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The body's own veins provide superior material for aortic grafts, UT Southwestern researchers find

DALLAS – Dec. 30, 2009 – A vascular surgical technique pioneered at UT Southwestern Medical Center and designed to replace infected aortic grafts with the body's own veins has proved more durable and less prone to new infection than similar procedures using synthetic and cadaver grafts.

Aortic graft infections are one of the most serious complications in patients undergoing aortic grafting procedures for peripheral arterial disease (PAD) and aortic aneurysms. PAD reduces blood circulation in the pelvis and lower extremities, and aortic aneurysms result in a weakening of the aortic wall that can cause lethal rupture of the aorta, the largest artery in the body. Patients with PAD and aortic aneurysms often require surgery, and aortic grafting procedures using synthetic grafts are typically the first line of treatment.

For patients with PAD, the procedure restores blood circulation to the legs, and for patients with aneurysm, it replaces the weakened aortic wall and prevents rupture. Synthetic grafts made of Dacron, a polyester material, are placed in the aorta and femoral arteries in the abdomen and groin, which feed blood to the legs. But in about 1 percent to 2 percent of these patients, the grafts become infected – a complication that causes amputation and death if left untreated.

Dr. G. Patrick Clagett, chief of vascular surgery at UT Southwestern, pioneered a technique called the neo-aortoiliac system (NAIS) that repairs these aortic-graft infections. The procedure involves removing the infected graft and replacing it with sections of femoral-popliteal veins harvested from the patient's thighs, rather than another synthetic graft or vessels harvested from human cadavers.

In a recent study published in the *Journal of Vascular Surgery*, Dr. Clagett and his team reported on 187 patients at UT Southwestern treated for aortic graft infections who underwent the NAIS procedure from 1990 to 2006. It is the largest group of such patients ever studied, and the researchers found that the incidence of re-infection was lower and the procedure resulted in superior durability with much lower long-term amputation rates when compared with other operations to treat this condition.

"This operation has gained favor worldwide in the treatment of this devastating condition," said Dr. Clagett. "Since performing the first operation here in the 1990s, we have accumulated data over the

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Natural aortic grafts – 2

years and have found this procedure to be far superior in overall patient outcomes.”

Simply replacing the old Dacron graft with a new synthetic graft can result in devastating infection of the new one, said Dr. Clagett, who is immediate past president of the Society for Vascular Surgery. His team and others also have found that the new synthetic or cadaver grafts tend to develop clots and new blockages.

“When we use the patient’s own tissue to construct a new graft, it provides an advantage because they are less likely to form clots within the graft and less likely to develop new blockages,” Dr. Clagett said. “Patients also need fewer subsequent procedures, a common problem with the other treatments for this complication.”

He added that patients who have the NAIS procedure don’t need to be on lifelong antibiotic therapy. Because the aortic reconstruction is fashioned with the patient’s own tissue, there is no foreign material that is prone to re-infection.

Other UT Southwestern researchers who contributed to the study included Dr. J. Gregory Modrall, associate professor of surgery; Dr. R. James Valentine, professor of surgery; and Jennie Hocking, assistant professor of physician assistant studies. Dr. Ahsan Ali, a former vascular surgery fellow at UT Southwestern now at the University of Arkansas, was the lead author of the study.

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