Advancing Technology: Addressing the Moral and Ethical Issues
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Laparoscopic Placement of Diaphragm Pacing Systems in Human Subjects
as performed on Christopher Reeve
Raymond P. Onders, MD
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ABOUT THE COVER
The cover image is a rare photo showing an actual awake office microlaparoscopy. 2-mm trocars are already inserted, and the patient is not intubated under general anesthesia. As demonstrated by the painting on the wall, this office was designed for the awake patient.

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OLYMPUS®
Advancing Technology: Addressing the Moral and Ethical Issues

Richard M. Satava, MD

Remarkable change in the face of medicine and surgery has occurred in the past decade. The prospect for the future is that even more remarkable disruptions will occur. Ten years ago cloning was a theoretical possibility; now, human clones exist. Minimally invasive surgery was emerging and robots were speculated upon; now, robotic surgery is common place. Training was accomplished by didactic lectures and mentorship in the OR. Didactic lectures provided knowledge to young physicians, and mentorship provided technical skills, all during a fixed period of time during residency. Now, however, simulators for objective assessment of skills and the setting of performance criteria before a resident is allowed to operate on a patient point to the time when residents train until they are competent, regardless of the length of the "program." Residents will train on "virtual" patients rather than real patients, making mistakes before entering the operating room. Work hours are being mandated, perhaps changing medicine and surgery from a profession into a job (How soon before we "punch the clock"?).

Much of the turmoil that is occurring is due to the incredible rate of change in technology. Medical advances are now occurring exponentially (rather than linearly), and society and health care cannot keep up with the pace of change. A prime example is Dolly the sheep, which confirmed the whole theory of cloning and precipitated a "ban" on human cloning, only to have the ban circumvented, resulting in human clones today. Yet Dolly is only the tip of the iceberg; even more profound changes are about to occur, and medical professionals, especially surgeons, have not engaged in discussing the solutions to the soon-to-emerge dilemmas. A few of those issues need to be addressed now, because their remedies will take decades (not months or years) to resolve. Some examples include the following:

Computers are rapidly becoming "smarter" than humans. The human brain computes at $4 \times 10^{19}$ computations per second (cps). The fastest computer, ASIC Red at Sandia National Labs, computes at 35 teraflops per second ($3.5 \times 10^{16}$ cps). That means that in the next 1 to 2 decades, computers—or robots or machines—will compute faster than humans compute. Will such computers be intelligent? And if so, will humans be able to communicate with them? Will these computers become smarter than humans? Will they remember we made them, or even need us humans any more? If they are "intelligent," can we pull the plug?

Advances in understanding aging led to the discovery of the apoptosis factors and to the role of telomeres. By administering antitelomerase (a protein that blocks the enzyme that shortens telomeres during cell division), a breed of mouse has been created that has a life span more than 3 times the normal. Can we apply antitelomerase to humans (or should we), and will it result in humans living 2 to 3 times longer than the possible human life span, for example, living to
be 200 to 250 years old? Will such humans be healthy, when will they retire (age 175?), how long will they have the ability to reproduce, what will happen to the planetary population, etc?

Artificial organs are being "grown" by a number of research teams. Within the decade, it will be possible to grow replacement organs from an individuals own stem cells, so surgeons of the future will only have 1 operation per organ system, i.e., take out the old and replace (not repair) it with a new synthetic organ. When all of one's organs have been replaced with either synthetic organs or smart prosthesis, will that person still be human? What will it mean to be human when your entire body has been replaced with synthetic parts?

While such questions are seemingly science fiction, remember that at the beginning of 1957 no rockets had been launched, airplanes were just becoming commercial, and the moon was for lovers only. Yet within 12 years, we saw Sputnik (1957) and a man walk on the moon. Anyone in 1957 who would have predicted that a man would walk on the moon would have been dismissed as an irresponsible dreamer, yet our technologies exceeded our wildest dreams.

The purpose of these examples is to demonstrate that what has been considered "unthinkable" science is soon to become reality. With these new discoveries, the impact upon society will be even greater than ever imagined—people living 200 years, synthetic bodies, direct brain-to-brain communication, and other such possibilities. Many of these scientific innovations will result from discoveries in health care and surgery. These new discoveries raise moral and ethical issues that will take decades to resolve because societal resolutions to moral and ethical issues cannot keep up with the fast-paced changes taking place in science. Now is the time to begin addressing moral and ethical concerns within the context of the clear and measured reason of discourse, rather than in a crisis mode in reaction to a new scientific discovery like human cloning. The above-mentioned and many other incredible discoveries will occur within the decade, and today's residents and young physicians will have to face their consequences, for better or worse. We must encourage debate upon these issues—even if they seem somewhat fantastic—through presentations at meetings as well as by teaching our students and establishing biomedical ethics curricula within our surgical training programs. The future has forever been altered.

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AWAKE MICROLAPAROSCOPY

Microlaparoscopy in the 21st Century

Oscar D. Almeida, Jr, MD

At the turn of the twentieth century, crude techniques and instrumentation made laparoscopic evaluation cumbersome and challenging to the clinician. Primitive laparoscopes with inferior lighting and image transmission, poor anesthetic methods, and untested laparoscopic techniques produced limited useful data. During the past quarter century, tremendous advances in laparoscopy have been achieved in both gynecologic and general surgery.

