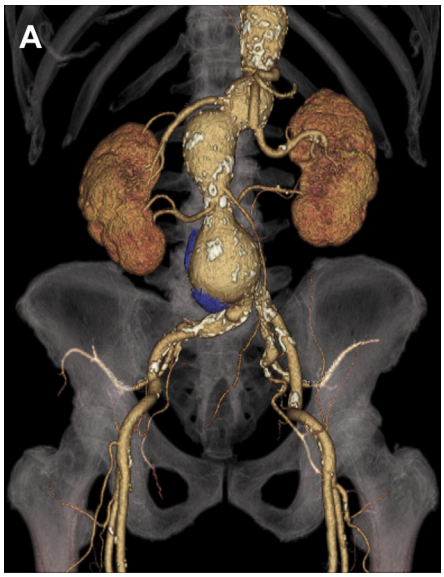
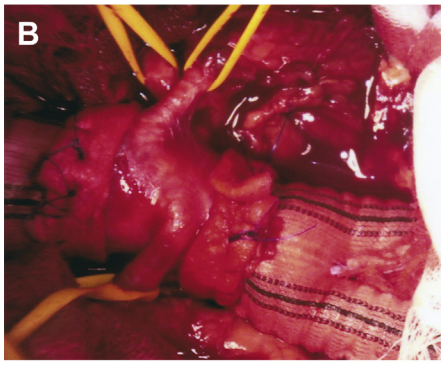
Segmental replacement to treat abdominal aortic aneurysm with bilateral accessory renal artery

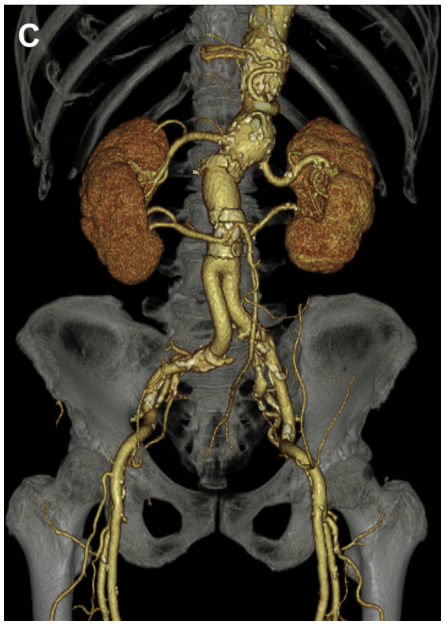
Yohsuke Yanase, MD, PhD, Akihito Ohkawa, MD, *and* Satomi Inoue, MD, PhD, *Kitami, Hokkaido, Japan*

Enhanced abdominal computed tomography angiography of a 72-year-old man confirmed a large gourd-shaped abdominal aortic aneurysm (AAA) with a top and bottom diameter of 35 and 55 mm, respectively. The bilateral accessory renal arteries (ARAs), inferior mesenteric artery, and lumbar arteries arose from a constricted segment between the two parts of the aneurysm (*A*/Cover). The diameter of both the right and left ARAs was 4.5 mm. We planned open surgery for the AAA by reconstructing the ARAs through the transperitoneal approach to preserve renal function. Because the segment of the abdominal aorta from which the ARAs, inferior mesenteric artery, and lumbar arteries had arisen was not dilated, we preserved the aortic segment in a tube shape (*B*). That is, the top and bottom of the AAA were replaced with an I-shaped artificial graft and a bifurcated graft, respectively. All arterial anastomoses proceeded under simple clamping. Postoperative computed tomography angiography showed that all branches were patent (*C*). The patient was discharged on postoperative day 14 without complications.

The patient approved publication of his clinical case.







DISCUSSION

The reported prevalence of bilateral ARAs is 5% to 10%.[1,2] To the best of our knowledge, there have been no reports of open surgical treatment for AAA with bilateral ARAs. There are some reports that ARA occlusion during endovascular abdominal aneurysm repair is not associated with deterioration of renal function.[3,4] On the other hand, ARA occlusion causes renal infarction and some degree of ischemic damage to the kidney parenchyma.[4] For that reason, the ARA should be preserved if at all possible. Hosaka et al had the same opinion and reported an ARA preservation technique during endovascular therapy.[5]

We considered several surgical approaches, for example, island technique or the individual reconstruction of arteries. However, because these branch arteries were close to the short segment of the abdominal aorta in our patient, we reconstructed them by preserving the aorta in a tube shape. We considered this to be the simplest strategy, and the outcome was successful. Although the preserved segment of the aorta was not dilated, future aneurysmal changes remain a concern. Therefore, this patient will be carefully followed up.

From the Department of Cardiovascular Surgery, Hokkaido Prefectural Kitami Hospital.

Author conflict of interest: none.

E-mail: yanasey@sapmed.ac.jp.

The editors and reviewers of this article have no relevant financial relationships to disclose per the Journal policy that requires reviewers to decline review of any manuscript for which they may have a conflict of interest.

J Vasc Surg Cases and Innovative Techniques 2018;4:305-6

2468-4287

http://dx.doi.org/10.1016/j.jvscit.2016.11.004

REFERENCES

1. Satyapal KS, Haffejee AA, Singh B, Ramsaroop L, Robbs JV, Kalideen JM. Additional renal arteries: incidence and morphometry. Surg Radiol Anat 2001;23:33-8.
2. Ozkan U, Oğuzkurt L, Tercan F, Kizilkiliç O, Koç Z, Koca N. Renal artery origins and variations: angiographic evaluation of 855 consecutive patients. Diagn Interv Radiol 2006;12:183-6.
3. Malgor RD, Oderich GS, Vrtiska TJ, Kalra M, Duncan AA, Gloviczki P, et al. A case-control study of intentional occlusion of accessory renal arteries during endovascular aortic aneurysm repair. J Vasc Surg 2013;58:1467-75.
4. Greenberg JI, Dorsey C, Dalman RL, Lee JT, Harris EJ, Hernandez-Boussard T, et al. Long-term results after accessory renal artery coverage during endovascular aortic aneurysm repair. J Vasc Surg 2012;56:291-6.
5. Hosaka A, Miyata T, Nishiyama A, Miyahara T, Hoshina K, Shigematsu K. Preservation of the accessory renal arteries after endovascular repair of common iliac artery aneurysm using kissing stent grafts. J Vasc Surg 2016;63:523-6.

Submitted Nov 14, 2016; accepted Nov 18, 2016.