

Aortic disorders require prompt diagnosis and treatment



Staged, combined endovascular and surgical treatment of a complex thoraco-abdominal aortic aneurysm. The hybrid procedure was developed at UCLA as an effective, less-invasive alternative for complex aortic pathology.

Accurate diagnosis and prompt treatment of abnormalities of the aorta are vital to achieving good patient outcomes. Unfortunately, many disorders of this arterial trunk that carries oxygen-rich blood from the heart to the branch arteries are “silent,” failing to present symptoms until the damage is advanced.

One common aortic pathology is an aneurysm, a bulge or ballooning in the wall of the aorta, frequently caused by degeneration of the aortic wall. High blood pressure, smoking, trauma, congenital weakness of the artery wall and other factors, including age, may also contribute to this disorder. Up to 30 percent of patients have a family history of aortic aneurysms.

Ruptured aneurysms result in life-threatening internal bleeding. Each year, more than 15,000 Americans die from ruptured aortic aneurysms. Because aortic aneurysms only rarely present symptoms, they are most commonly discovered on imaging studies, such as chest X-rays, ultrasound and computerized tomography (CT) scans, performed to evaluate another condition or during routine physical examinations.

New options for aortic therapies

“Treatments for aortic aneurysms and other aortic pathologies are much less invasive than they were just a few years ago,” says William J. Quiñones-Baldrich, MD, professor of surgery in the Division of Vascular Surgery.

One less invasive technique is endovascular repair of aortic aneurysms. With this technique, “you don’t need to open the chest or abdomen,” Dr. Quiñones-Baldrich says. Instead, the surgeon uses a synthetic graft at the end of a delivery catheter, inserts it through a leg artery and guides it to the aneurysm area. The graft replaces the affected segment of the aorta.

Endovascular repair reduces the risk of complications compared with open surgery. However, due to anatomic and technological limitations, not all patients can be treated with an exclusively endovascular approach. Open surgery remains the better option for some patients. Both techniques, plus a hybrid one, are available at the new UCLA Aortic Center, which diagnoses and treats the entire range of aortic disorders.

Treatment options

Some aortic problems can be managed by using medications that lower blood pressure or by controlling risk factors, particularly smoking, to reduce the likelihood of rupture. Others require intervention to correct the underlying defect. Surgery for aortic aneurysms typically involves one of two approaches: open surgery, in which an incision is made in the abdomen or chest, or endovascular repair, which doesn't require a major incision. Each approach has advantages and disadvantages.

In open surgery, the physician replaces the damaged section of the aorta with a synthetic graft. In endovascular repair, the surgeon delivers and deploys the synthetic graft using a catheter that is typically inserted through a leg artery. Under X-ray guidance, the surgeon maneuvers the graft to the aneurysm site, where it expands to exclude the aneurysm and act as a pathway for blood flow.

Compared with open surgery, endovascular repair requires less recovery time and may reduce complications. It is particularly suited to patients who have health issues that make them poor candidates for open surgery or whose schedules do not permit them to be away from work or family duties for several weeks. Endovascular repair is more expensive than open surgery and entails more follow-up visits to monitor the repair, as blood will occasionally continue to flow into the aneurysm (known as an endoleak). About 15 percent of patients may require additional procedures to completely exclude the aneurysm and prevent rupture after an endovascular approach.

UCLA Aortic Center

UCLA is world-renowned for its pioneering research on aortic abnormalities. Its vascular surgeons were the first on the West Coast to perform endovascular aortic aneurysm repair in 1994. Since then, UCLA surgeons have performed more than 2,200 endovascular aortic repairs. UCLA scientists were the first to develop a hybrid surgical technique to treat aortic aneurysms in the abdominal area. Combining open surgery and endovascular repair, this operation is designed to minimize risks and maximize the effectiveness of the intervention. In 2011, UCLA was one of only five international centers selected for trials of a fenestrated endograft for treatment of abdominal aortic aneurysms that occur near the arteries of the kidneys. This special synthetic graft, inserted using endovascular techniques, has openings positioned to maintain blood flow at the point where the aorta branches off into the kidneys.

The new UCLA Aortic Center translates research expertise into top-quality clinical care. Its multidisciplinary approach, involving surgeons, cardiologists, anesthesiologists and other specialists, provides comprehensive diagnosis and treatment of aortic pathologies. Radiologists from UCLA's Cardiac Radiology team ensure the highest quality CT and MR images are available for successful fluoroscopic overlay. The Aortic Center offers open surgery, endovascular and hybrid repairs for patients with aortic aneurysms. Specialists at the center can treat other aortic abnormalities, such as aortic blockages to major branches leading to the brain, abdominal organs or extremities; traumatic injuries; and a range of congenital conditions. Risk factor identification and control and medical management are integral to the Aortic Center's comprehensive approach.

Participating Physicians

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