Minimally invasive microlaparoscopic surgery continues to revolutionize and redefine contemporary medicine as laparoendoscopic surgeons invade the 21st century. The availability of this technology in operative medicine will force surgeons to perform procedures in a more minimally invasive and cost-effective manner. Myriad technique and instrumentation changes mark the developments that have led to microlaparoscopy. The advances in microlaparoscopy noted today have arisen primarily from continued progress in fiberoptic technology. Microlaparoscopy uses small-caliber laparoscopes, 2 mm or less in diameter, made of microfiber-optic bundles measured in micrometers. The current 2-mm microlaparoscopes have a 50,000-fiber image bundle that produces enhanced resolution and a 75° field of view, comparable to a standard 10-mm rod lens laparoscope (Figure 1).\(^1\)

In addition to the microlaparoscopes, laparoscopic instruments have similarly been miniaturized. These include 2-mm trocars that can be attached to a Veress needle prior to creating the pneumoperitoneum. Once the pneumoperitoneum is achieved, the Veress needle is removed leaving the 2-mm trocar in place. This precludes the necessity of a "second-pass" trocar placement and allows the immediate insertion of the microlaparoscope. Open laparoscopy was introduced to reduce the risk of blind entry into the peritoneal cavity. Today the availability of microlaparoscopy has made open laparoscopy obsolete. Injury to the bowel with open laparoscopy has been reported to occur at the same rate as that with blind entry using a 2-mm cannula.\(^2\) In cases of suspected bowel perforation, the diagnosis can be immediately confirmed without producing further damage to the bowel. Bowel perforations resulting from 2-mm instrumentation can be managed conservatively without suturing, provided that the site of injury is not actively leaking stool or bleeding.\(^3\)

A complement of 2-mm microinstruments is available.\(^4\) Probes with centimeter markings are useful for measuring tubal length during assessments for potential tubal anastomosis. Other uses include probing tissues, structures, and lesions during conscious pain mapping. Injection-aspiration needle cannulas are helpful for awake laparoscopic procedures. Grasping forceps with serrated and atraumatic jaws, monopolar cautery scissors, bipolar forceps, and 2-mm Endoloops are available for operative microlaparoscopic procedures.

In addition to the traditional hospital and outpa-
tient operating room, microlaparoscopy has burst into the physician’s office, intensive care unit, and emergency room. Many procedures, both diagnostic and operative, can be performed with microlaparoscopy alone (Tables 1 and 2). Other operative microlaparoscopic-assisted procedures may require at least 1 larger trocar for the removal of a surgical specimen, such as the ovary, appendix, or gallbladder, or to accommodate a larger laparoscopic instrument like a stapling device. The technique of microlaparoscopic-assisted vaginal hysterectomy (MAVH) was recently introduced.10

Using an efficacious conscious-sedation protocol, a systematic evaluation of the pelvic and abdominal cavities can be performed while the patient is comfortably awake. Heating and humidifying the carbon dioxide gas for the pneumoperitoneum will enhance patient comfort during awake microlaparoscopic procedures.12 The protocol for conscious sedation is summarized in Table 3. Traditional laparoscopy with patients under general anesthesia for the evaluation of chronic pelvic pain in women has a major flaw. The primary limitation of this procedure has always been the use of general anesthesia, because it does not allow intraoperative patient feedback. Unfortunately, not all visible lesions, such as endometriosis and adhesions, account for all of the patient’s symptoms. In addition, deep lesions may exist that are not readily visible through the laparoscope and can be missed if the procedure is performed without intraoperative patient feedback. Conscious pain mapping has added an innovative diagnostic dimension previously absent in gynecology. By using the technique of conscious pain mapping in select cases, the patient can provide crucial information by helping the surgeon locate the source of her pain as areas in question are systematically probed.

In gynecologic surgery, microlaparoscopy has been utilized for the evaluation and treatment of patients with chronic pelvic pain, endometriosis, pelvic adhesions, ovarian cysts, pelvic inflammatory disease, as well as both infertility and undesired fertility. Patients with an ectopic pregnancy who desire medical therapy with methotrexate will occasionally experience pain because of necrosis of the villi. In this situation, the pain is difficult to differentiate from rupture of the tubal pregnancy. Microlaparoscopy with the patient under local anesthesia can be used to obtain a rapid diagnosis in these circumstances and possibly prevent an unnecessary procedure using general anesthesia. Women with polycystic ovarian syndrome who are resistant to medical therapy, those for whom medical therapy may be cost-prohibitive, and those who have concerns about multiple gestations may benefit from microlaparoscopic ovarian drilling.17 Reproductive endocrinologists will appreciate the availability of minimally invasive microlaparoscopy for infertility work because of the decreased risk of adhesion formation. In assisted reproductive technology (ART),

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Table 1.
Conditions Evaluated With Diagnostic Microlaparoscopy Using Local Anesthesia

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conscious pain mapping</td>
</tr>
<tr>
<td>Diagnosing endometriosis</td>
</tr>
<tr>
<td>Diagnosing pelvic adhesions</td>
</tr>
<tr>
<td>Infertility evaluation</td>
</tr>
<tr>
<td>- Chromotubation</td>
</tr>
<tr>
<td>Monitoring ectopic pregnancy being treated with methotrexate</td>
</tr>
<tr>
<td>Evaluation of right lower quadrant pain</td>
</tr>
<tr>
<td>- Acute appendicitis</td>
</tr>
<tr>
<td>- Other chronic abnormalities of the appendix</td>
</tr>
<tr>
<td>Diagnosis of hemorrhagic ovarian cysts</td>
</tr>
<tr>
<td>Diagnosis of pelvic inflammatory disease</td>
</tr>
</tbody>
</table>

