

PERFORMING ENDOVASCULAR SURGERY

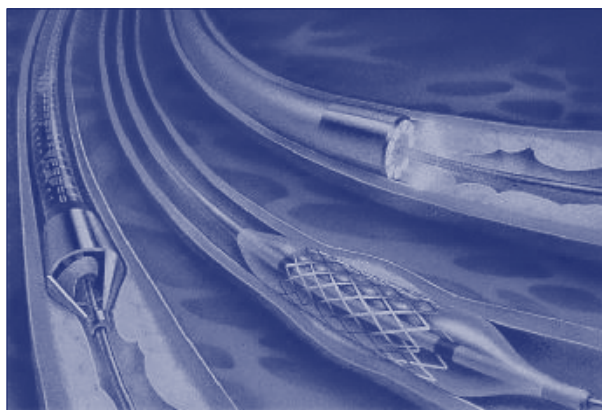
New Minimally Invasive Approach to Treating Vascular Disease

The most attractive treatment option for many patients with certain circulatory disorders may be the newest technique available: endovascular surgery. With the recent recruitment of Rishad M. Faruqi, MD, and David B. Gitlitz, MD, both of whom joined our Division of Vascular Surgery in August, University Hospital is now the only hospital in Suffolk County to offer this cutting-edge treatment of vascular disease, and give patients the opportunity to avoid conventional open surgery.

Endovascular surgery is minimally invasive, as the incision is just large enough for the surgeon to insert a catheter (thin tube) into the blood vessel, through which instruments and devices can be inserted to treat diseased blood vessels, clean out blocked vessels, or deliver clot-dissolving medications directly at the problem area.

All the surgeon's work is done from within the vessels themselves (*endo-*, within + *vascular*, vessel), with the aid of newly developed technology and instrumentation.

Because endovascular surgery involves a smaller incision compared



with that used in conventional vascular operations, it causes less disruption of the patient's physiology, or vital processes. Consequently, the hospital stay is usually much shorter and the patient's recovery much faster.

Given that these less invasive methods have been sought for decades, endovascular surgery—originally developed in the 1980s—is now a rapidly growing field of therapy. It may be used independently or in combination with conventional operations in the treatment of vascular disease.

At present, nearly every blood vessel in the body can be approached intraluminally (from within the vessels).

With the recent advent of the experimental endograft, or "internal bypass" graft, the minimally invasive techniques of endovascular surgery

can now be applied to treat aneurysmal as well as occlusive atherosclerotic disease—that is, to correct circulatory problems in damaged or blocked arteries without having to resort to open surgery.

ENDOVASCULAR STENT GRAFTING

Now undergoing clinical trials nationwide at only a few select medical centers, endovascular stent

grafting involves actually doing a bypass from within the vessel. The area of largest investigation is for abdominal aortic aneurysm (AAA)* repair. The use of endovascular technology is being compared to standard therapy in these trials, and may be particularly beneficial for patients so ill and infirm that the risk of a conventional open repair is excessive. This experimental technique is currently not available outside of clinical trials.

A clinical trial of aortic stent grafting is planned to start this fall at University Hospital and Medical Center.

(Continued on Page 2)

* The abdominal aorta is the main artery that supplies blood to the internal organs and legs; an aneurysm, which is potentially life-threatening, is an enlargement or bulge in an artery caused by a weakened arterial wall.

Endovascular Surgery

(Continued)

AAA is the 13th leading cause of death in the United States, claiming over 15,000 lives annually. In this country alone, more than 190,000 AAAs are diagnosed each year and 45,000 patients undergo surgery.

Aortic stent grafting promises to offer a simpler and safer alternative to open abdominal surgery in the treatment of AAA. It may prove to be one of the most dramatic advances made in the field of vascular surgery, as it has the potential to save many lives.

