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DIGESTIVE DISEASES

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INSIDE SPRING 2008

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Hospital Leads Education, Innovation in NOTES

Natural orifice translumenal endoscopic surgery (NOTES) represents an exciting and innovative new chapter in minimally invasive surgery, and Columbia and Weill Cornell surgeons at NewYork-Presbyterian Hospital are helping pave the way to its becoming standard practice for patients requiring gastrointestinal (GI) surgery.

Last December, the Hospital hosted a 2-day CME course for an international audience of surgeons, gastroenterologists, and radiologists from the United States, Argentina, Brazil, Ecuador, France, Greece, Italy, and Japan.

"The course was designed as a didactic and practical introduction to NOTES, including lectures, video presentations, and animal and cadaver lab sessions for a hands-on learning experience," said Jeffrey W. Milsom, MD. "For 15 to 20 years, we thought that the laparoscopic approach was the epitome of cutting-edge GI surgery, but with NOTES we can see the next evolution, with the potential to improve outcomes even further."

As an "incisionless" procedure (abdominal organs are accessed through a natural orifice such as the vagina, rectum, or mouth), NOTES obviously offers substantial benefits to patients, including reduced pain, more rapid recovery, and the absence of visible tissue scarring, compared with traditional surgical techniques. Marc Bessler, MD, Peter Stevens, MD, and Dennis L. Fowler, MD, all of NewYork-Presbyterian Hospital/Columbia University Medical Center, were the first to use the procedure at the Hospital when, in the spring of 2007, they removed a patient's gallbladder via an endoscope delivered through the vaginal wall (Figure, page 7). Since then, surgeons at NewYork-



Illustration courtesy of Yuko Tomohira.

The wave of the future: natural orifice translumenal endoscopic surgery (NOTES). The Hospital hosts 2-day CME course where NOTES takes center stage.

Presbyterian/Columbia have performed 2 transvaginal cholecystectomies, with surgeons progressing from the use of 3 incisions for observation in the first surgery to only 1 in the third.

"We observed not just a quantitative reduction in postoperative pain, but a qualitative reduction in pain as well," noted Dr. Bessler, adding that 2 of the 3 patients treated with NOTES required no postoperative pain medications. "Once a reproducible technique without abdominal wall trocars has been developed, we plan to initiate a formal clinical trial

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Clinicians Apply New Endoscopic Technologies

Endoscopy has transformed the practice of modern gastroenterology and remains key to future advances in the management of gastrointestinal (GI) disease. Research on and the clinical application of emerging endoscopic technologies has helped Columbia and Weill Cornell physicians at NewYork-Presbyterian Hospital stay ahead of the curve and offer patients the most up-to-date and optimal treatments available.

"We currently are studying and using a number of new endoscopic techniques for the screening, diagnosis, and treatment of gastrointestinal diseases, from the esophagus to the colon," said Mark B. Pochapin, MD.

An important advance in the endoscopic treatment of Barrett's esophagus, for instance, is the HALO-360 System for ablation developed by

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Colorectal Cancer: Combination Procedures, Better Outcomes

NewYork-Presbyterian Hospital has taken a leadership role in clinical innovations that are improving outcomes and lessening the risks of therapy in patients with colorectal cancer.

Radical resections, for example, are being replaced with several different types of minimally invasive procedures.

At the same time, some of the newer targeted medical therapies are dramatically building on the efficacy of conventional chemotherapy with very tolerable side effects.

“In colorectal cancer, we are now moving to less radical surgical procedures with adjuvant chemotherapies that provide rates of cancer-free survival that are at least as good as those achieved previously, but with less trauma,” noted Alfred I. Neugut, MD, PhD. Within the goal of reducing the morbidity of radical resections, among the most exciting developments has been the use of a combination laparoscopy and colonoscopy procedure to reach lesions that would be difficult to treat with either alone.

One of the key innovators of this approach, Jeffrey W. Milsom, MD, said that the combined approach became possible when he and his co-investigators at NewYork-Presbyterian Hospital/Weill Cornell Medical Center introduced insufflation with carbon dioxide (CO₂) to largely eliminate the distension normally produced by insufflation with room air.

“We found that we had a very high success rate performing laparoscopy and colonoscopy together, and this was very

“Some patients undergoing laparoscopy already receive incisions large enough to insert a hand. In many cases, a hand can facilitate resection, including mobilization of tissue, without greatly detracting from the advantages of the minimally invasive approach.”

