POST Op
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News Update from the Department of Surgery
UNIVERSITY HOSPITAL AND MEDICAL CENTER AT STONY BROOK

Center for Minimally Invasive Surgery Established

Offering Patients More Options and Benefits

We perform minimally invasive laparoscopic surgery for the treatment of chronic heartburn due to reflux disease, achalasia (severe swallowing difficulty), diseases of the spleen, appendicitis, gallbladder disease, hernias, and other abdominal problems.

We are very pleased to announce the establishment of the Stony Brook Center for Minimally Invasive Surgery. The specially-trained surgeons who staff the new Center are dedicated to the performance and advancement of the most sophisticated care using minimally invasive laparoscopic procedures, which offer eligible patients considerable benefits when compared with conventional "open" surgery.

Also known as *videoscopic* or *endoscopic* surgery, this high-tech form of surgical care is not a specific type of operation. It is an expanding group of different kinds of operations performed with newly developed surgical instruments and methods that cause the least amount of physical stress to patients. It involves the use of a small scope (laparoscope; see page 2, column 2) which magnifies the body's internal structures and projects the image onto a video monitor in the operating room.

That laparoscopic surgery requires only small incisions—and thus is minimally invasive—is a distinguishing feature of this revolutionary approach to surgical care.

Without the trauma of the large incision used in conventional operations, both pain and healing time are greatly reduced. There are also smaller scars as a consequence of the smaller incisions. Other appealing benefits include shorter hospital stays or no hospital stays at all, less need for postoperative pain medication, and earlier returns to work and normal activity/diet.

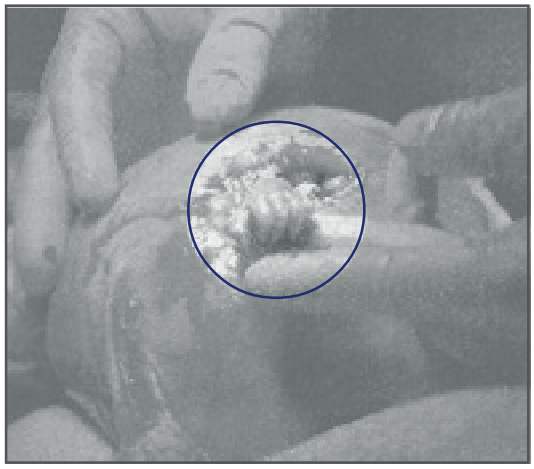
Reduced hospitalization, it should be noted, means reduced costs. The total hospital cost of a laparoscopic operation is generally less than what conventional surgery requires.

Surgery to treat a variety of common abdominal problems such as gallbladder disease, hernias, appendicitis, and chronic heartburn caused by reflux disease used to require large incisions, about a week in the hospital, and a six- to eight-week recovery time.

In most cases, laparoscopic surgery has reduced the treatment of these problems to same-day outpatient surgery with just one- to two-week recovery time at home; some patients can return to work in just a couple of days after their operation.

Louis T. Merriam, MD, assistant professor of surgery, is currently directing the development of the Center for Minimally Invasive Surgery, and comments: "The proven effectiveness of laparoscopic surgery has led to its expanding use. Because the stress to the body is greatly reduced by this minimally invasive approach, our patients—both adults and children—are extremely satisfied with the operative outcomes, in particular the minimal pain, scarring, and recovery time."

(Continued on Page 2)



The tiny hand of a 21-week-old fetus seen reaching out of his mother's womb to grab the finger of the surgeon who just operated on him.

In addition to providing patient care, our new pediatric cardiothoracic surgeon, Kathleen N. Fenton, MD, will continue her research on fetal open-heart surgery at Stony Brook, exploring fetal cardiac bypass and intrauterine repair of congenital heart defects; see page 3.

Minimally Invasive Surgery
(Continued)

Dr. Merriam works closely with John S. Brebbia, MD, assistant professor of surgery, in providing the Center's clinical services. Other members of the Department's general/gastrointestinal service with laparoscopic expertise contribute as well.

OUR MULTIDISCIPLINARY APPROACH TO MANAGING ESOPHAGEAL DISEASE

The expanded use of minimally invasive laparoscopic surgery has become particularly important in the treatment of esophageal diseases, including gastroesophageal reflux disease (GERD) and motility (muscle function) disorders such as achalasia (severe swallowing difficulty).

To provide the best possible patient care, our surgeons work closely with Stony Brook's gastroenterologists who maintain a sophisticated endoscopy laboratory as well as the only esophageal motility laboratory in Suffolk County. These laboratories use state-of-the-art equipment to evaluate patients with symptoms of esophageal disease.

GERD, for instance, is a chronic, recurrent disorder that results when stomach contents reflux into the esophagus. It is characterized by heartburn, eructation, and epigastric pain. Diagnosis is normally presumptive and made by the physician based on recognition of common symptoms. But the symptoms cannot reliably predict the severity of the disorder or indicate the patient's risk of developing complications, including reflux esophagitis, stricture formation, and Barrett's esophagus which is associated with cancer.