Table 2.
Operative Microlaparoscopic Procedures Performed Using Local Anesthesia

<table>
<thead>
<tr>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary lysis of adhesions</td>
</tr>
<tr>
<td>Electrosurgery to fulgurate endometriosis</td>
</tr>
<tr>
<td>Laparoscopic uterosacral nerve ablation (LUNA)</td>
</tr>
<tr>
<td>Drainage of ovarian cysts</td>
</tr>
<tr>
<td>Ovarian drilling</td>
</tr>
<tr>
<td>Female sterilization</td>
</tr>
</tbody>
</table>

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Table 3.
Protocol for Conscious Sedation in Microlaparoscopy

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atropine</td>
<td>0.2 mg administered preoperatively to reduce the risk of a vasovagal reaction</td>
</tr>
<tr>
<td>Ondansetron hydrochloride (Zofran)</td>
<td>4 mg to prevent nausea/vomiting</td>
</tr>
<tr>
<td>Midazolam hydrochloride (Versed)</td>
<td>1-2 mg, very rarely 3 mg on an obese patient</td>
</tr>
<tr>
<td>Fentanyl citrate</td>
<td>250 µg administered slowly over 10 minutes, and titrated in 50 µg increments to effect</td>
</tr>
</tbody>
</table>

Table 4.
Benefits of Performing Office Microlaparoscopy Using Local Anesthesia

- Cost containment
- Less paperwork (unnecessary duplication of information and record keeping)
- Easier scheduling (for both physician and patient)
- No waiting for other surgeons to finish their operations/Elimination of travel time
- Conscious patient is helpful in making diagnosis
- Recovery time is shorter (faster return to work and normal activities)
- Procedure is more minimally invasive
- Less costly to insurance carrier in terms of dollars compared to hospital procedures under general anesthesia

Several general procedures are being performed using microlaparoscopy in addition to one or more larger instruments. A microlaparoscopic-assisted procedure of increasing acceptance among general surgeons is laparoscopic cholecystectomy. With the exception of a large trocar for removal of the gallbladder, the remainder of the trocars can be 2 mm in diameter. Both general surgeons and gynecologists are performing microlaparoscopic-assisted appendectomies. This procedure has been reported in the awake patient.

The use of microlaparoscopy in the field of endoscopy continues to grow. Microlaparoscopy has crept into the intensive care unit and emergency room. In the intensive care unit, a postoperative or severely debilitated patient may develop an acute abdomen with an obscure diagnosis. Due to their underlying clinical status, they may not be easily transferred to a traditional hospital operating room. In select patients, a “quick-look” minimally invasive “triage diagnosis” can be obtained at the bedside, possibly avoiding an unnecessary trip to the operating room.

Gamete intrafallopian transfer (GIFT) and tubal embryo transfer (TET) have been reported in which microlaparoscopy was used with the patient under local anesthesia with conscious sedation. Many of these procedures can be performed safely and efficaciously in the physician’s office. Advantages of office laparoscopy are summarized in Table 4.

The field of general surgery has embraced microlaparoscopy. Similar to some gynecologic proce-
the operating room but providing critical information for the surgeon and internist.

Emergency room laparoscopy is a viable option in select cases of both blunt and penetrating abdominal trauma. Hemodynamically stable patients may be candidates for diagnostic microlaparoscopy with conscious sedation in the emergency room. Depending on the findings, some patients may avoid an exploratory laparotomy in the operating room.

The primary limitations with microlaparoscopy arise from the moderate learning curve for laparoendoscopic surgeons who are used to larger, less delicate laparoscopic tools. Although microlaparoscopy can be performed with the patients under general anesthesia, many procedures can be safely and effectively performed with conscious sedation in the physicians office, intensive care unit, emergency room, and traditional hospital or outpatient operating room. As we begin the 21st century, microlaparoscopy will continue to play an ever-increasing role in the arena of minimally invasive surgery.

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References:
NEW TREATMENTS

Gastroesophageal Reflux Disease (GERD) Update

J. Barry McKernan, MD, PhD, Charles R. Finley, MD

The laparoscopic treatment of GERD continues to enjoy widespread acceptance because laparoscopic fundoplication provides very effective long-term benefits for this patient population. It is interesting to look back on the days prior to the laparoscopic revolution. My own personal experience is likely similar to that of others in that I received approximately 1 referral a year for a patient requiring surgical treatment for GERD prior to the laparoscopic era, and these patients were usually “end-stage” reflux patients. We are now in the second decade of laparoscopic treatment for reflux, and some exciting new modalities are on the horizon as well as some “old” controversies still being bantered about. If 1 lesson can be learned from the treatment of groin hernias and applied to the treatment of GERD, it is that we should attempt to maintain standardization in the description of the disease itself and its treatment.

One of the common myths about laparoscopic fundoplication is that the short gastric vessels should be sacrificed. A recent prospective, double-blind, randomized trial with a 5-year follow-up showed that division of the short gastric vessels during laparoscopic Nissen fundoplication caused no significant improvement in any measured clinical outcome. Sato et al found that postoperative dysphagia was not significantly affected by division of the short gastric vessels. We would strongly suggest that the true issue is adequate mobilization of the fundus. Adequate mobilization of the fundus to perform a “floppy” fundoplication includes mobilization of the posterior fundus, with particular attention paid to the attachments between the posterior fundus and the pancreas. Although it is said that short gastric vessel division results in a longer operative time, this has not been our experience, and it likely makes adequate posterior mobilization of the fundus as well as creation of the fundoplication itself easier to perform.