—Richard L. Whelan, MD

well tolerated by the patients,” he noted. “This is an example of an important fusion of technologies that permits lesions to be treated from the inside of the bowel with backup support from the peritoneal cavity using minimally invasive or laparoscopic techniques. For example, in a patient with a difficult polyp in the right colon that is unresectable by colonoscopy, laparoscopy can be employed to position the lesion so that it can be removed by the colonoscope. This provides the least amount of trauma without loss of surgical precision.”

Initially, according to Dr. Milsom, there was concern that insufflation with CO₂ could dangerously alter the acid-base balance of the body. However, preclinical studies and clinical studies have demonstrated a very high level of safety with the combined technique. The only drawback is that it requires both an endoscopist and a laparoscopist.

“With this combined procedure, a bowel resection is avoided and no more than an overnight stay is required,” Dr. Milsom said. “Currently, this approach has a limited application for benign or very early malignant lesions, but this is only the beginning.

I believe that in the future, more difficult lesions, including difficult malignant lesions, will be treated in this fashion.”

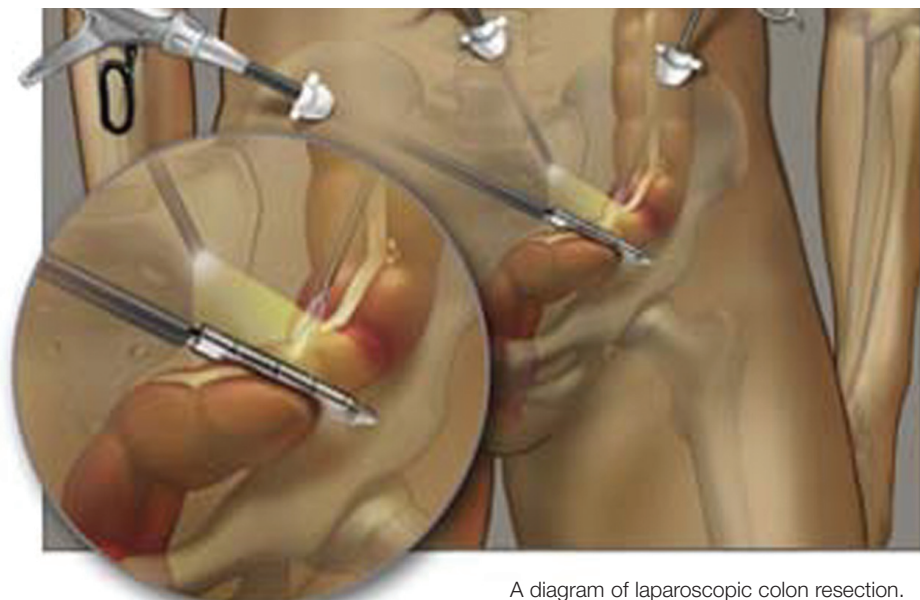
Laparoscopy has been widely incorporated into colon cancer resections at many centers, but the surgeons at NewYork-Presbyterian Hospital have sought to consider variations when appropriate. One such variation has been hand-assisted laparoscopy, which can have numerous advantages in the right patient.

“The hand-assisted approach requires a longer incision than most pure laparoscopic operations,” explained Richard L. Whelan, MD. “However, we recognized that some patients undergoing laparoscopy already receive incisions large enough to insert a hand. In many cases, a hand can facilitate resection, including mobilization of tissue, without greatly detracting from the advantages of the minimally invasive approach.”

Some patients require large incisions because they have large tumors and a significant abdominal wall incision is needed to remove the specimen.

Obesity is also an issue; obese patients often require longer fascial incisions to permit specimen extraction. In a review of obese patients from NewYork-Presbyterian Hospital/Columbia University Medical Center who underwent straight laparoscopic resection, a substantial percentage had a final incision between 7 and 11 cm long, which is large enough to permit hand-assisted laparoscopy. Very tall or muscular patients are also likely to require larger incisions during minimally invasive resection. Thus, in these 3 groups of patients, who together represent almost 40% of all surgical candidates, the advantages of hand-assisted laparoscopy can be obtained without substantially increasing the abdominal wall trauma in comparison with straight laparoscopic methods.

