Endovascular Aneurysm Repair (EVAR) was successfully reported by Dr. Juan Parodi in the early 1990’s. His initial report of this monumental change in the management of aneurysm disease has allowed for the continued evolution of endovascular therapy for the aorta. Dr. Yoshida and colleagues report two difficult cases that demonstrate this continued evolution in endovascular therapies for aneurysmal disease. EVAR and TEVAR have been limited in successfully treating the aortic arch and visceral segment of the aorta due to the natural branching of the aorta. In light of the limits of current technology, surgical debranching procedures have been utilized to expand our ability to treat complex aneurysmal disease of the aortic arch and abdominal aorta. But, these procedures are fraught with a high morbidity and mortality rate.

Several reports have highlighted the value of endovascular debranching of the aorta to minimize the morbidity of surgical debranching. Yoshida et al. report a novel technique that treats complex aneurysmal disease of the aortic arch. They present two cases in high-risk patients that were managed in a total endovascular fashion. They utilized a hybrid approach with exposure of the femoral, common carotid, and axillary arteries. They placed 12 Fr sheaths into the common carotid arteries and axillary arteries. In addition to placing a thoracic endograft, they placed a combination Viabahn stents (WL Gore and Associates, Flagstaff, AZ) that varied from 10 to 15 cm in length and were placed as proximally as the sinotubular junction with care taken to avoid coverage of the coronary arteries. The first patient was treated with branches into the innominate artery and the left common carotid artery after a retrograde aortic dissection occurred during TEVAR. In addition, a left carotid-subclavian artery had already been placed and this vessel did not need an endovascular branch. The second patient had all four arch vessels treated at the time of TEVAR. The authors report successful aneurysm exclusion in both patients. In addition, they show 10-month follow-up in one patient and 17-month follow-up in the second patient that demonstrates aneurysm exclusion and no stent fractures.

I am impressed with the initial technical success and mid-term results in these two patients. The total endovascular aortic arch debranching technique will allow us to treat high-risk patients in a lower risk way. But, I add a word of caution to this promising technique. I believe that long-term follow-up is exceptionally important in light of the interactions of endovascular branches, a thoracic endograft, the aortic arch, and every variation in systolic and diastolic pressure. An occluded renal artery branch can lead to renal insufficiency requiring renal replacement therapy. But, it may only lead to an elevation in the creatinine level and no other significant medical consequences. An occlusion of an arch vessel can cause a significant cerebrovascular accident with significant consequences to the patient. Therefore, care must be taken before we frequently place covered stent grafts into the dynamic forces of the aortic arch. These technologies are not necessarily designed to handle these stresses and have not been tested in this high-flow, high-stress environment. I would like to congratulate the authors on their success with this approach, but I look forward to seeing the long-term durability of the stent—stent and arch—stent interactions.

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