University Hospital's endoscopy and motility laboratories provide the information needed for the most accurate diagnosis of GERD and gastroesophageal motility disorders, and for determining the appropriate treatment plan.

MINIMALLY INVASIVE LAPAROSCOPIC SURGERY WE PERFORM

The physicians of the Center for Minimally Invasive Surgery are specialists in performing the following minimally invasive laparoscopic operations:

- Adrenalectomy (removal of one or both adrenal glands)
- Anti-reflux fundoplication (Nissen and Toupet procedures; treatment of gastroesophageal reflux disease)
- Appendectomy (removal of appendix)
- Cholecystectomy (removal of gallbladder)
- Colectomy (removal of part or all of the colon)
- Common bile duct exploration (identification and removal of bile duct stones)
- Feeding jejunostomy (insertion of feeding tube in small intestine, as well as cancer staging)
- Inguinal hernia repair (treatment of groin hernia)
- Liver biopsy (diagnosis of liver disease)
- Myotomy (Heller procedure; treatment of achalasia)
- Paraesophageal hernia repair (treatment of stomach hernia)
- Peritoneal dialysis catheter placement (abdominal catheter for dialysis)
- Small bowel resection (removal of part of intestine)
- Splenectomy (removal of spleen)
- Ventral hernia repair (treatment of abdominal wall hernia)

Note: As the range of different laparoscopic operations continues to expand, more minimally invasive options will be available in the future.

The Department of Surgery also provides minimally invasive "videoscopic" surgery for treating a wide range of medical problems other than gastrointestinal disease.

Our **cardiothoracic** surgery service uses *thoracoscopic* procedures to treat pulmonary disease; our **otolaryngology-head and neck** surgery service uses *endoscopic* procedures to treat nasal sinus disease; our **pediatric** surgery service uses *endoscopic* procedures to treat certain maladies in both infants and older children; and our **vascular** surgery service uses *endoscopic* procedures to treat certain circulatory disorders.

Other forms of minimally invasive surgery—such as off-pump coronary bypass surgery and endovascular surgery—are performed by the Department's specialists as well.

For information, please call the desired surgical service; see back cover for phone numbers.

"Anyone with intractable heartburn needs evaluation," Dr. Merriam says, adding that "our multidisciplinary approach to managing esophageal disease ensures patients of the best possible evaluation."

USING THE LAPAROSCOPE

Use of the laparoscope and similar scopes (e.g., endoscope, thoracoscope), among other new high-tech surgical instruments, has been the hallmark of minimally invasive surgery.

The laparoscope is a slender tube, less than three-eighths of an inch in diameter, with magnifying lenses at both ends, like a telescope. However, instead of gazing into outer space, a laparoscope looks at inner space.

When used for instance in abdominal surgery, a small incision is made in the abdomen through which the laparoscope is inserted via a hollow trocar-tube into the abdominal cavity. There it enables surgeons to look at a hernia, diseased gallbladder, inflamed appendix, or other problems.

The new videoscopic approach, which adds to the laparoscope a video camera and light source, has revolutionized simple laparoscopic surgery.

Surgeons perform surgery using microsurgical instruments inserted through trocar-tubes placed in similar

incisions. The elimination of the large incision used in conventional operations makes this type of surgery less traumatic and, therefore, less painful. Thus, a patient can avoid or lessen a hospital stay and recover much faster.

The major limitation of laparoscopic surgery used to be that the surgeon was only able to see in just two dimensions. The lack of depth perception slowed many operations, and made certain tasks, such as suturing, difficult. To resolve this problem, surgeons use a video-computer system to perform in three dimensions.

Now, surgeons can see images from the laparoscope just as if they were viewing through a large incision. The new videoscopic approach, which adds to the laparoscope a video camera and light source, has revolutionized simple laparoscopic surgery.

For appointments/consultations with a surgeon of the Stony Brook Center for Minimally Invasive Surgery, please call (631) 444-4545.

STONY BROOK

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INTRODUCING OUR NEW PEDIATRIC CARDIOTHORACIC SURGEON

Dr. Kathleen N. Fenton

Kathleen N. Fenton, MD, joined our Division of Cardiothoracic Surgery last October as an assistant professor of surgery. Board certified in both Thoracic Surgery and Surgery (General), Dr. Fenton comes to Stony Brook from the University of California at San Francisco, where she recently completed fellowship training in pediatric cardiac surgery.

A graduate of Johns Hopkins University, Dr. Fenton received her MD (cum laude) from the University of Maryland in 1988. She completed her residency training in general surgery at the University of Louisville, and subsequently was trained in cardiothoracic surgery at Emory University in Atlanta.

At UC-San Francisco Medical Center and Children's Hospital Oakland during 1998-99, Dr. Fenton had advanced training in pediatric cardiac surgery with Frank L. Hanley, MD, one of the premier pediatric cardiac surgeons in the country.