“We look for patients in whom a large incision would likely be needed and then



A diagram of laparoscopic colon resection.

Photo courtesy of www.columbia-surgery.org.

use the hand-assisted approach from the outset. We now have data to support this approach,” said Dr. Whelan, referring to a 5-center study that included investigators at NewYork-Presbyterian Hospital (*Dis Colon Rectum*. [Epub ahead of print] 2008 Apr 17).

The randomized study included 95 patients undergoing laparoscopy alone or hand-assisted laparoscopy for left or total colectomy. When hand-assisted laparoscopy was compared with laparoscopy alone, the average duration of the procedure was 33 minutes shorter for left colectomy and almost an hour shorter for total colectomy. No significant differences were noted in recovery time, amount of pain medication required, or length of stay. The average incision length was 6.1 cm for laparoscopy alone and 8.2 cm for the hand-assisted approach.

“The hand-assisted approach is contraindicated for small or low-BMI [body mass index] patients because the hand incision represents a much larger percentage of their abdominal wall and the larger incision is usually not required for specimen extraction,” noted Dr. Whelan. “We believe hand-assisted methods are very useful when employed selectively.”

In adjuvant therapies, there have also been significant developments. While several combination chemotherapy regimens, such as FOLFOX (5-fluorouracil, leucovorin, and oxaliplatin) and FOLFIRI (5-fluorouracil, leucovorin, and irinotecan) are now widely employed to extend survival in advanced colorectal cancer, excitement has been recently generated by monoclonal antibodies; for example, bevacizumab inhibits vascular endothelial growth factor (VEGF) and is already a standard as first-line treatment for stage IV disease. This and other monoclonal antibodies, particularly cetuximab, an inhibitor of the epidermal growth factor receptor (EGFR), are now being tested in the adjuvant setting.

Weill Cornell and Columbia investigators recently tested bevacizumab and cetuximab in combination for stage IV colorectal cancer. “We recently presented a Phase II paper that we conducted with the New York Cancer Consortium. We treated almost 70 patients with the FOLFOX regimen in combination with bevacizumab and cetuximab and observed an excellent response rate with acceptable toxicity,” said Joseph T. Ruggiero, MD. “This double antibody approach in combination with chemotherapy is going into more advanced

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testing and may represent an important direction for future management.”

“Evaluating FOLFOX with and without bevacizumab will answer one of the most pressing questions about optimal adjuvant therapy,” added Dr. Neugut.

“It is an exciting chapter for patients

from the surgical side as well,” agreed Dr. Milsom. “Now more than ever we have treatment options we can offer patients and with much, much safer outcomes.”

Contributing faculty for this article:

Jeffrey W. Milsom, MD; Alfred I. Neugut, MD, PhD; Joseph T. Ruggiero, MD; Richard L. Whelan, MD

Surgeons Expand Treatment Options for Esophageal Disease

Employing a multidisciplinary approach and a full armamentarium of state-of-the-art procedures, many of which were pioneered on site, Columbia and Weill Cornell surgeons at NewYork-Presbyterian Hospital are achieving excellent outcomes in the treatment of esophageal cancer and related premalignancies such as Barrett's esophagus, gastroesophageal reflux disease, and achalasia, a significant achievement considering that most patients present with advanced disease. "Between endoscopic outpatient procedures, minimally invasive surgery, and conventional radical surgery, we maintain a number of viable options to suit the needs and stage of each individual patient," noted Nasser K. Altorki, MD. "It is important to keep an open mind and have multiple tools in your tool bag to treat this disease."

"Between endoscopic outpatient procedures, minimally invasive surgery, and conventional radical surgery, we maintain a number of viable options to suit the needs and stage of each individual patient. It is important to keep an open mind and have multiple tools in your tool bag to treat this disease."

—Nasser K. Altorki, MD

"We have a multifaceted program to treat esophageal cancer using the most minimally invasive techniques possible," added Joshua R. Sonett, MD. "We use a team approach to enhance our techniques and customize the best surgical approach for each individual case. Thus, we optimize the overall treatment for the patient, with the goal of cure and best quality of life."

Esophageal cancer is a rare disease in the United States, with only 12,000 new cases diagnosed annually. However, its incidence, and particularly the incidence of adenocarcinoma of the distal esophagus, has doubled since the 1970s. Reasons for this increase include a rise in the incidence of obesity and the incidence of gastroesophageal reflux disease, both of which are established risk factors for esophageal cancer.