Is the Nissen more effective than the modified Toupet fundoplication? Thor and Silander showed with open surgery that modified Toupet is more successful than Nissen fundoplication (95% vs 67% had good or excellent results) in controlling typical reflux symptoms. Laparoscopic Nissen fundoplication has been shown to be 96% successful in relieving the primary symptom for which the surgery is performed. We use Nissen fundoplication most frequently. Although we feel that either procedure results in excellent relief of reflux symptoms, Nissen fundoplication is slightly less time consuming to perform. Modified Toupet fundoplication is performed in patients with documented motility disorders (esophageal body pressures less than 30 mm Hg) or in patients who have difficulty swallowing even in the presence of “normal” manometry. Modified Toupet is also usually performed in association with an esophagomyotomy for achalasia. On the other hand, some would argue that a fundoplication should be applied selectively to patients undergoing Heller myotomy for achalasia.

The use of prosthetic materials at the gastroesophageal junction continues to be an active area of
discussion. We prefer to avoid the use of pledgets in the creation of the fundoplication. If one chooses to use them, they should certainly not be left in contact with the esophagus, because they have been known to erode into the esophagus and the stomach. Currently, a wide variety of materials are available to either buttress the hiatal hernia closure or for its primary repair. We have been hesitant to utilize prosthetic mesh in the immediate area of the gastroesophageal junction for fear of erosion. It is widely believed that a hiatal hernia greater than 5 cm in size has an increased rate of recurrence. From the standpoint of standardization, all crural openings are measured intraoperatively. If tension is present on the closure of the crura, we prefer to perform a medial relaxing incision as described by Huntington (Figure 1). In these cases, the diaphragm is incised just to the right of the right crus, using an angled laparoscope to visualize the right chest, care being taken to avoid the inferior vena cava. The crura are then approximated and the relaxing incision is closed with a biosynthetic material. This material is either sutured or stapled into place.

During Nissen fundoplication, a 50-French bougie dilator is used for calibration of the wrap. Fear is often voiced about possible esophageal perforation during passage of the dilator. An alternate method of calibration would be to use a technique such as the size of a known grasper between the wrap and the esophagus or a bougie that is passed over a previously placed nasogastric (NG) tube. In any event, it is very difficult to “eyeball” the proper diameter of a fundoplication. We have therefore chosen to emphasize a team approach, utilizing anesthesiologists quite familiar with the procedure and who are conscientious about both gently passing the dilator as well as observing its passage with us on our monitors.

Delayed gastric emptying is quite common in patients with GERD. In patients who present with significantly delayed gastric emptying with an intact fundoplication, we have found it helpful to dilate the pylorus endoscopically with a 56-French balloon for 3 minutes. If the patient improves symptomatically, the option of pyloroplasty is then discussed.

We perform intraoperative endoscopy (esophagagogastroscopy) on all patients undergoing reoperative fundoplication, repair of paraesophageal hernia, or esophagomyotomy. Intraoperative endoscopy is also performed during any other case in which the exact location of the gastroesophageal junction is at all in question. Chang et al noted that in approximately 10% of patients the GE junction is actually more cephalad than is apparent on laparoscopy.

An interesting new modality on the diagnostic front is the catheterless, 48-hour Bravo pH System (Medtronic, Minneapolis, MN, USA). The preoperative patient with no gross esophagitis on screening esophagagogastro-duodenoscopy (EGD) (often because by the time patients present for surgical repair they are taking maximum doses of proton pump inhibitors) or spontaneous reflux on upper gastrointestinal series has traditionally been subjected to the 24-hour pH probe as a last resort to confirm diagnosis prior to surgery. This has also been important for diagnosis in patients with principally extraesophageal symptoms, who recently have been receiving more accurate and timely diagnoses as many more internists, ENTs, and pulmonologists are becoming aware of the extraesophageal symptoms of GERD. However, it is difficult for patients to simulate a normal lifestyle and eating habits with the traditional catheter probe, and some are not able to tolerate its placement through the
nasopharynx at all. With the Bravo System, a pH probe is placed comfortably and leaves no catheter visible at the patient's nose to preclude normal activity (due to discomfort or embarrassment). However, some difficulty still exists in obtaining reimbursement for this procedure from some of the health coverage plans.

Lastly, endoscopic treatments of GERD have received much attention over the past few years. These fall into several categories, including endoscopic suturing, submucosal injection of various agents or substrates, and the use of radiofrequency. The latter has received the most attention. The Stretta (Curon Medical, Sunnyvale, CA, USA) procedure delivers radiofrequency energy directly to the gastroesophageal junction through an endoscopic approach. Initial results are somewhat promising. However, many patients are not candidates because of exclusion criteria including the presence of a hiatal hernia greater than 2 cm, Barrett's esophagus, dysphagia, or severe erosive esophagitis. Little doubt exists that, given the safety and long-term effectiveness of laparoscopic fundoplication, any endoscopic procedure must give predictable results, as well as be durable, cost effective, and relatively easy to perform to be a viable alternative for the patient who can otherwise tolerate general anesthesia.

