

UCLA Aortic Center brings innovation and comprehensive care to complex aortic disease



Treatment of aortic disorders has changed dramatically in the past decade, with the introduction of more minimally invasive, endovascular surgical techniques — many originated at UCLA. The UCLA Aortic Center offers a comprehensive slate of options for patients with all stages of aortic disease, from traditional open surgery to the latest minimally invasive repairs.

The aorta — the body’s primary and largest artery — carries oxygenated blood from the heart to vessels that feed the rest of the body. It is susceptible to a variety of disorders, including aneurysms, valvular disease, atherosclerotic occlusive disease, traumatic aortic injury and aortic dissections.

Complex aneurysms & aortic dissections

Aortic aneurysms can occur anywhere along the aorta — from the heart to the abdomen — when a weak part of the aorta expands like a balloon, forming a blood-filled sac. Such bulges can be life-threatening if they grow too large and rupture. For small aortic aneurysms, a “watch-and-wait” approach may be taken. However, medium and large aneurysms often call for immediate treatment. While physicians still don’t know what causes aortic aneurysms, risk factors can include genetic predisposition, along with cigarette smoking, high blood pressure and chronic pulmonary disease.

Four decades of pioneering new approaches

The UCLA Aortic Center continues to advance the understanding and treatment of aortic disease, building on a four-decade history of leadership that embraces minimally invasive solutions.

In the 1970s, UCLA surgeons expanded knowledge of the physiological processes behind aortic aneurysms. In the following decade, they developed an aortic prosthesis to prevent blood leakage from the repair site of aneurysms, dissections and blockages — a game-changing device still in use. In the 1990s, UCLA surgeons were the first to combine open surgery and endovascular repair for thoraco-abdominal aortic aneurysms. Throughout the early 2000s, UCLA continued to innovate, including developing custom endografts in 2012 to repair difficult abdominal aneurysms.

Such commitment is essential in aortic disease. “Today, with advanced surgical and minimally invasive technologies, we can help address the needs of patients with the most complicated aortic conditions,” says William Quinones-Baldrich, MD, director, UCLA Aortic Center, and professor of vascular surgery. “We can offer more definitive alternatives, even if patients are considered high risk for traditional repair.”

The aorta is made up of three flexible layers, which handle the constant volume of blood sent from the heart. In an aortic dissection, the inner layer tears, allowing blood to flow between layers and separate them. This can result in a potentially fatal aneurysm.

An aortic dissection also can decrease or even halt blood flow to different parts of the body, causing damage to the brain, heart, kidneys and other organs. UCLA Aortic Center surgeons are exploring a new “staging” technique for select patients, first repairing any damage caused by the dissection, then addressing the dissection itself. The two-part staging minimizes risks of surgery for more patients.

Perfecting nimble surgical solutions

The UCLA Aortic Center is one of only a few specialized centers nationwide offering fenestrated endovascular procedures to repair the aorta where it branches off to the kidneys. This minimally invasive surgery offers hope for patients for whom open surgery is not an option. UCLA surgeons are helping to perfect the relatively new procedure, which begins by preparing a custom-made endograft with holes called “fenestrations.” When the stent graft is positioned in the aorta, these openings allow blood to flow to the kidneys and other organs.

Also being advanced is hybrid surgery, beneficial in repairing complex aneurysms and aortic disease in at-risk patients who don’t have other options. In this combined approach, the surgeon first restores blood flow to critical blood vessels away from an aneurysm using an open surgical procedure. Then the aortic repair is completed with a minimally invasive technique. Among other advantages, hybrid surgery can be done in stages and avoids opening the chest, both of which reduce risk to the patient.

Multidisciplinary team medicine

As a Center of Excellence at UCLA, the program’s strengths include its collaborative team, encompassing specialists in vascular surgery, cardiac surgery, anesthesiology, cardiology and radiology. Together, these experts develop personalized treatment plans for each patient. The UCLA aortic team uses the latest imaging techniques to quickly diagnose aortic disease and its cause. Ronald Reagan UCLA Medical Center is a Level I Trauma Center and will arrange urgent transfers for aortic disease patients when necessary.

Participating Physicians

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