At NewYork-Presbyterian Hospital/Columbia University Medical Center, a multidisciplinary team led by Dr. Sonett, Marc Bessler, MD, Peter D. Stevens, MD, and Charles Lightdale, MD, is using minimally invasive esophagectomy to treat the majority of

"We have a multifaceted program to treat esophageal cancer using the most minimally invasive techniques possible. We use a team approach to enhance our techniques and customize the best surgical approach for each individual case."

—Joshua R. Sonett, MD

patients with resectable lesions, including those with limited nodal involvement; historically, the procedure has been used to treat only patients with Barrett's high-grade dysplasia or small tumors. At NewYork-Presbyterian Hospital, surgeons use endoscopic approaches for patients with premalignancies and smaller tumors, with the goal of avoiding radical surgery and retain-

America. The investigators established the rationale for nodal dissection when they reported, in the *Annals of Surgery*, that 36% of patients with esophageal cancer had clinically unsuspected cervicothoracic nodal involvement, regardless of cell type (*Ann Surg.* 2002;236[2]:177-183). Results from that prospective, longitudinal study of 111 patients with esophageal cancer also revealed that the cancer of 32% of those who underwent the surgery was upstaged as a result of the operative findings. However, the most significant finding from that trial was that 51% of patients who underwent the surgery were alive 5 years postoperatively.

In minimally invasive esophagectomy, the surgical team creates a series of small incisions. The use of advanced laparoscopic and thoracoscopic techniques to perform complete esophagectomy improves visualization and can actually enhance the removal of lymph nodes. Thus, the oncologic benefits of complete resection are increased with rapid recovery and a better ability to tolerate chemotherapy. The incisions also allow reconstruction of the digestive tract in which the stomach is attached to the remaining portion of the esophagus so that normal swallowing is restored. Drs. Sonett and Bessler have applied their minimally invasive philosophy to treat gastroesophageal reflux disease and achalasia, performing anti-reflux surgery laproscopically with a few small incisions or with no incisions and endoscopic plication.

"We can't make the esophagus squeeze normally, but we can get rid of the resistance at the bottom of the esophagus," noted Dr. Bessler. "A small percentage of patients with esophageal disease are so advanced that just cutting the muscle is not adequate. They must have the esophagus removed and replaced with a tube to the stomach."

ing the native esophagus. Patients with more severe disease undergo a refined version of conventional esophagectomy, customized by the team to improve outcomes and postoperative quality of life.

Surgeons at NewYork-Presbyterian Hospital/Weill Cornell Medical Center have been using a customized version of traditional surgery called radial en bloc esophagectomy. According to Jeffrey L. Port, MD, the procedure allows surgeons to achieve significant margins around the esophagus by approaching it surgically via the chest, neck, and abdomen. Dr. Port added that the procedure also allows greater local control of the tumor, meaning "relapse is less likely and survival is improved."

Drs. Altorki and Port have reported the most favorable outcomes—in terms of applicability, efficacy, and safety—in subgroups of patients with advanced esophageal cancer following en bloc radical esophagectomy and 3-field lymph nodal dissection. The procedure is performed widely in Japan and is slowly gaining recognition in North

Contributing faculty for this article:
Nasser K. Altorki, MD; Marc Bessler, MD;
Jeffrey L. Port, MD; Joshua R. Sonett, MD

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BARRx. The endoscope-guided HALO ablation technology includes an energy generator, a sizing balloon to measure the inner diameter of the esophagus, and an ablation catheter that delivers radiofrequency ablative energy in less than 1 second.

According to Felice Schnoll-Sussman, MD, surgeons are finding this technique to be a safe and effective therapeutic option in patients who have Barrett's esophagus with low-grade dysplasia, "in order to impede the progression of Barrett's from dysplasia to cancer."

The HALO system delivers controlled treatment depth, which limits tissue invasion to less than 1,000 μm in a disease that generally affects tissue to a depth of 500 μm . This minimization of depth can reduce the risk for formation of strictures compared with other ablative techniques.

"The HALO-360 System is particularly useful in patients with long-segment Barrett's esophagus due to its 360-degree, 3-cm-long electrode that allows for brief and controlled energy delivery to a large surface area," said Dr. Schnoll-Sussman.