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JOURNAL WATCH: J Am Coll Surg

The 2-mm Trocar: A Safe and Effective Way of Closing Trocar Sites Using Existing Equipment • Reardon PR, McKinney G, Craig ES. J Am Coll Surg (2003)196:333-336. It may be necessary to close 10 mm and smaller port sites. The authors explain their method using a 2-mm trocar and sleeve for the closure of all 10-mm or larger port sites and any 5-mm sites that might have become enlarged during a prolonged procedure.
INTRODUCTION

Obesity is a global epidemic that currently affects over 300 million adults worldwide with over one third of them living in developing nations. It is estimated that 15% of all overweight individuals have a body mass index (BMI = weight kg/height m²) greater than 35. The National Institutes of Health reported1 23 in 1991 that any patient with a BMI>35 with a comorbid condition related to obesity or a BMI>40 without a comorbid condition is an eligible candidate for surgery. Compared with surgical therapy, no diet or medication can offer morbidly obese individuals the opportunity for successful long-term weight loss.

Therefore, because of the persistent rise in the incidence of obesity, the demand will increase for adequately trained surgeons with the skill and expertise needed to treat these patients4 (Table 1). The aim of this paper is to review the materials, methods, and means available for surgeons interested in performing weight-loss operations to gain the needed experience to perform these complex procedures.

The first decisional steps that any surgeon must take include the following: (1) analyze the population and determine the need for bariatric surgical services; (2) determine whether he or she can be committed to life-long follow-up and care of these patients; (3) develop an infrastructure and team to support the surgical services, including trained medical assistants, primary care physicians, anesthesiologists, pulmonologists, psychologists, and other specialists as needed; and (4) decide whether he or she will perform these operations through a traditional laparotomy or using advanced laparoscopic techniques. The University of Pittsburgh's program emphasizes that any surgeon entering this field should take the necessary measures to learn the laparoscopic approach. When compared with traditional laparotomy, the laparoscopic approach offers the patient the benefit of less perioperative morbidity and mortality and this translates into less recovery time for the patient.

Among the specific areas where less perioperative morbidity can be demonstrated with laparoscopic surgery in general are preserved pulmonary function with fewer pulmonary complications;5 shorter episodes of postoperative ileus;6 fewer wound-related complications, such as hematomas, seromas, infections, hernias, and dehisences;7 and a reduction in postoperative adhesion formation.8

Other longer term postoperative benefits from laparoscopic Roux-en-Y gastric bypass (LRYGBP)
Table 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Number of Roux-en-Y Gastric Bypasses Performed in the USA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>25000</td>
</tr>
<tr>
<td>1999</td>
<td>23000</td>
</tr>
<tr>
<td>2000</td>
<td>38000</td>
</tr>
</tbody>
</table>

*Data from a sampling of US hospitals by the National Center for Health Statistics. Shows the number of patients discharged with the International Classification of Disease (ICD-9-CM) classification 44.31 (High gastric bypass) and 44.39 (Other gastroenterostomy and gastroenterostomy without gastrectomy). The latest year for which numbers are available is 2000.

include lower rates of wound infection, lower rates of incisional hernia formation, and higher quality of life scores for the first 6 months postoperatively.\(^9\)\(^10\) The end result is that laparoscopic patients return to their activities of daily living much faster than those patients who undergo traditional laparotomy.\(^10\) Although these reports are impressive in demonstrating the benefits of laparoscopy over laparotomy, it is the individual surgeon who must make the choice as to which operative approach is best suited for his or her patients and his or her abilities.

**LEARNING CURVES**

Whether laparoscopy or laparotomy is ultimately chosen, each surgeon should be aware that a definite learning curve is associated with these procedures. The concept of a procedure-specific “learning curve” first began in the late 1980s when higher rates of common bile duct injury were noticed with the first laparoscopic cholecystectomies done by experienced surgeons.\(^11\)\(^-\)\(^13\) As new laparoscopic procedures have been developed, almost every known procedure has demonstrated specific learning curves.\(^14\)\(^-\)\(^20\) Operations for obesity are no different as each one has its own learning curve.

Laparoscopic adjustable gastric banding (LAGB) is currently regarded as the simplest of the operations performed for morbid obesity. Only 1 FDA-approved device is available in the United States, the LAP-BAND\(^\text{®}\), (BioEnterics, Carpinteria, CA); however, several others are available worldwide. These devices, despite their being somewhat easier to insert surgically, nonetheless require accrual expertise. Both Chevallier et al\(^21\) and O'Brien et al\(^22\) noted a significant decrease in their conversion rates to open procedures as their experience increased. Chevallier et al\(^21\) had 8 conversions in his first 50 procedures and 4 in his last 350. Similarly, O'Brien et al\(^22\) had 5 conversions to open in his first 72 cases and none in his last 230 patients. O'Brien et al\(^22\) also demonstrate that their rate of band prolapse decreased from 22% in their first 100 patients to 2.5% in their last 200 patients. The most convincing demonstration of the LAGB learning curve was made by Favretti et al.\(^23\) In their first 100 patients, the major complication rate (complications requiring reoperation) was 20%. In the second 100 patients, the major complication rate was only 6%. In the next 300 patients, the major complication rate was 3.0%. In the last 300 patients, the major complication rate was zero with 97% follow-up. Despite the relative ease of LAGB insertion, achieving good placement that does not result in band slippage, malposition, or port-site complications may be far more difficult.

