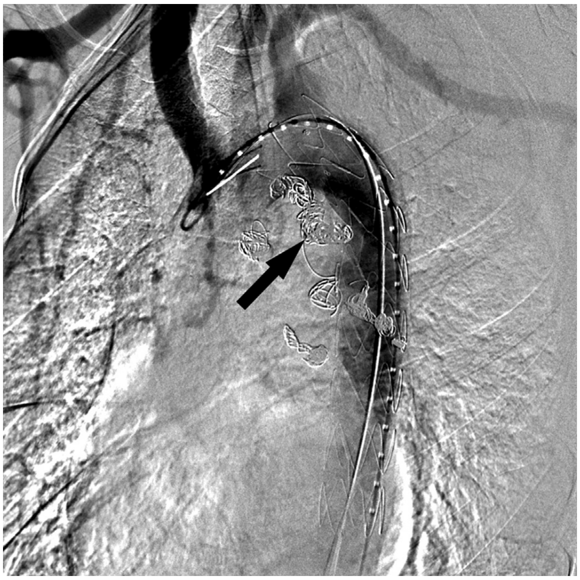

Figure 5. A post-procedural angiogram revealed complete sealing of the stent-graft to the aortic wall and complete exclusion of the wide-necked bronchial artery aneurysm (arrow) as well as the feeding arteries.

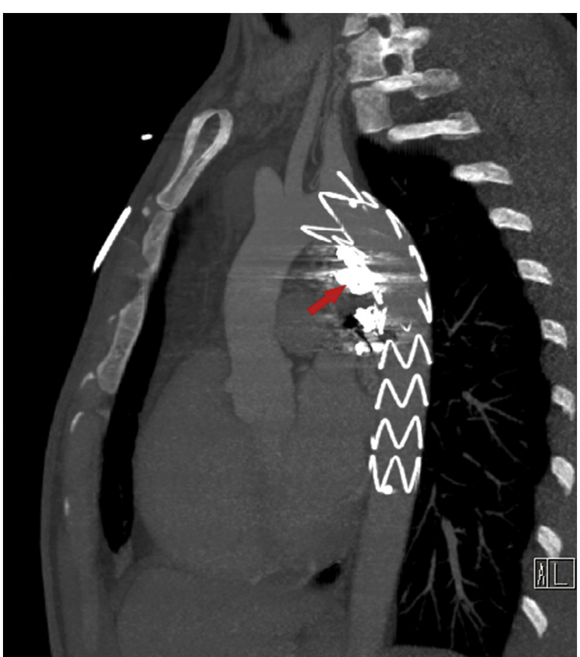

Figure 6. Four-month follow-up CT angiography showed that the stent-graft remained in its proper position without an endoleak in the bronchial artery aneurysms (arrow).

was concluded to be congenital. BPAFs might be the primary congenital abnormality, which was similar to the one described by Makoto Samura et al (1).

Owing to the risks related to BAA, which can cause a potentially fatal hemorrhage, prompt treatment is recommended once the diagnosis is confirmed. For the present patient, conservative therapy such as pituitrin seemed to be ineffective in stopping the hemoptysis and surgery was high risk because the BAAs were multiple. Although contrast-enhanced CT angiography showed a pulmonary consolidation in the right upper lung field, the patient was not in a condition of infection and there was no contraindication of endovascular treatment.

In the embolizations of outflow arteries, PVA particles were selected for economic reasons. The use of embolic materials <325 μm in diameter may result in inadvertent passage through the bronchopulmonary anastomosis and therefore should be avoided (2), so 350–500 μm and 500–1,000 μm PVA particles were selected. BAAs might be packed more densely with the use of detachable coils and treated with the use of a vascular occluder. However, a vascular occluder and detachable coils were not commercially available in the hospital the time. In the embolization of the largest aneurysm near the aorta, conventional methods were not suitable owing to the wide neck and risked causing migration of embolic agents into the thoracic aorta. Therefore, stent-assisted coil embolization was applied. In addition, the stent might prevent the development of potential collateral arteries stemming from the aorta (3).

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Endovascular Aortic Repair with the Use of Low-Profile Altura and Covera Stent Graft for Accessory Renal Artery Chimney

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Editor:

Promising new hybrid-techniques combining standard aortic endografts and peripheral stent grafts with the chimney technique are increasingly used (1,2).

We report here our initial experience using the Altura (Lombard Medical, Oxfordshire, United Kingdom) endograft for symptomatic abdominal aortic aneurym (AAA) treatment and Covera stent graft (C.R. Bard, Murray Hill, New Jersey) for accessory renal artery salvage in a 76-year-old patient with a single kidney.

The Altura stent graft is a bimodular system designed for the treatment of AAA and consisting of 2 aorto-mono-iliac sections and iliac extensions. The stent grafts are composed of nitinol-braided frames and an outside-attached polyester graft material. The suprarenal bare segment is used for fixation. Proximal sealing is based on the D-shaped cross-section of the proximal segments, which are deployed parallel with the plane aspect against each other. This alignment results in a cross-sectional circular configuration with a midline septum shaped by both "kissing" aortic stent grafts. Aortic (24/27/30 mm) and iliac (13/17/21 mm) stent grafts are preloaded into 14-F delivery catheters. Both of them allow contrast injection for angiography. Aortic stent grafts are released from proximal to distal and iliac stent grafts from distal to proximal, allowing for precise deployment.