The HALO-90 Catheter, on the other hand, is designed for more targeted focal tissue ablation. The HALO system also may be an effective adjuvant treatment for use subsequent to endoscopic resection of low-grade dysplasia, high-grade dysplasia, or early adenocarcinoma, eliminating any remnant dysplastic cells that might have escaped surgery.

Another modality useful for the treatment of Barrett's high-grade dysplasia and in situ and early esophageal cancer, as well as the palliation of unresectable esophageal adenocarcinoma and squamous-cell carcinoma, is CryoSpray Ablation (CSA). In this procedure, a catheter is passed through an endoscope to transport and spray liquid nitrogen under low pressure to freeze the tissue. Repetitive freeze-thaw cycles are performed to ablate precancerous and cancerous cells, with subsequent regrowth of normal esophageal epithelium.

Dr. Schnoll-Sussman also employs photodynamic therapy (PDT) in selected patients with high-grade dysplasia or carcinoma who are unable or unwilling to undergo surgery. In PDT, a photosensitizing substance, porfimer sodium, is injected intravenously and collects in premalignant and malignant cells without accruing in normal tissue.

"[Confocal microscopy] enables us to target our biopsies to the most worrisome areas. We can look at a segment of Barrett's esophagus, for instance, and evaluate for the presence of dysplastic tissue within the segment and help pinpoint the location of our biopsies."

—Felice Schnoll-Sussman, MD

"Forty-eight hours later," Dr. Schnoll-Sussman explained, "an endoscope inserted into the esophagus delivers a specific wavelength of non-heat-producing red laser light that destroys the porfimer-containing dysplastic or cancerous cells." Normal squamous esophageal tissue generally grows back in place of the Barrett's tissue, particularly when the patient also receives proton pump inhibitor therapy to prevent any potential gastroesophageal reflux.

Peter D. Stevens, MD, finds the miniature endoscopes, such as SpyGlass from Boston Scientific, to be an exciting advance in endoscopic therapeutics. The innovation in SpyGlass is that it allows duodenoscopy-assisted direct visualization of all bile duct quadrants by a single operator, making cholangioscopy feasible in a wider range of settings and with greater ease than with conventional endoscopic retrograde cholangiopancreatography (ERCP).

"SpyGlass allows visualization of the inside of organs, such as the bile duct or pancreas, and then enables immediate destruction of any observed bile duct or pan-

creatic stones. In the future, it also may be used to ablate cancerous lesions," noted Dr. Stevens. "Newer technologies for endoscopic therapeutics are allowing GI specialists the ability to perform more precise interventions in the GI tract," he added.

Confocal laser scanning microscopy is an important emerging diagnostic tool for the evaluation of esophageal, stomach, or colorectal disease. "Confocal microscopy involves endoscopy with enhanced visualization magnified to the cellular level and converted into digital images in real time," said Dr. Pochapin, "allowing immediate identification of high-risk tissue."

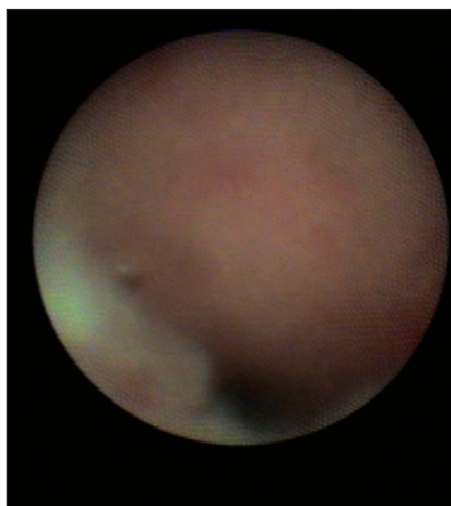
"This technique enables us to target our biopsies to the most worrisome areas," added Dr. Schnoll-Sussman. "We can look at a segment of Barrett's esophagus, for instance, and evaluate for the presence of dysplastic tissue within the segment and help pinpoint the location of our biopsies. We can look at the GI lining at the cellular level."

Drs. Pochapin, Schnoll-Sussman, and Stevens also are following the progress of endoscopic ultrasound (EUS)-guided fine-needle aspiration and injection for the diagnosis and treatment of pancreatic cysts or cancer. Although upper GI EUS as a probing tool is being replaced with less invasive imaging techniques like computed tomography and magnetic resonance imaging, "by adding a short needle track to EUS equipment," suggested Dr. Pochapin, "endoscopists are able to aspirate pancreatic lesions and cysts and biopsy the cells."