The most popular laparoscopic weight-loss surgical procedure performed in the United States today is the Roux-en-Y gastric bypass. This procedure is technically challenging because it requires laparoscopic skills not generally utilized in routine general surgical practices. These advanced skills include intracorporeal suturing, stapling, and 2-hand dissection techniques. The size of these obese patients also heightens the complexity of the procedure by decreasing the intraabdominal space and increasing the intraabdominal visceral fat. Patient size makes standard instrumentation inadequate in many instances. Additionally, the presence of hepatomegaly and the high incidence of previous abdominal surgery present major technical barriers to completion of the procedure laparoscopically. Many of the patients require numerous concomitant procedures, such as ventral or incisional hernia...
repair and cholecystectomy, that require adjunctive modalities that must also be mastered.

In a prior study conducted at the University of Pittsburgh,24 it was noted that wound infections, anastomotic leaks, operative times, and complications all decreased significantly after 100 patients. These results were mirrored by other authors25-28 who also found a steady decrease in operative time and complications after operative experience extended beyond 100 cases.

**SKILL ACQUISITION**

In light of these results, it becomes obvious that many surgeons in practice today and residents in training may not have the technical expertise or proper training to care for these complex patients.29,30 The question then becomes what is the most effective way to acquire these skill sets?

Rosser and colleagues31 have described methods for reliably, reproducibly, and objectively evaluating surgical skill sets irrespective of prior experience. Once deficits are found, they can often be overcome with a 2-day course that reinforces objective performance criteria and monitors progress.32 The surgeon's progress can then be compared with that of thousands of other surgeons who have previously taken the course.

In addition to skill acquisition, it is often necessary to obtain procedural-specific educational training. This is especially true for bariatric surgery as several different procedures are done around the world as well as several different variations of those procedures, each with its own side effects and unique short- and long-term complications. An example of such a course is the University of Pittsburgh Annual Update on Morbid Obesity.33 This course and others like it offer in a didactic format an extensive review of the various aspects of bariatric surgery. They are usually taught by world-renowned faculty and give the practitioner a succinct overview of most topics related to bariatric surgery. They last from 2 to 4 days.

These courses should not be confused with the workshop concept that was popularized in 1977. A workshop involves procedural-specific information in combination with proven animal models in teaching laparoscopic surgical methods.34 This usually includes an 8-hour didactic lecture, half a day of animal lab, and half a day observing live surgery. These courses are tailored for surgeons already in practice who wish to begin practicing bariatric surgery and who already have some laparoscopic skills. These courses have been found highly effective at the University of Pittsburgh for a large segment of surgeons beginning bariatric surgical practices. However, these courses, in and of themselves, do not represent adequate training.

**CREDENTIALING**

In the United States, each individual hospital or health system governing board is responsible for granting clinical privileges at that hospital or health system.35 The health system then forms credentialing committees that review the board certification, training, and experience of each individual applicant. Typically, board certification or board eligibility implies that the applicant is competent to perform procedures he or she was trained in. However, as seen in Table 2, most residents who are leaving residency today have not performed sufficient numbers of cases to be considered proficient in open or laparoscopic bariatric surgery. This situation also applies to surgeons who are already in practice and who wish to start doing bariatric surgery. Problems like these have led most credentialing committees to adopt criteria published by specialty boards or specialty societies.36 For bariatric surgery in the United States, the American Society of Bariatric Surgeons (ASBS) has taken the lead in publishing guidelines for obtaining privileges in bariatric surgery (The Society of American Gastrointestinal Endoscopic Surgeon [SAGES] co-authored the statement on the granting of laparoscopic privileges in bariatric surgery).37

The ASBS suggests that every surgeon interested in beginning a bariatric program should attend a bariatric training course of at least 2 days, which includes both didactic teaching and a hands-on labo-
### Table 2.
Residency Experience With Bariatric Surgery and Nissen Fundoplication*

<table>
<thead>
<tr>
<th></th>
<th>Mean No of Cases</th>
<th>Mean No Chief Year</th>
<th>No for Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1999-2000</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bariatric</td>
<td>5.0</td>
<td>2.8</td>
<td>35</td>
</tr>
<tr>
<td>Nissen</td>
<td>5.4</td>
<td>3.7</td>
<td>26</td>
</tr>
<tr>
<td>Colectomy</td>
<td>1.8</td>
<td>1.1</td>
<td>29</td>
</tr>
<tr>
<td><strong>2000-2001</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bariatric</td>
<td>6.7</td>
<td>3.8</td>
<td>35</td>
</tr>
<tr>
<td>Nissen</td>
<td>6.2</td>
<td>3.9</td>
<td>26</td>
</tr>
<tr>
<td>Colectomy</td>
<td>2.3</td>
<td>1.4</td>
<td>29</td>
</tr>
<tr>
<td><strong>2001-2002</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bariatric</td>
<td>9.5</td>
<td>5.6</td>
<td>35</td>
</tr>
<tr>
<td>Nissen</td>
<td>5.9</td>
<td>3.3</td>
<td>26</td>
</tr>
<tr>
<td>Colectomy</td>
<td>2.1</td>
<td>1.9</td>
<td>29</td>
</tr>
</tbody>
</table>

*The number of bariatric cases the average graduating chief surgical resident does during his fifth year and the total number done during his residency. Bariatric cases are not broken down into open versus laparoscopic at this time by the Residency Review Commission. These numbers represent total bariatric cases done in comparison to other advanced laparoscopic cases. Column 3 is the number of cases experts have said is required for competency in bariatric surgery.*

...declaratory. Additionally, ASBS suggests that the hospitals require documentation of 3 proctored cases in which the assistant is a fully trained bariatric surgeon, and the completion of an approved preceptorship program. These are the same provisional requirements for both open and laparoscopic surgeons.

