St. Catherine of Siena Medical Center: Advanced Vascular and Endovascular Services in a Community Environment
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BY JENNIFER WEBSTER

FROM NUANCED, MILLIMETERS-DEEP VASCULAR SURGERY TO LIFESAVING ENDOVASCULAR REPAIR OF MAJOR ARTERIES, PHYSICIANS AT ST. CATHERINE OF SIENA OFFER STATE-OF-THE-ART TECHNIQUES IN A COMMUNITY ENVIRONMENT, CLOSE TO PATIENTS’ HOMES AND WORKPLACES.

WHILE LARGE, UNIVERSITY-AFFILIATED facilities are often top-of-mind when it comes to advanced surgical procedures and technology, St. Catherine of Siena is committed to delivering such high levels of care in an atmosphere designed to enhance the patient experience. A decades-long dedication to remaining in the vanguard of surgical innovation positions St. Catherine of Siena as a leading provider of vascular and endovascular surgery.

“We’ve performed vascular surgeries at St. Catherine of Siena for the past 30 years and endovascular procedures for the past decade,” says Rashid Khan, MD, Medical Director of the Department of General Surgery at St. Catherine of Siena. “During that time, both fields have evolved, and we have adapted our approaches to include minimally invasive techniques that encompass the most innovative, quality-of-life-enhancing procedures, such as aortic stent graft placement and peripheral vascular stenting.”

Dr. Khan also recommends the program for its deep relationships with Smithtown and its environs.
“We are very much involved in the community, and our atmosphere is very family-oriented and close-knit,” he says. “The circle of care we have built includes the support of the families, friends and neighborhoods we serve. Our patients receive care in the community, close to their loved ones.”

A DEEP DIVE INTO THE CIRCULATORY SYSTEM

While vascular and endovascular procedures both involve the vessels that transport blood to and from the heart, endovascular procedures treat diseases from within the veins and arteries, often by means of stent placement or other catheter-based techniques. Such technologically advanced procedures offer significant patient benefits compared with more conventional techniques.

Endovascular surgery is a wide-ranging specialty, encompassing minimally invasive procedures for opening blockages in blood vessels. This can replace or supplement traditional open methods that route blood around these blockages using bypass procedures. For both urgent and routine procedures, St. Catherine of Siena’s surgeons offer a variety of approaches.

“Using a few small incisions to open blockages in veins and arteries reduces many complications associated with traditional open approaches and requires minimal recovery time,” says Morad Awadallah, MD, Medical Director of Endovascular Surgery at St. Catherine of Siena Medical Center. At St. Catherine of Siena, patients can have incision-free revascularization in a location that’s close to home, affording them the capacity to return home the same day. This allows for faster recovery, but at the same time, we have specific protocols that allow us to perform such procedures safely and with good follow-up.”

Surgery to repair aortic aneurysm is often a lifesaving procedure. Aortic aneurysm kills more than 10,000 people per year and is a contributing factor to approximately 17,000 deaths annually, according to the CDC. The condition is treacherously difficult to predict or halt: People may show no signs of aneurysm until it dissects or ruptures, spilling blood into the chest cavity or abdomen, depending on the location. More than 65 percent of patients with a ruptured abdominal aortic aneurysm die before they can access medical care.

Traditional approaches to treating aortic aneurysm involve open surgery, a technique that places significant strain on patients, Dr. Awadallah says.

“Open surgical repair is often indicated in emergent situations, and our surgeons have expertise in both methods of treatment,” he says. “Compared with open surgery, endovascular repair significantly reduces the mortality rates, so, in many cases, we can offer a safer treatment option. Surgical repair of aortic aneurysm exemplifies the increased safety offered by endovascular techniques. Open surgery to repair such an emergent condition often results in fatality. But endovascular approaches offer a lifesaving alternative.”

When aneurysms are detected, patients may elect preventive surgery to treat the bulging vessel before it ruptures. St. Catherine of Siena surgeons leverage leading-edge imaging technology to perform minimally invasive procedures to repair aortic and thoracic aneurysms through small incisions.

St. Catherine of Siena’s surgeons insert a catheter through the artery of the groin and deploy fabric mesh stents above and below the dilated area of the vessel. This avoids the need for open surgery to excise and bypass the bulging portion of the artery.

“The blood flow is never interrupted — there is no clamping or bypass,” Dr. Awadallah says. “Instead of spending a week in the ICU, patients can go home the next day.”