"In addition, EUS-guided fine-needle injection has been used with early success to puncture pancreatic cysts and lavage the cyst cavity with an 80% ethanol solution, showing that cyst size and fluid CEA [carcinoembryonic antigen] levels can be reduced by 25% or more with this method."

Contributing faculty for this article:

Mark B. Pochapin, MD; Felice Schnoll-Sussman, MD;
Peter D. Stevens, MD



A SpyGlass endoscopic image of the pancreatic duct shows neoplastic mucosa appearing like a crescent moon (lower left) in a patient with intra-ductal papillary mucinous neoplasms.

Photo courtesy of Peter D. Stevens, MD.

Adrenal Centers Focus on Multidisciplinary Approach

Research conducted by Columbia and Weill Cornell investigators at NewYork-Presbyterian Hospital has improved the diagnosis and the medical and surgical treatment of adrenal diseases, while enhancing our understanding of digestive diseases.

“Endocrine disease can be a surgical problem, but really, endocrine disease affects the entire body,” noted James Lee, MD.

At the Columbia Adrenal Center at NewYork-Presbyterian Hospital/Columbia University Medical Center, Dr. Lee is developing a randomized, controlled trial comparing 2 laparoscopic surgical approaches to adrenalectomy—one transabdominal and the other retroperitoneal. The former, the standard laparoscopic approach, requires surgeons to move the liver, spleen, colon, and pancreas, which can increase the risk for injury to those organs. However, with the retroperitoneal approach, developed in Germany and brought to the Hospital by Dr. Lee and his colleagues, 3 small incisions are made in the patient’s back just underneath the rib cage so that the adrenal glands can be accessed directly.

“We are probably one of 3 or 4 groups in the world who consistently do it retroperitoneally. We think it is better for the patients, and has a faster time for recovery and less pain,” said Dr. Lee. Another advantage of the retroperitoneal approach, according to Dr. Lee, is that it reduces operating time from 60 to 90 minutes to as little as 20 or 30 minutes. “We think this is a major change in how this operation is going to be

run,” he added.

Meanwhile, at NewYork-Presbyterian Hospital/Weill Cornell Medical Center, Thomas J. Fahey III, MD, has helped create one of the few centers in the United States where both carcinoid tumors and pancreatic endocrine tumors, particularly lymphomas and nonfunctioning pancreatic endocrine tumors, are removed laparoscopically. “We have a collaboration with Stan Goldsmith, MD, who is one of the world’s leaders in the localization of these tumors with specially labeled isotopes. The isotopes help identify tumors and their functionality and aid in the treatment of tumors.”

The collaboration is part of the Adrenal Disease Center at NewYork-Presbyterian/Weill Cornell, developed by Dr. Fahey and formally launched in January 2008. At the Adrenal Disease Center, a multidisciplinary approach is used to treat adrenal tumors; this approach includes the input of experts in hypertension and nuclear medicine, such as Dr. Goldsmith. Dr. Fahey and colleagues plan to develop a dedicated adrenal clinic once the Department of Surgery completes its renovations during the coming year.

Rasa Zarnegar, MD, is in a preliminary phase of research that aims to target thyroid tumors diagnostically and therapeutically. “We’re trying to target thyroid cancer and recurrences using novel imaging technologies,” said Dr. Zarnegar. He anticipates finishing the first phase of research by the end of 2008. “A lot of the adrenal and/or endocrine disorders we deal with are esoteric, and yet we know we’ll be seeing more of these in the

future. If these disorders aren’t properly treated, they can create serious problems for patients,” he noted. “Our hope is that the Adrenal Disease Center will provide a place for primary care physicians to consult with specialists on cases and refer those patients.”

Dr. Zarnegar comes to NewYork-Presbyterian/Weill Cornell from the University of California at San Francisco (UCSF) School of Medicine, where he led an outcomes study that found that the preoperative normalization of blood pressure with antihypertensive medications predicted a positive response to adrenalectomy for hyperaldosteronism (*Surgery*. 2007;142(6):921-929). He was also lead investigator in a UCSF-based trial studying the merits of adrenal vein sampling to characterize and lateralize disease before adrenalectomy in patients with hyperaldosteronism (*J Vasc Interv Radiol*. 2008;19(1):66-71) (Table). At NewYork-Presbyterian/Weill Cornell, his work will focus on improving outcomes after the laparoscopic resection of aldosteronomas and the development of diagnostic methods and techniques to assist clinicians in differentiating among the various endocrine disorders.