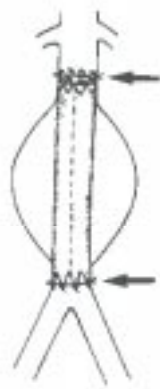
Candidates for the new treatment are patients diagnosed with AAAs, as well as other abnormalities of the abdominal aorta, such as arteriovenous fistula (abnormal communication between the artery and a vein) and certain types of aortic blockages.

The traditional approach to AAA repair involves operating on the abdomen, opening the aorta, and inserting a graft—a slender fabric tube—through the middle of the aneurysm, which is then sewn in place.

Because the conventional operation generally involves a long abdominal incision and a seven- to ten-day hospital stay, the new endovascular procedure may offer significant advantages. This minimally invasive surgery, which can be performed using regional or even local anesthesia, often allows patients otherwise too ill for the conventional operation to be considered for AAA repair.

Endovascular stent grafting enables physicians to accomplish the repair without resorting to open surgery.

The stent graft, a self-expanding device, is similar to the traditional Dacron graft but has a ring of tiny hooks at each end. These hooks and barbs allow the stent graft to anchor itself to the inner wall of the blood vessel.



Reconstruction after endovascular repair of an abdominal aortic aneurysm. After transfemoral insertion of the stent graft, sealing of the graft is accomplished by implantation of the self-expanding hooked attachment system into the arterial wall (arrows).

and down the blood vessel.

The delivery system carrying the stent graft within it is threaded up the artery over the wire lying within the blood vessel, and is guided by fluoroscopy (x-ray imaging) into the aneurysm.

Once inside the aneurysm, the sheath of the delivery system is gradually withdrawn, allowing the stent graft to re-expand to its original size and anchor itself onto the inside of the arterial wall by the hooks and barbs at either end.

Some stent grafts require a balloon to be inflated within them to push the anchoring hooks into the wall. Accurate placement is essential because the arteries to the kidneys are close by and should not be covered. Since the procedure is minimally invasive, the patient is usually able to eat the same day, walk the next day, and go home in two or three days.

Several types of stents and stent grafts are available and can be used for various procedures. Most of the stents function as supports for the arterial wall and hold blocked or narrowed arteries open after balloon angioplasty.

The stent graft is collapsed and loaded into a tube-like delivery system. The arteries in the groin are exposed by the surgeon using two small incisions. A wire is then threaded up from within the blood vessel to a point beyond the diseased part of the blood vessel. This wire acts like a monorail on which the delivery system and other catheters and stents can move up

The purpose of the aortic stent graft, on the other hand, is not to brace the artery open, but to create a new passageway for blood, allowing it to bypass the weakened/diseased area. Moreover, the stent graft prevents blood from flowing into this weak segment of the artery where the aneurysm formed.

Although this newly developed stent graft is now used only for the repair of AAA, it is anticipated that in the future, the procedure will be used to repair aneurysms at multiple locations. Drs. Faruqi and Gitlitz are skilled not only in the use of aortic stent grafts but in other endovascular procedures as well. These include balloon angioplasty, clot dissolution, and stenting of arteries.

ANGIOPLASTY WITH STENTING

Balloon angioplasty, a procedure which increases the amount of blood flowing through a narrowed area by disrupting and stretching the plaque, has

(Continued on Page 3, third column)

STONY BROOK

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All correspondence should be sent to:
Dr. Jonathan Cohen
Writer/Editor, Post-Op
Department of Surgery/HSC T19
University Hospital and Medical Center
Stony Brook, NY 11794-8191, USA

OUR ENDOVASCULAR SPECIALISTS

BIO-NOTE



Board certified in both general and vascular surgery, Dr. Faruqi received his medical degree (Bachelor of Medicine/Bachelor of Surgery) from India's Armed Forces Medical College in 1982.

After his surgical internship in India, he completed his first residency training in general surgery in England, where in 1988 he became a Fellow of the Royal College of Surgeons of England as well as a Fellow of the Royal College of Surgeons of Edinburgh.

