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Tenet Florida Physician Services
Dr. Ali Shahriari is the Medical Director of the Aortic Disease Institute at Florida Medical Center – a campus of North Shore. He is a board certified thoracic surgeon with a special interest in treating conditions affecting the aorta and the minimally invasive treatment of heart valve diseases.

Dr. Shahriari earned his degree from the Sahlgrenska Academy at the University of Gothenburg School of Medicine in Gothenburg, Sweden. He went on to complete his surgical residency at the Indiana University School of Medicine in 2005.

Dr. Shahriari’s studies continued at the Yale Center for Thoracic Aortic Disease with specialized instruction under the guidance of Dr. John Elefteriades, the William W.L. Glenn Professor of Cardiothoracic Surgery and Chief of Cardiothoracic Surgery. His training included additional specialization in endovascular interventional medicine.

At Florida Medical Center, Dr. Shahriari’s surgical repertoire includes open and endovascular repair of the aorta, aortic root repair and replacement, the Ross procedure, and both branched and fenestrated endografts for suprarenal and thoracoabdominal aneurysms.

The focus of our program is the diagnosis and treatment of a variety of aortic diseases and conditions.

Our treatments are customized to meet the needs of each individual patient. This can include a traditional open surgery or minimally invasive options.
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The Aortic Disease Institute of Florida

The Aortic Disease Institute of Florida is made up of a multidisciplinary team applying minimally invasive techniques to the treatment of aortic disease that traditionally has required large painful incisions, high risk of death and paralysis, and very long recovery times.

Our experts include cardiologists, dedicated aortic surgeons, and imaging radiologists dedicated to using and interpreting the latest technology to diagnose aortic disease and its complications.

We diagnose and treat diseases of the entire aorta involving the aortic root, ascending aorta, aortic arch, descending, thoracoabdominal and infrarenal aorta. Our experts also help the patients and their families with counseling, and diagnosis and treatment of other organ systems involved with these diseases.

Aneurysms are silent in nature and the first symptom is frequently pain associated with rupture or dissection, both of which carry a very high risk of death. At our center we individualize our recommendations based on the size of the aneurysm, family history, and genetic profile of the patient. Aneurysms in the same location but in different patients tend to behave differently. If the recommendation is continued medical treatment, this will be coordinated with the patient’s referring primary care or cardiologist/internal medicine doctor.

Thoracic Aortic Disease

The thoracic aorta may be involved by different conditions and pathologies. These conditions – such as aortic dissections, symptomatic or ruptured aneurysms, intramural hematomas, perforated penetrating ulcers or traumatic aortic injuries – may present as acute, life threatening emergencies.

Other diseases are more chronic in nature but eventually will lead to rupture, dissection and death if not diagnosed in a timely manner or if the patient is lost to follow-up.
Marfan Syndrome and Connective Disease Disorders

Marfan Syndrome

Marfan Syndrome is a hereditary condition. It affects 1/3000 to 1/5000 births. The mutated gene is located on chromosome 15. The affected individual is frequently tall with elongated skeletal features (fingers, toes, arms, etc.), but this is by no means the rule. This condition affects many organ systems, but the most lethal is involvement of the aorta which may lead to aortic dissection and premature death. The patients require screening and follow up by multiple dedicated specialists to assist in the care of these individuals.

Ehlers-Danlos type IV Syndrome

The multidisciplinary team also cares for many patients with *Ehlers-Danlos type IV*. The care for these patients involves genetic testing and counseling, evaluation of the heart and the aorta, skeletal system, and the eyes. Using this team approach, we coordinate the care of these patients with their referring physicians and make recommendations on medical or surgical treatments based on the patient’s individual needs. This program has been very well received amongst physicians in the community and aims towards proactive care and open communication with the patients’ other care givers in the community.

Aortic Root/Ascending Aortic Aneurysms

Most frequently these aneurysms will come to light after the patient has had a chest X-ray, CT scan or echocardiogram for unrelated reasons. In some cases, genetic testing is indicated for counseling and determination for timing of surgical therapy. For example, we would recommend resection of an aneurysm at 4.0 cm in patients that are positive for mutation in the TGFBR1 and TGFBR2 genes. We also use the aortic size index (ASI) to predict the risk of aneurysm-related adverse events. If surgical therapy is indicated, we offer a variety of reconstructive treatments based on the patient’s preference and lifestyle. We are experienced in valve-sparing root replacements (David and Yacoub procedures) with excellent short and long term results. This procedure focuses on removing the diseased aorta but preserving the patient’s own aortic valve. The benefits are avoiding blood thinners with the associated risk of stroke, bleeding, and malfunction. If the aortic valve cannot be preserved, then a modified Bentall procedure is performed using a mechanical or biological valve. Other biological root replacements offered are the Ross procedure and the Freestyle full root replacement.
Marfan Syndrome and Connective Disease Disorders

Corrective Procedures

ASCENDING AORTIC ANEURYSM

DAVID PROCEDURE (VALVE – SPARING)

ASCENDING AORTIC ANEURYSM

(with valve involvement)

MODIFIED BENTALL REPAIR
Aortic Arch Replacement

Most patients with aortic arch aneurysms also have involvement of their ascending or descending aorta. In general, we recommend surgical therapy once the arch has reached a diameter of 5.0 cm to 5.5 cm depending on the cause of the aneurysm. Conventional open resection is a proven therapy in experienced high volume centers. The major risk of this operation is the risk of stroke. Our center employs techniques that reduce the risk of stroke. These include moderate cooling of the patient’s brain to 25 degrees Celsius, uninterrupted blood flow to the brain during the procedure, use of techniques that measure oxygen level in the brain tissue during the operation, and removing all diseased tissue that can contribute to the risk of stroke. Our stroke rate approaches 3-4%, which is significantly less than the national average.