“Our lab will be focused on the development of targeted therapies for endocrine tumor disorders,” noted Dr. Zarnegar, who came to NewYork-Presbyterian/Weill Cornell because of the work being done there in the field of adrenal disease.

Additional research at the Columbia Adrenal Center will focus on improving the clinical understanding of pathways of communication between the gastrointestinal tract and beta cells in the pancreas. Investigators will attempt to recreate the microenvironment of the beta cell to elucidate the ways in which beta cells communicate with the gastrointestinal tract and with other components of the endocrine system to maintain glucose homeostasis. Dr. Lee and his team are also in the first phase of a collaboration with UCSF with a goal of locating biochemical markers and potential treatments for adrenal cancer.

“We’re looking at which genes have increased activity in adrenal cancer and trying to find drug therapies that target or shut down or counteract those genes,” he noted.

Table. CT Versus CT Plus AVS in Patient Evaluation Prior to Adrenalectomy

	CT only	CT plus AVS
Tumor size, average, cm (range)	2 (1-3)	1 (0-2.5)
Unilateral tumor, n (%) ^a	30 (100)	17 (59)
Aldosterone levels, mg/dL ^a	6.3 (+/- 5.9)	13.5 (+/- 16)
Mean arterial blood pressure at 6 mo, mm Hg ^b	92 (+/- 12)	96 (+/- 9)
Hypertensive medications post-operatively, n ^c	1.1 (+/- 1.3)	1.2 (+/- 1.1)
Improvements in hypokalemia ^d	3.8 (+/- 0.5)	3.8 (+/- 0.5)

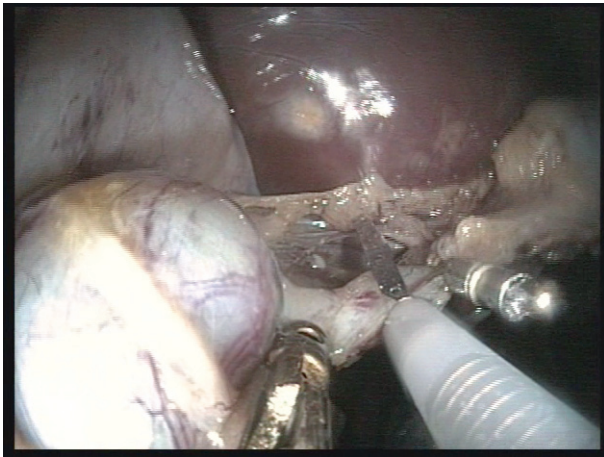
^a $P < 0.05$; ^b $P = 0.14$; ^c $P = 0.4$; ^d $P = 0.5$

AVS, adrenal vein sampling; CT, computed tomography

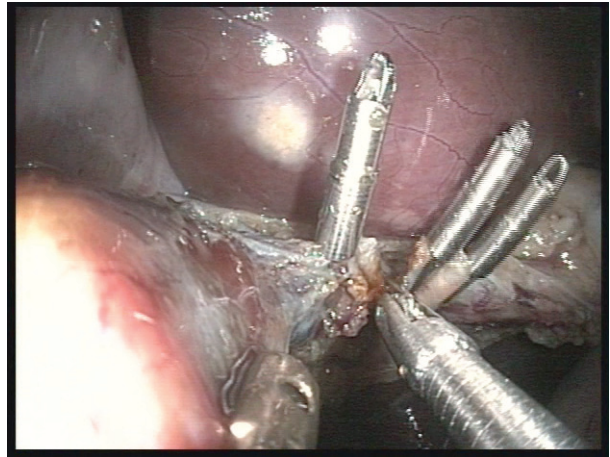
Source: *J Vasc Interv Radiol*. 2008;19(1):66-71.

