CLINICAL HIGHLIGHT Thoracic Aortic Program

Aortic aneurysms and dissections that involve the branch vessels in the arch or perivisceral aorta are among the more challenging conditions faced by our patients. Because these segments of the aorta involve critically important branch vessels, they are not amenable to treatment with standard endovascular devices, and open surgical repair is a complex endeavor as flow must be maintained during the reconstruction.

Dr. Christopher Burke

Dr. Matthew Sweet

Historically, a patient with such a condition would see one surgeon, whether a cardiac or vascular surgeon, and that individual would utilize whichever approach they were most comfortable with. In the last few years, advances in endovascular stent graft technology as well as refinements in the operative techniques used for open surgical repair have expanded our ability to treat these patients. Each approach has its advantages and disadvantages, and the choice between which approach is best for each patient, and when to combine them, requires expertise and comfort with both techniques. As our population ages, we anticipate continued growth in the incidence of such aneurysms and establishing a robust team with the right technology and expertise will be critical. To address this specific need, we have recently initiated the UW Multi-disciplinary Thoracic Aortic Program (UW MTAP) at UW Medical Center-Montlake (UWMC-ML). UW MTAP is a group of Cardiac and Vascular surgeons with interest and expertise in both the open and endovascular approaches to these specific aortic domains, the aortic arch and thoracoabdominal aorta.

Dr. **Christopher Burke**, Assistant Professor in the Division of Cardiothoracic Surgery, is a cardiac surgeon who did a postgraduate aortic surgery fellowship under Dr. Joseph Bavaria, a world renowned expert in the surgical repair of the ascending aorta and aortic arch using open and "hybrid" approaches (where open surgery is combined with endovascular stenting at the same operation). Dr. Burke brings a wealth of experience in new techniques for valve sparing root repair and open arch repair with and without concomitant stenting. He has a particular clinical interest in aortic valve preservation surgery (aortic valve repair).

Dr. **Matthew Sweet**, Associate Professor and Section Chief of Vascular Surgery at UWMC-ML, is a vascular surgeon with expertise in the open repair of thoraco-abdominal aneurysms as well as the use of endovascular branched stents. These devices are only available within clinical trials and he runs one of only 10 studies utilizing the Cook Medical custom-made branched endografts for thoraco-abdominal aneurysms in the USA. Dr. **Sherene Shalhub**, Associate Professor in the Division of Vascular Surgery, is a vascular surgeon with national recognition for her expertise in the genetics of complex aortic disease, also called genetic triggered aortopathies. She has been prolific in her clinical research endeavors and has received federal funding support to study the impact of these aortic dissections on patients and their families. Dr. Shalhub has developed a national reputation within the field of genetic aortopathies and sees patients from around the country in her clinic.

The team meets weekly to review all complex aortic cases. This regular interaction facilitates the coordination of care, allows for shared decision making about operative approach, and reduces variation in how these complex issues are managed. Standardization is an important step forward in improving the safety and effectiveness of these complex operations. The formation of this program is essential in furthering UW's role as a national leader in cardiovascular care and in elevating the care for patients with these aneurysms in the Puget Sound region, WWAMI, and beyond. Furthermore, new technologies continue to emerge. Endovascular repair of the ascending aorta as well as combined catheter based aortic valve and ascending technology is in its infancy. When that technology arrives, UW will be well positioned to lead with this group and the excellent structural heart team at the Regional Heart Center. Through integration of services, we will ensure that all UW Medicine patients get the benefit of different expert opinions and all operative approaches.

Post-operative CT scan from a patient treated emergently with an arch replacement for an acute type A aortic dissection. He went on to have a single-branched stent graft placed in his descending thoracic aorta as part of a clinical trial. In appropriate candidates, aggressive treatment with a combination of open and endovascular therapy following aortic dissection allows the aorta to "remodel" and limits future aortic-related morbidity.

Post-op CT scan from a woman treated with a custom made branched endograft for an extent 2 thoracoabdominal aortic aneurysm in the B-TEVAR IDE study. This minimally invasive technique utilized only access from the femoral arteries.