For the next two years, Dr. Faruqi practiced general and vascular surgery in England. His interest in an academic career as a surgeon-scientist motivated him to come to the United States in 1990 to pursue vascular research at the Cleveland Clinic Foundation in Ohio. He then decided to continue his career in America, rather than returning to England.

In order to fulfill the requirements for board certification in surgery in the United States, Dr. Faruqi completed his second residency in general surgery at Georgetown University Hospital in Washington, DC, and at Case Western Reserve University in Cleveland, OH.

Subsequently, in 1998, Dr. Faruqi completed his one-year fellowship training in vascular surgery at the University of California at San Francisco. He then held a one-year faculty appointment there as a clinical instructor in vascular surgery.

It was during these two years that he learned the new techniques of endovascular surgery under the direction of Dr. Timothy Chuter, one of the pioneers and world leaders in this field.

To further develop his endovascular skills, Dr. Faruqi has spent five months of this year at Malmö University Hospital at Lund University in Sweden, where he worked closely with both vascular surgeons and interventional radiologists. The divisions of vascular surgery and interventional radiology at Malmö University Hospital are world renowned in the field of endovascular interventions and research, as well as in the development of new devices and techniques in the endovascular management of vascular disease.

Dr. Faruqi's research interests include the pathology and treatment of thoracic and abdominal aortic aneurysms, visceral and renal artery disease and their treatment, and the endovascular management of vascular disease.

With publications in vascular cell biology and vascular surgery, Dr. Faruqi is first author and also co-author of several reports published in the *Journal of Clinical Investigation*, *American Journal of Physiology*, *FASEB Journal*, *British Heart Journal*, and *Journal of Endovascular Surgery*.

Dr. Faruqi joins our faculty as an assistant professor of surgery. In addition to endovascular surgery, he will also practice general vascular surgery.



BIO-NOTE

Dr. Gitlitz, who joins our faculty as an assistant professor of surgery, received his MD from New York University in 1992. He then completed his residency training in general surgery at the Albert Einstein College of

Medicine/Montefiore Medical Center in 1997. Subsequently, he was an attending surgeon there for one year.

In June 1999, Dr. Gitlitz completed his one-year fellowship training in vascular surgery at New York's Mount Sinai Medical Center, where he pursued a special concentration in endovascular surgery.

Dr. Gitlitz's clinical practice encompasses endovascular surgery, as well as general vascular surgery. His research interests include the use of endovascular grafts for the treatment of atherosclerotic occlusive disease, and also the prevention of intimal hyperplasia, a principal cause of late graft failure.

This year Dr. Gitlitz has given two presentations on endovascular surgery at professional meetings. In January, he lectured on endovascular AAA repair and post-implantation syndrome at a symposium sponsored by the New York Cardiovascular Society. At the annual symposium on vascular surgery sponsored by the Society for Clinical Vascular

Surgery, which was held in March, he presented the findings of a study he conducted on the impact of aortic neck thrombus on endovascular stent-graft fixation.

Commenting on the new endovascular procedures, Dr. Gitlitz says: "It is important for patients to know that endovascular procedures other than angioplasty with stenting and clot dissolution are currently being performed on an experimental basis, in order to evaluate their safety and effectiveness compared to conventional open surgery."

"The fact that, at Stony Brook, the new endovascular procedures such as aortic stent grafting are being performed under approved protocols, with appropriate oversight by the FDA and Stony Brook's institutional review board, should give patients a sense of confidence and quality assurance."

For consultations/appointments with our endovascular surgeons, or for more information about the clinical trial of aortic stent grafting, please call (516) 444-2565.

Endovascular Surgery

(Continued from Page 2)

been around for many years. It is successfully used in coronary arteries, renal arteries, and in some of the larger arteries of the body. It is, however, less successful in small leg arteries and in completely-blocked arteries.

To support the work done by an angioplasty balloon that opens up a blocked vessel, the stent—a wire "cage" or "frame"—is placed inside the vessel at the site of the problem. Under some circumstances, the stent increases the durability of angioplasty, yet adds little to the complexity or risk of the procedure.