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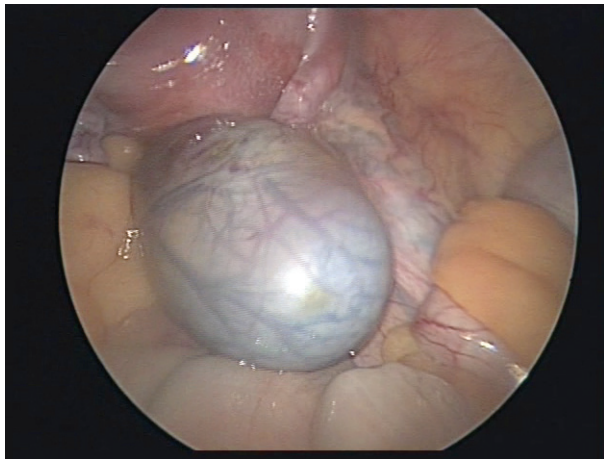
Thomas J. Fahey III, MD;
James Lee, MD; Rasa Zarnegar, MD



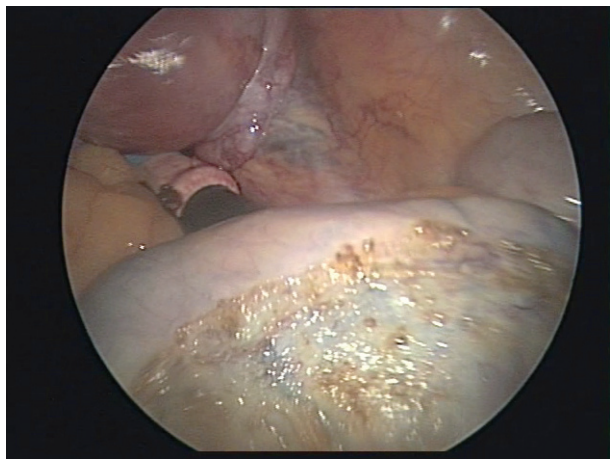
A. Endoscopic clip and clasper on the cystic duct and gallbladder.



B. Endoscopic clips are placed on the cystic duct.



C. Gall bladder and uterus are dragged out.



D. Body of gallbladder and uterus on top of endoscopic overtube and endoscope.

Figure. Marc Bessler, MD, Peter Stevens, MD, and Dennis L. Fowler, MD, perform transvaginal gallbladder removal.

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to finally establish the efficacy, safety, and recovery time associated with the NOTES technique for transvaginal cholecystectomy.”

In addition, Dr. Bessler is investigating protocols to accomplish a transvaginal sleeve gastrectomy for patients requiring bariatric surgery. He and his team, which includes Andrew Gumbs, MD, are also performing cholecystectomies by using the umbilicus as the point of entry. The goal here is to minimize postsurgical scarring, a key patient preference.

“We insert 3 instruments with flexible tips into a single entry so that we can work in different planes,” explained Dr. Bessler. “The umbilicus is scar tissue itself, so that no visible defect is left behind. This approach does not have the advantages of less pain and quicker recovery, as are achieved with transvaginal surgery, but it

does, like NOTES, address our patients’ preference for a scarless procedure.”

At the CME course, attendees listened to seminars on preparing for a new era of incisionless surgery, including futuristic operating room design and the role of NOTES in clinical gastroenterology, as well as presentations on hybrid techniques, tools, and devices. They also received guidance in setting up a practice lab. One of the most innovative aspects of the program, according to Dr. Stevens, was the use of an inanimate model designed to mimic anatomic tissue for practicing the NOTES technique. The model, developed by Kai Matthes, MD, an advanced endoscopy research fellow at Beth Israel Deaconess Medical Center in Boston, enables beginners to practice NOTES procedures in an inexpensive and safe way, and to develop endoscopic and surgical skills before applying them on a human patient.

“NOTES has as much potential for transforming interventional endoscopy as it does for improving surgeons’ ability to perform minimally invasive surgery,” said Dr. Stevens. He added that with increasing experience, improved skill sets, and newer devices combining flexible instrumentation with tools to cross the peritoneum, suture, and ablate, endoscopists will become skillful at accomplishing difficult endoluminal surgery and surgeons will become more comfortable with the use of flexible instrumentation within the peritoneum.

The second annual NOTES course is scheduled for December 15-16, 2008. For more information or to register, please visit www.columbiasurgerycme.org.

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Important news from the Digestive Diseases Centers of NewYork-Presbyterian Hospital—current research, clinical trials, and advances in the diagnosis and treatment of gastrointestinal, liver, bile duct, pancreatic, and nutritional disorders.

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