The statement also suggests that perioperative outcomes should be reviewed after the first 10 independent laparotomy cases or 15 laparoscopic cases. After 6 months, the surgeon's outcome data should be compared with published outcome benchmarks in terms of patient safety and results.

Hospitals should also require the surgeon to show that his or her bariatric program has provisions for ancillary services, such as specialized nursing care, dietary instruction, counseling, support groups, exercise training, and psychological assistance. Documentation should be available indicating that a program is in place to prevent, monitor, and manage short- and long-term complications. In addition, a system should be in place to provide follow-up for all patients, with the expectation that at least 50% of the patients who receive restrictive procedures and 75% of those with malabsorptive operations will be seen on a regular basis for at least 5 years.

Just as institutions can expect performance requirements of the surgeon, so too can the surgeon expect performance requirements of the hospital. The American College of Surgeons has provided guidelines for facilities wishing to perform bariatric surgery.* These include specialized operating suites with tables to accommodate patients weighing up to 750 pounds, appropriate retractors, staplers, and longer instruments. Anesthesiologists should be specially trained in bariatric surgery and regularly assigned to bariatric procedures as members of the bariatric surgery team. Hospital staff with regular contact with bariatric patients should be educated on the special needs of the morbidly obese, which include intensive respiratory care regimens, assisting with ambulation, the recognition of potential problems with intravascular volume, cardiac, diabetic, and vascular conditions, and the use of special beds, chairs, and commodes. All facilities should conform to standards mandated by the...
Joint Commission on Accreditation of Health Care Organizations.

FELLOWSHIP TRAINING

These extensive demands placed on surgeons have led to the concept of the "mini-fellowship." These training programs in bariatric surgery last from 1 to 6 weeks and involve all phases of bariatric education with extensive operative and outpatient clinical experience. Several such programs are now being offered throughout the United States (The University of Pittsburgh, Tufts, University of Texas Southwest-ern, and Mount Sinai are some of the institutions that offer these fellowships). These typically allow the surgeon enough experience to satisfy the privileging bodies of institutions, such as hospitals and societies like ASBS.37

After completing their surgical training, residents who wish to make laparoscopic bariatric surgery their specialty often seek additional training by doing a laparoscopic fellowship. Over the last few years, laparoscopic fellowships have increased in number from 20 to 90.39,40 Most of these fellowships offer extensive training in laparoscopic bariatric surgery with some being "primarily bariatric." The rise in laparoscopic fellowship opportunities coincides with the explosion in the prevalence of obesity; which in turn, has created an acute demand in the community. Many of these fellowships are 2 years in length with the first year devoted to research. This fact reflects the growing complexity of the field of bariatric surgery as well as the recognition that obesity is a condition of multiorgan dysfunction. However, for purely clinical experience, it is generally agreed that 1 year is sufficient to master the techniques needed to perform these operations. It is hoped, although not yet proven, that this new cadre of fellowship-trained surgeons will result in lower complication rates, improved outcomes, and new research that enriches the surgical treatment of obesity.

MALPRACTICE INSURANCE

One immediate benefit of fellowship training relates to malpractice insurance premiums. Prior to 2000, bariatric surgery was not recognized as a surgical subspecialty by the insurance industry. This effectively meant that any general surgeon could perform bariatric surgery without being placed in a different category than other general surgeons who did not perform bariatric surgery. However, the insurance industry realized that bariatric surgery was unique, not for the number of claims per se, but for the potential of huge awards to relatively few patients (ie, most bariatric surgical patients are young and therefore have many productive years left, thus raising the possibility of higher damage awards). This has caused the average bariatric surgeon's premiums to be 40% to 100% higher than that of comparable general surgeons nationwide. It has also resulted in fewer companies offering bariatric surgical malpractice insurance (currently, only 2 exist, down from 5 two years ago). These companies noticed that most of the claims brought against physicians were against surgeons who performed relatively few bariatric procedures yearly. These findings have been incorporated into a pricing structure for underwriting bariatric surgeons. Typically, 5 things can lower the rates that a typical bariatric surgeon will pay. The first is the skill of the surgeon. A surgeon's practice must demonstrate low complication rates. The lower the complication, the lower the premium the surgeon pays. This also relates to the number of procedures a surgeon does: higher volume surgeons have lower rates than lower volume surgeons. The second criterion is the number of claims against the surgeon both in terms of volume and in terms of awards. The third is the surgeon's educational background in performing bariatric surgery; meaning a surgeon who has 10 cases proctored by an experienced surgeon will pay a much higher rate to begin doing bariatric surgery than a surgeon who has completed a laparoscopic bariatric fellowship. The fourth is whether the surgeon is a member of ASBS. The insurance industry feels that membership demonstrates that the surgeon is committed to lifelong...
education in the nuances associated with the surgical treatment of obesity. The last is whether the surgeon is practicing in a center of excellence, meaning that the surgeon has the support staff to adequately follow these patients and provide them with appropriate lifelong counseling. These could make a big difference in the costs of a typical retro-inception policy that currently runs between $75 to $110,000 a year ($1 million per occurrence, $3 million aggregate per year with a $10,000 deductible per occurrence) (Personal communication from K. Keenan of John Burnham Associates about bariatric surgical malpractice rates in the United States, April 4, 2003).