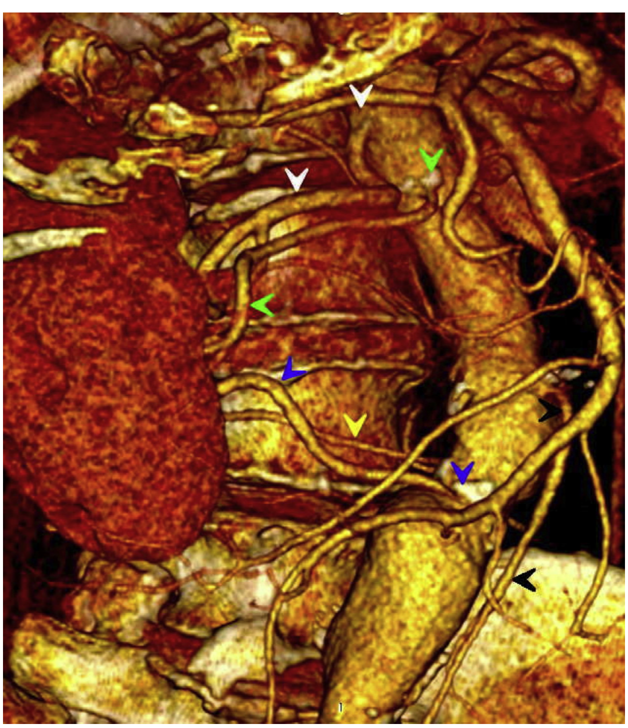

Figure 1. Three-dimensional (3D) reconstruction of contrast-enhanced computerized tomography reveals a right-side single kidney, which is supplied by a main renal artery (white arrowheads) and a small (green arrowheads) and a lowermost large (blue arrowheads) accessory renal artery. There is a prominent right-side large lumbar artery (yellow arrowhead) and inferior mesenteric artery (black arrowheads). The highly eccentric hourglass-shaped abdominal aortic aneurysm measuring proximal 4.5 cm and distal 5.5 cm in maximum diameter is not visualized on the 3D volume rendering technique.

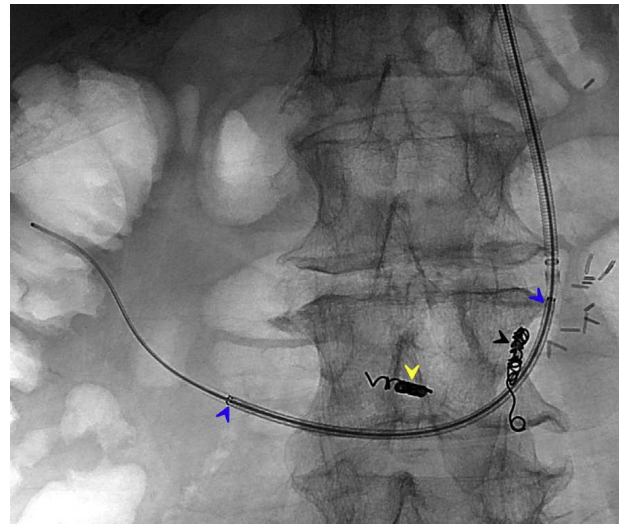

Figure 2. An undeployed ePTFE-covered self-expanding nitinol 6/100 mm chimney stent graft (Covera; C.R. Bard) (blue arrowhead) is positioned into the right lowermost renal artery via a left transbrachial 8-F 90-cm sheath (Flexor; Cook) and a 0.89-mm guidewire (Supracore; Abbott Laboratories, Lake Bluff, Illinois). The sheath is retracted before stent deployment, as shown in **Video 1** (available online at *www.jvirg.org*). Coil embolization was performed for occlusion of the inferior mesenteric artery (black arrowhead) and a right-side lumbar artery (yellow arrowhead). Multiple clips were present in the left-side retroperitoneal space after nephrectomy.

The Covera stent graft is a newly available expanded polytetrafluoroethylene (ePTFE)-coated and carbon-impregnated self-expanding stent graft (diameters 6-10 mm, lengths 30-100 mm, delivery catheter 8/9 F) for outflow stenosis of arteriovenous shunts.

Contrast-enhanced computerized tomography in our patient depicted a right-side single kidney supplied by 1 main renal artery and 2 accessory renal arteries (ARAs). The lowermost large ARA, with a diameter of 4.5 mm, showed calcified high-grade stenosis combined with an acute angulated vessel origin (**Fig 1**). Inferior mesenteric artery and a right-side lumbar artery showed diameters of 4 mm and 3 mm.

Endovascular aortic aneurysm repair (EVAR) combined with unilateral right-side chimney for preservation of the lowermost large ARA was recommended by a multidisciplinary vascular board, owing to severe comorbidities (eg, nephrectomy-related nephropathy: creatinine 1.4 mg/dL).

Before EVAR, coil embolization of the inferior mesenteric artery and right-side lumbar artery was performed. For the renal chimney, a left transbrachial 90-cm 8-F sheath was percutaneously inserted. Catheterization of the right lowermost large ARA was difficult owing to ostial high-grade stenosis and acute angulation. A 2.7-F microcatheter was used for transfemoral cannulation. The microcatheter in place served as anatomic landmark for transbrachial cannulation of ARA. An ePTFE-covered self-expanding 6/100 mm stent graft was deployed over an 0.89-mm stiff wire (**Fig 2**; **Video 1** [available online at *www.jvir.org*]). Aortic