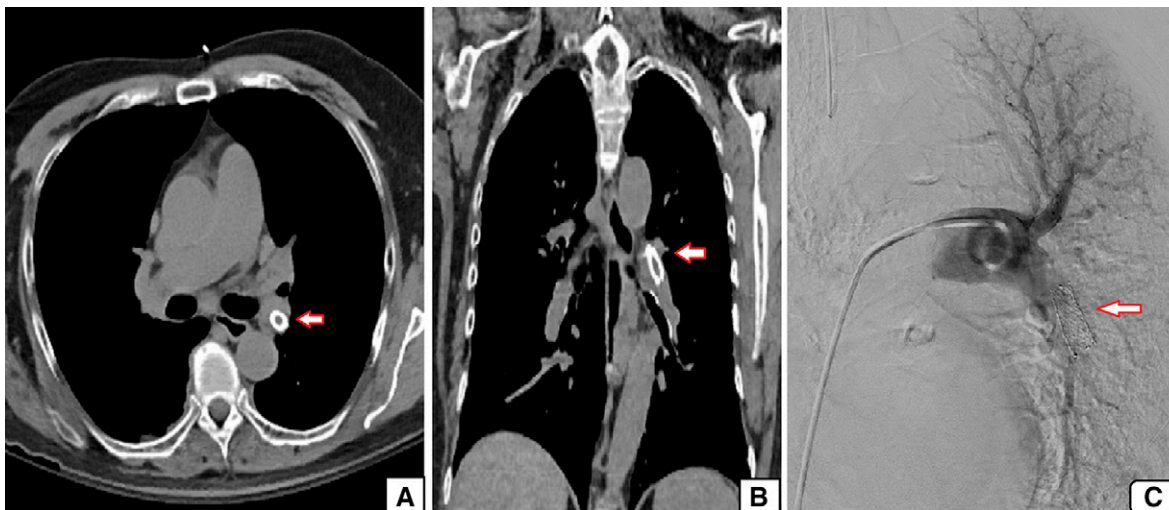


Figure 1. | Computed tomography chest scan without contrast, showing the fractured vascular stent (arrow), measuring 2.4 cm, within the distal aspect of the left main pulmonary artery. (C) Fractured stent segment (arrow) seen in the left main pulmonary artery during fluoroscopy.

¹Department of Nephrology, Baylor University Medical Center at Dallas, Dallas, Texas

²Dallas Nephrology Associates, Dallas, Texas

Correspondence: Dr. Jasmeet Gill, Baylor University Medical Center at Dallas, Department of Nephrology, 3500 Gaston Avenue, Barnett Tower, Ste 904, Dallas, TX 75246. Email: Jasmeet.gill@bswhealth.org

increase the risk of stent migration (1). Retrieval of migrated stents from the pulmonary vasculature is complex; therefore, the retrieval approach *via* surgical or endovascular techniques needs to be determined judiciously and requires multidisciplinary involvement. Although there is no consensus for the management of migrated stents to be urgently removed or watched, percutaneous removal should be preferred over surgical methods due to lower morbidity and higher success (3).

Teaching Points

- Stent migration from arteriovenous hemodialysis access to the pulmonary artery is rarely reported but is a serious complication. Increased awareness of this complication is required.
- The management of migrated stent fragments from the central vasculature is complex and requires a multidisciplinary approach. In complex situations and in cases of large stents, a “wait-and-watch” policy is sometimes used.

Disclosures

All authors have nothing to disclose.

Funding

None.

Acknowledgments

Informed consent was obtained from the patient.

Author Contributions

A. Akinfolarin, J. Gill, and H.M. Szerlip reviewed and edited the manuscript; and J. Gill wrote the original draft.

References

1. Dashkoff N, Blessios GA, Cox MR: Migration of covered stents from hemodialysis A-V access to the pulmonary artery: Percutaneous stent retrieval and procedural trends. *Catheter Cardiovasc Interv* 76: 595–601, 2010 <https://doi.org/10.1002/ccd.22553>
2. Ho JM, Kahan J, Supariwala A, Silberzweig J, Kornberg R, Swistel D, Dreifuss R: Vascular stent fracture and migration to pulmonary artery during arteriovenous shunt thrombectomy. *J Vasc Access* 14: 175–179, 2013 <https://doi.org/10.5301/jva.5000105>
3. Sharma AK, Sinha S, Bakran A: Migration of intra-vascular metallic stent into pulmonary artery. *Nephrol Dial Transplant* 17: 511, 2002 <https://doi.org/10.1093/ndt/17.3.511>

Received: August 3, 2020 Accepted: September 4, 2020