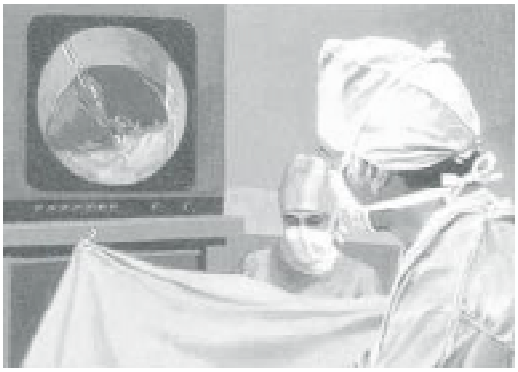
Dr. Fenton's clinical practice at Stony Brook includes surgery for congenital heart disease in all age groups (newborn to adult), including repair of intracardiac communications (e.g., atrial/ventricular septal defect), valve repair surgery, palliation for complex congenital heart disease, placement of pacemakers, and pediatric thoracic surgery.

Dr. Fenton's research interests include fetal physiology and open-heart surgery in the fetus. The winner of a 1991 American Heart Association Affiliate Fellowship Grant, she was a research fellow in cardiovascular surgery at Harvard University (The Children's Hospital) during 1991-92; during the next academic year, she continued her experimental work in fetal cardiac surgery as a research fellow at UC-San Francisco.

She is the author of numerous peer-reviewed journal articles in the field of pediatric cardiac surgery.

For consultations/appointments with Dr. Fenton, please call (631) 444-1820.

INSTRUCTIONAL COURSES AND SEMINARS IN LAPAROSCOPIC SURGERY



In addition to providing clinical services, the Center for Minimally Invasive Surgery will soon offer instructional courses and seminars in laparoscopic surgery for practicing surgeons.

For more information, please call (631) 444-8329.

Using Laser Surgery To Treat Coronary Artery Disease

A Novel Method Of Revascularization

The first transmyocardial revascularization (TMR) operation on Long Island was successfully performed last November by our Division of Cardiothoracic Surgery. This new approach to the treatment of coronary artery disease promises to offer an alternative to patients who do not respond to currently available forms of therapy, such as balloon angioplasty and coronary artery bypass grafting (CABG).

TMR involves the use of a computer-controlled carbon dioxide laser to create new conduits for blood flow by boring small channels from the outside to the inside of the heart, specifically, the left ventricular cavity. These channels induce a natural process of healing called angiogenesis—that is, the growth of new blood vessels, which increase blood flow to feed oxygen-starved areas in the heart muscle.

Patients treated by TMR experience angina relief within weeks of sole therapy (TMR alone), or immediately when the technique is used in combination with CABG.

TMR has been studied extensively in experimental and clinical settings. The original investigational studies were conducted in the early 1970s. In recent years, nationally reported clinical studies indicate a lasting response at three years. When TMR is used in combination with CABG, three-year mortality rates are significantly reduced from about 12% to 4%.

Since TMR is performed on the beating heart without the use of cardiopulmonary bypass (CPB) via the heart-lung machine, this novel method of increasing blood flow to the heart may also be considered minimally invasive when used as sole therapy.

The adverse side effects associated with use of the heart-lung machine—which, during conventional CABG, takes over the stopped heart's work—are avoided. Patients do not experience the inflammatory response caused by CPB, which disrupts the body's physiologic balance.

TMR probably won't replace angioplasty or CABG surgery as the most common methods of treating coronary artery disease. These therapies have been proven over time to be safe, effective ways to restore blood flow to the heart muscle.

At present, the best candidates for TMR include patients who are high-risk candidates for a second bypass or angioplasty; patients whose blockages are too diffuse to be treated with bypass alone; and patients with heart transplants who develop atherosclerosis on the graft.

Since performing our first TMR operation, an increasing number of patients have been coming to Stony Brook for this treatment.

THE OPERATION ITSELF

To perform TMR, the surgeon makes a limited incision on the left side of the chest and inserts a laser into the chest cavity. With the laser, the surgeon shoots holes through the heart's left ventricle in between heartbeats; the laser is fired when the chamber is full of blood so the blood can protect the inside of the heart.

The characteristics of laser energy make it an ideal tool to use. The channels can be made with little damage to surrounding tissue, and they can be made quickly.

From 15 to 30 channels, each a millimeter in diameter, are opened. Then the surgeon presses a finger on the holes on the outside of the heart. This seals the outer openings but lets the inner channels stay open to stimulate the growth of new blood vessels.

The operation takes about two hours to complete. The average hospital stay following the procedure ranges from two to seven days, depending on whether TMR is used as sole therapy (about seven days) or in combination with different methods of CABG surgery (about two to five days).

Currently, clinical trials are being conducted to evaluate the effectiveness of TMR used without CABG. If proven effective as sole therapy, this approach would offer an alternative form of treatment to those suffering from coronary artery disease, particularly those who otherwise would have no other options. Approval from the Food and Drug Administration will be sought if warranted by the results of these studies.

For illustrations please turn to page 11.

For consultations/appointments, please call our Division of Cardiothoracic Surgery at (631) 444-1820.