An Armamentarium of Endovascular and Vascular Services

TO REPAIR DAMAGED VESSELS, open occlusions, correct varicosity, mitigate cosmetic concerns and relieve pain, St. Catherine of Siena Medical Center offers numerous procedures, including:

+ Angioplasty with stenting for upper and lower extremities
+ Aortic and thoracic aneurysm repair
+ Bypass surgery for occluded arteries
+ Carotid endarterectomy
+ Dialysis graft maintenance
+ Embolization for pelvic congestion syndrome
+ Laser ablation of venous reflux
+ Lower extremity atherectomy
+ Mesenteric artery stenting
+ Minimally invasive surgeries
+ Renal artery stenting
+ Spider vein treatment
+ Thrombosis removal and venous stenting
+ Varicose vein treatment
+ Vascular-related wound care

St. Catherine of Siena surgeons’ expertise in performing both endovascular and open procedures is rare. Both offerings are not often found in the community hospital setting, Dr. Awadallah notes. Such extensive capabilities permit surgeons to treat patients at any point on the spectrum of the disease process.
“What distinguishes a center of excellence is the surgeon’s propensity to employ endovascular skills rather than revert to the more invasive option,” Dr. Awadallah says. “If you have a very good skill set and are experienced with the entire surgical ‘tool box,’ you are much less inclined to subject a patient to an invasive procedure just because that’s what you’re comfortable with. Having the ability to perform both open and endovascular surgery allows us to tailor treatments specifically to what’s best for the patient.”

Vascular surgeons who excel in both open and endovascular surgery are a distinguishing part of St. Catherine of Siena care offerings. These capabilities assure referring physicians that their patients receive personalized care that results in the safest and most effective treatment.

**MEDICAL APPROACHES AND ADVANCED STENTING FOR PAD**

According to the CDC, as many as 20 percent of adults over 60 suffer from peripheral artery disease (PAD) — a condition in which arterial plaque occludes arteries. The most minimally invasive treatments for PAD, Dr. Awadallah points out, are both medical and behavioral in nature. Conservative measures are initially deployed for PAD, but for severe cases, physicians use a number of surgical interventions.

“A majority of patients will improve without surgery if they embrace measures such as smoking cessation, controlling hypertension or diabetes, and exercising,” Dr. Awadallah says. “The safest intervention we have to offer is no surgery, so we judiciously evaluate the patient’s best course of treatment. With an appropriate antiplatelet program, smoking cessation course and exercise regimen, most people will be better off than if we performed a procedure.

The vast majority of patients referred to St. Catherine of Siena are treated conservatively, but in less than 1 percent of cases, severe PAD can pose serious danger to a limb, Dr. Awadallah notes. For patients whose PAD causes severe pain when walking, pain in their feet when at rest or chronic wounds on their feet, aggressive treatment with endovascular intervention is the standard of care.

When patients fail medical management for PAD, vascular specialists at St. Catherine of Siena offer minimally invasive treatments, including angioplasty, stent placement and atherectomy, as well as open surgery, if indicated.

Stenting benefits compromised vessels in numerous locales, including the upper and lower extremities and the renal and mesenteric arteries. Stents are often deployed as part of a staged procedure that also leverages balloon angioplasty. Commonly associated with heart attack treatment, balloon angioplasty opens an occluded vessel, and stents prevent the vein or artery from recoiling back, Dr. Awadallah says.

By contrast, atherectomy permits surgeons to use surgical chisel-like devices to manually remove plaque from clogged vessels. Once loosened, plaque is aspirated out of the body. This procedure is employed when plaques are particularly long or hardened, sometimes in combination with angioplasty and stenting. Atherectomy may achieve superior results to stenting in the legs, where stents may be subject to motion and stress, according to a 2013 review in *Vascular Disease Management*.

Surgeons at St. Catherine of Siena carefully assess each patient and deploy stenting or atherectomy as indicated.

**A VARIETY OF PROCEDURES, ENHANCED COSMESIS**

Minimally invasive procedures are innovating vascular medicine because they enhance the patient experience while providing similar or improved results. Examples include pain-relieving and cosmetic treatments for spider veins and varicose veins, at which St. Catherine of Siena’s team excels. In recent years, cosmetic surgery has expanded with a
Dr. Khan consults with a patient.

host of procedures, such as sclerotherapy and innovative approaches to cosmetic venous surgery. Dr. Awadallah performs such interventions in his office, which provides a safe, comfortable environment for patients.

