

Successful Transcatheter Recanalization of a Chronically Occluded Left Pulmonary Artery Due to Fibrosing Mediastinitis

Running title: Recanalization of chronically occluded left pulmonary artery

Michael D. Seckeler, MD, MSc^a, J.R. Exequiel T. Pineda, MD, PhD^b, Kapil Lotun, MD^b

^a Department of Pediatrics (Cardiology), University of Arizona, Tucson, Arizona

^b Sarver Heart Center, University of Arizona, Tucson, Arizona

Address for correspondence:

Michael D. Seckeler, MD, MSc, University of Arizona, Department of Pediatrics (Cardiology), 1501 N. Campbell Ave, PO Box 245073, Tucson AZ, 85724, mseckeler@peds.arizona.edu, 520-626-5585. orcid.org/0000-0001-9013-5723

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Abbreviations

PA = pulmonary artery

RVSP = right ventricular systolic pressure

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59-year-old female with fibrosing mediastinitis from prior coccidioidomycosis infection causing severe bilateral proximal branch pulmonary artery (PA) obstruction and right ventricular hypertension. Bilateral PA stents were placed 12 years ago. Ten years ago, the left PA stent was completely occluded and the right stent severely stenotic. A surgical right ventricle-PA homograft was placed to the right PA distal to the stent and the left PA “abandoned”. Cardiac CT showed no flow through the left PA stent and minimal flow through the right stent (Figure 1). She required chronic supplemental oxygen and had dyspnea with walking for 10 years, which recently worsened, and was referred for left PA recanalization.

Right ventricular systolic pressure (RVSP) was elevated (70 mmHg) with no gradient through the homograft. There was external compression of the left PA stent and a “bird’s beak” appearance to the proximal left PA with no flow through the stent (Figure 2a). Using chronic total occlusion wires and microcatheters in a guide catheter, the left PA stent was traversed (Figure 2b) and a track serially dilated using non-compliant coronary and peripheral balloons. A covered CP stent® (NuMED, Hopkinton, NY) was placed with improvement in left PA flow (Figure 2c and d). Final RVSP was 44 mmHg. At 1-year follow-up, dyspnea with activity was significantly improved, she required no supplemental oxygen and RVSP by echocardiography was 35 mmHg.

There have been significant advances in treating chronic total occlusions in coronary arteries, but the same techniques can treat occlusion in other vessels. Despite non-invasive imaging

suggesting complete occlusion, the presence of a “bird’s beak” appearance in a vessel often indicates a vessel that can be recanalized.(1)

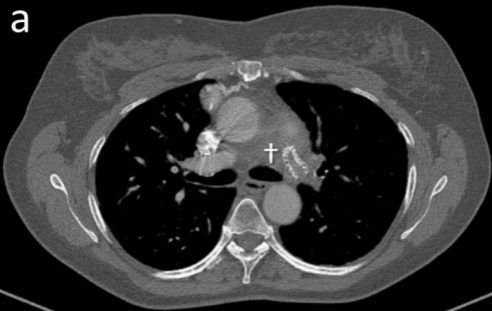
References

1. Strah D, Boyer PJ, Dobson C, Rischard F, Seckeler MD. Improvement in ventilation-perfusion mismatch after percutaneous recanalization of near-atretic pulmonary artery due to non-small cell lung cancer. *Current Problems in Cancer: Case Reports* 2020;2:100025.

Figure legends

Figure 1 - Cardiac CT. (a) Distorted left PA stent with no flow (†). (b) Patent homograft (arrow) and severe stenosis of right PA stent (*).

Figure 2 – Cardiac catheterization. (a) External compression of left PA stent (*) and “bird’s beak” appearance of proximal left PA (arrow) with no flow through the stent. (b) Microcatheter has crossed the left PA stent and angiography reveals distal PA vasculature (arrowheads). (c) Placement of covered CP stent® in proximal left PA. (d) Flow through the left PA stent (arrow) to distal vessels (arrowheads).

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