In patients with suitable anatomy of high risk with conventional surgery, we recommend the minimally invasive approach. This is done by first bypassing the branches of the aortic arch (so-called debranching) through a small incision and then use endovascular grafts to exclude the aneurysm. This procedure is performed through a small incision and does not require the use of a heart-lung machine.
Descending Aortic Aneurysms

Descending aortic aneurysms are uncommon. The prevalence is between 5 and 15 cases per 100,000 people per year. As opposed to ascending aortic aneurysms, the descending thoracic aneurysms are atherosclerotic in nature and share many of the risk factors with coronary artery disease and peripheral vascular disease. About 19-20% are hereditary and a few genes have been identified. We do test families for these genes when indicated. These aneurysms are also silent and the first symptoms are usually pain secondary to expansion or rupture. Many patients are diagnosed secondary to an abnormal chest X-ray or CT scan obtained for unrelated reasons.

Conventional treatment includes an open surgery involving opening the chest, placing the patient on cardiopulmonary bypass, then removing and replacing the aneurysm. The mortality for this operation approaches 5-10%. Complications include stroke, paralysis (up to 10%), and kidney failure. These procedures are routinely performed at our institution with a mortality of less than 5%. With our growing experience in endovascular procedures, this minimally invasive alternative is being offered to the majority of our patients, except patients with connective tissue disorders (for example, Marfan syndrome and Ehlers-Danlos syndrome). With this procedure there is no need for opening the chest and cardiopulmonary bypass. Other benefits of the minimally invasive alternative include reduced risk of death, paralysis, blood loss, hospital stay, and recovery time. Our center is actively involved with new treatment options and devices offering patients new technological advances.

Spinal cord complications and paralysis are devastating complications that may complicate the treatment of thoracic aneurysms. We use cerebrospinal fluid drainage and measure the function of the spinal cord with motor evoked potentials to help us successfully reduce the risk and to treat this complication.
Thoracoabdominal Aortic Aneurysm

These aneurysms involve both the thoracic and abdominal aorta. They frequently involve the segment of the aorta that gives off the branches to the abdominal organs and the kidneys. The indications for repair and the associated complications are similar to those described for the descending thoracic aneurysms. However, the incidence of these complications is higher than that of descending aortic repairs.

The repair is extensive, involving opening both the chest and abdominal cavities. These operations are performed routinely at our institute with great results. We use intraoperative systemic hypothermia to protect the brain, spinal cord, and other organs during the reconstructive phase.

In patients who are at high risk for an open surgical repair, we recommend reducing the magnitude of the operation by a debranching procedure, during which the visceral branches of the aorta are first bypassed through a laparotomy or a retroperitoneal incision. We then perform endovascular repair of the aneurysm through a small groin incision. This is called a hybrid procedure. We also offer endovascular options.
Abdominal Aortic Aneurysm

An abdominal aortic aneurysm, also called AAA or triple A, occurs in the lower portion of the aorta that travels through the abdominal cavity. This part of the aorta supplies blood to the lower half of the body including the abdomen, pelvic area, and the legs. An aneurysm can lead to a rupture or tear in the wall of the blood vessel, resulting in life-threatening bleeding. A tear in the aorta is known as an aortic dissection.

The first sign that an aneurysm is present may be pain due to either a rupture or dissection. Either of these circumstances can result in a life-threatening situation and must be carefully monitored. Aneurysms commonly do not present symptoms until they develop into a rupture or dissection, but there are certain traits and lifestyles that may indicate a higher risk.

Risk factors for aortic aneurysms include the following:

- **Being 65 years of age or older** increases your risk for an aortic aneurysm
- **High blood pressure** increases your chances of developing an aneurysm because high blood pressure can damage your blood vessels. Weakening the blood vessels puts you at risk for weak points in the aorta that may develop into tears (dissections)
- **Atherosclerosis**, or the buildup of fatty deposits in the blood vessels, can damage the blood vessels
- **Certain conditions such as Ehlers-Danlos syndrome, Marfan syndrome** or other connective tissue disorders
- **Family history of aneurysm**
- **Tobacco**: Chewing or smoking tobacco increases your risk of aortic aneurysm
Minimally Invasive Aortic Surgery/Hybrid Surgery

Using advanced endovascular technology, many aortic conditions may now be treated with minimally invasive or hybrid techniques. These innovative approaches generally avoid large chest incisions and would not need the use of a heart-lung machine. Many patients who would not be candidates for conventional surgical repair now have alternative options. Aneurysms of the aortic arch and the thoracoabdominal aorta may be repaired utilizing hybrid technology where the aortic arch of the abdominal aorta is debranched through a sternotomy and laparotomy respectively, allowing the stent grafts to exclude the aneurysm in a much less invasive approach. These approaches may reduce the risk of stroke, paralysis, and the systemic inflammatory response often seen when utilizing a heart-lung machine. The length of stay in the hospital will also be shorter.
Call 844-44-AORTA to learn more or schedule an appointment at The Aortic Disease Institute of Florida

or visit http://www.fmc-campus.com/aorta