Our vascular surgery team has been performing angioplasty with stenting as part of open reconstructions and also as a separate procedure. Now, with the expertise of Drs. Faruqi and Gitlitz, we can provide the new endovascular stent grafts as well.

University Vascular Disease Center Offers a Full Complement of Services

The University Vascular Disease Center at Stony Brook—established as a collaboration between the Division of Vascular Surgery and the Division of Interventional Radiology—provides diagnosis and treatment of vascular disease ranging from routine to highly complex cases, and offers a full complement of services for patients with vascular disease.

Clinical services include:

- ♥ Complete, nationally accredited non-invasive vascular laboratory
- ♥ Minimally invasive vascular therapies using the latest treatment advances, including angioplasty, stent therapy, and stent graft repair
- ♥ State-of-the-art surgical treatment of carotid artery disease, aneurysms, and leg ischemia
- ♥ Sclerotherapy, laser therapy, and surgery as indicated for varicose/spider veins
- ♥ Screenings for vascular disease (carotid [neck] artery, for risk of stroke; abdominal aorta, for presence of aneurysms; lower extremity [leg], for risk of peripheral vascular disease)

We wish to express our sincere gratitude to all who made possible the very successful 1999 Research Classic Golf Tournament, the proceeds of which have been donated to benefit the Department's basic and clinical research on vascular disease.

John J. Ricotta, MD
Professor and Chairman

VASCULAR SURGERY TEAM

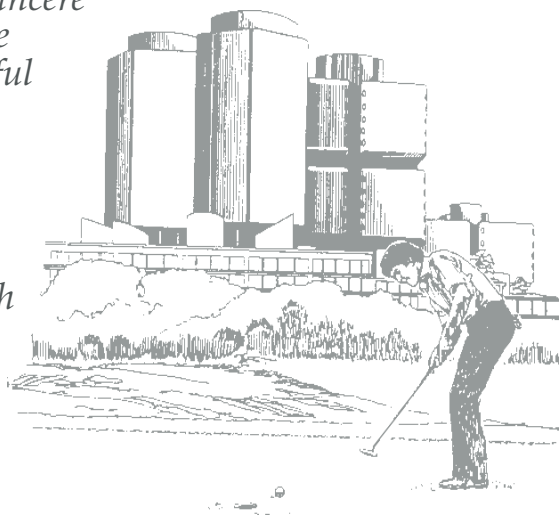
Our vascular surgeons are specialists in the diagnosis and treatment of vascular disease. Our vascular team includes the following five physicians, all of whom are members of our full-time surgical faculty, as well as nurse practitioner Susan W. Callahan, ANP, who works closely with them to help facilitate the most sophisticated, compassionate care:

John J. Ricotta, MD
Fabio Giron, MD, PhD
Rishad M. Faruqi, MD
David B. Gitlitz, MD
Paul S. van Bemmelen, MD, PhD

Based in the Department of Radiology, the four radiologists with whom our vascular surgeons collaborate are:

John A. Ferretti, MD
Matthew D. Rifkin, MD
James V. Manzione, MD
Jeanne Choi, MD

Community physicians who refer patients to the University Vascular Disease Center can be assured of continuity of care, as close communications are maintained with them as part of our approach to comprehensive patient management.



CONSULTATIONS/ APPOINTMENTS

Our physicians see patients at Stony Brook, as well as at our offices in East Setauket and Hampton Bays. To make an appointment for a consultation, please call the appropriate phone number listed below:

♥ **Stony Brook**
University Hospital and Medical Center
(516) 444-2565

♥ **East Setauket**
Stony Brook Surgical Care Center
(516) 444-4545

♥ **Hampton Bays**
Stony Brook Life Care Medical Center
(516) 723-5000

Some Recent Publications*

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(Continued on Page 6)

* The names of faculty authors appear in boldface.