**Laser ablation surgery.** Laser ablation for venous reflux combines cosmetic and medical benefits. Veins afflicted by reflux — typically varicose veins — are accessed by a sheath containing a laser fiber. Minimally invasive ultrasound, which delivers no radiation, is used to guide the laser fiber to the damaged portion of vein. The sheath is retracted and the laser is activated, causing occlusion and eventually disappearance of the vein.

**Sclerotherapy.** Also used for varicose veins, as well as spider veins, sclerotherapy utilizes chemicals rather than heat to destroy the afflicted vessels. In this case, a sclerosant, or irritating chemical, is injected directly into the vein, causing it to eventually disappear. A foam solution of the sclerosant is often used to completely fill larger veins.

Both these types of procedures are advantageous to patients, who previously feared painful vein stripping procedures to treat varicose veins and spider veins. As well as achieving cosmetic effects, laser ablation therapy and sclerotherapy can alleviate the aching and swelling associated with these conditions.

“We have all the equipment we need to treat these conditions safely,” Dr. Awadallah says. “They walk into the office, are treated and walk back out.”

**RELIEF FOR PELVIC CONGESTION SYNDROME**

A particularly unpleasant form of venous reflux, pelvic congestion syndrome occurs when the ovarian vein enlarges and allows blood to pool in the pelvic area, rather than return to the heart. Women with this condition can find relief at St. Catherine of Siena.

“The veins in the pelvic region become engorged, resulting in varicosities in the genital area, blood in the urine and painful intercourse,” Dr. Awadallah says. “To remedy pelvic congestion syndrome, we perform a procedure called ovarian vein embolization.”

Visualizing the surgical site via X-rays, Dr. Awadallah says, the surgeon inserts a catheter into the groin, crossing through the renal vein into the ovarian vein. Coils and medications are introduced to create clotting, cutting off blood flow in the abnormal vein.

**ONGOING CONCERN NO. 1: DIALYSIS ACCESS**

Patients in kidney failure may need dialysis several times per week, and those with ulcers related to diabetes or venous conditions benefit from easily accessible wound care provided by physicians who see them regularly.
Even traditional procedures, such as dialysis access repair, are now often performed leveraging modern, minimally invasive techniques.

Dialysis patients see Dr. Awadallah in his office every three months. During these appointments, fistulas or grafts are assessed with sonographic monitoring, allowing Dr. Awadallah to identify the possibility for blockages in the structures before they cause the access to fail.

“Such evaluation allows us to pinpoint blockages in a more timely fashion and prevent accesses from failing,” he says. “If an access fails, patients frequently require extended hospitalization, and we have to perform a new open surgical intervention to create a new access. The surveillance program allows me to use minimally invasive techniques, which can include balloon catheters, to fix a blockage before it causes access failure and necessitates an invasive surgery.”

**ONGOING CONCERN NO. 2: CHRONIC WOUNDS**

Vascular problems may lead to chronic wounds in the very elderly. In those situations, too, vascular surgeons at St. Catherine of Siena oversee care and provide a wide range of treatments.

“The distal flow in the lower extremities of elderly people can become compromised,” Dr. Khan says. “When occluded veins are so severe that blood flow is not enough to meet the modest needs of such patients, they can develop PAD and then ischemia of the lower extremities, leading in turn to ulcers and eventual gangrene.”

However, surgery to open problematic veins has been hampered because this patient population does not fare well under general anesthesia, according to Dr. Khan. In the past five to 10 years, he continues, minimally invasive procedures — “entering through a puncture wound, just like starting an IV” — combined with hyperbaric medicine have greatly improved treatment of vascular conditions for patients of advanced age.

**COME HOME TO ST. CATHERINE OF SIENA**

Dr. Khan encourages local physicians to refer their patients to a program close to their families and primary care providers. Often, even patients with complex needs can complete their treatment program in the community.

“We have a tradition of excellence, and in the past two years we have taken it to a new level by introducing innovative approaches to traditional techniques, as well as completely new procedures,” Dr. Awadallah adds. “We offer care comparable to that found in a tertiary academic center in a community hospital.”

To learn more, visit stcatherines.chsli.org/vascularsurgeryprogram.