CONCLUSION

Bariatric surgery is the fastest growing field of general surgery. A definite learning curve exists for bariatric surgery in general and for laparoscopic surgery in particular. To learn the skills needed to help this population, several methods have been applied. General didactic meetings alone are insufficient to begin a bariatric surgical practice. Workshops alone may be beneficial for some surgeons. The mini-fellowship may be the ideal compromise for surgeons in practice who wish to begin a bariatric surgical practice. However, a 1-year fellowship may be the ideal training modality for those surgeons who may not have obtained sufficient skill in advanced laparoscopy during their residency. This situation applies to the majority of candidates who seek additional training in laparoscopic bariatric surgery.

References:


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The Effect of Using Laparoscopic Instruments on Muscle Activation Patterns During Minimally Invasive Surgical Training Procedures - Quick NE, Gillette JC, Shapiro R, Adrales GL, Gerlach D, Park AE. Surg Endosc (2003)17:462-465. Using surface electromyography electrodes, muscle activity was recorded while performing a targeted grasp and release, a simulated bowel inspection, and a cable-tying exercise each with three different fine-or looped graspers.

JOURNAL WATCH: JSLS

Post-surgery Closures: A New Problem, An Old Device - Di Lorenzo N, Coscarella G, Lirasi F, Gasparri A. JSLS (2002)6:181-183. The Deschamps needle is a rigid, noncutting instrument that has been present in surgical suites for many years. The authors report successful use of the Deschamps needle for closure of laparoscopic port-site defects.
ELECTROPHRENIC RESPIRATION

Laparoscopic Placement of Diaphragm Pacing Systems in Human Subjects

Raymond P. Onders, MD, Anthony F. DiMarco, MD
Anthony R. Ignagni, J. Thomas Mortimer, PhD

INTRODUCTION

The number of spinal cord injury patients living in the United States is estimated at 200 000. Each year 10 000 new cases occur with 4.2% resulting in long-term chronic respiratory insufficiency. Electrically induced diaphragm pacing is an alternative to long-term positive pressure ventilation. The only commercially available phrenic pacers use electrodes placed in direct contact with the nerve through a median sternotomy, resulting in long ICU and hospital stays in high-risk patients who are already compromised. We have developed a successful, minimally invasive, low-risk functional pacing device that lowers the risk of nerve injury and is more cost effective.

METHODS

The following 4 objectives were met prior to use of the device in the first human subject with initial evaluations in a canine model for every step: (1) A laparoscopic instrument was developed to place electrodes in the diaphragm muscle (Figure 1). (2) The anatomy of the diaphragm was analyzed through a cadaver study to identify the motor point for the intramuscular stimulating electrode. (3) The phrenic nerve motor points in human subjects were identified intraoperatively, and the feasibility of implanting intramuscular electrodes at these points was determined. (4) A suction mapping instrument was developed to facilitate identification of the desired implant site at the motor point (Figure 2).

SURGICAL TECHNIQUE

After appropriate general anesthesia is given to the patient, an umbilical Hassan trocar site is used to enter and insufflate the abdomen. Four trocars are used. One 12-mm universal trocar is placed subcostally on each lateral aspect and one 5-mm epigastric port is used. Each hemidiaphragm is identified for any anatomic abnormalities, and a “home view” is fixated so that we can always return to the same camera view. In this regard, we make 2 marks on the diaphragm for each corner of the TV screen; we then place a transparency over a slave TV with the same marks. The “home view” is then calibrated by placing a fixed sized object on the diaphragm. When in the “home view,” measurements of the diaphragm made on the monitor are consistent, enabling our software engineers to more accurately localize and map out our maximal points of stimulation.

The mapping electrode is then used to locate the phrenic nerve motor points. The electrode is maneuvered towards a potential placement site by using the manipulating rod and is held on to the abdominal surface of the diaphragm with a vacuum. During each set of testing, the patient ventilation is stopped so that consistent, accurate, intraabdominal pressure measurements can be made. The abdominal pressure is recorded during the stimulus...
pulses with a Validyne pressure transducer. Through a series of mapping locations, we can identify the presumed motor point for each hemidiaphragm.

The implant device is then loaded with an electrode and placed through the lateral ports. To implant the electrode, the tip of the needle is inserted through the peritoneal layer of the diaphragm at a point 2 cm radially away from the predetermined implant site, perpendicular to the muscle fibers. This starting position places the stimulating tip of the electrode at the optimal placement site (the needle is 2.5 cm in length). The ability to control the approach of the needle into the diaphragm allows the surgeon to choose the best approach to implant the electrode and to keep the needle visible within the muscle. At this point, countertraction is necessary for drawing out the electrode so that the barb can be implanted into the muscle. Each electrode is immediately tested to be sure it is adequately stimulating the motor point. If it does not, it is removed and the implantation process is repeated. On each side, 2 electrodes are inserted, one primary and one secondary electrode. All 4 of the wires are then brought out through the epigastric port with a slight coil intraabdominally so that abdominal wall movements do not dislodge the wires. The stimulating electrodes are then tunneled to a connection site on the chest where the wires are connected to the actual exiting wires. This intermediate incision is in the location for the planned future implanted stimulator. This decreases the possibility that an exit site infection may require the removal of the stimulating electrode. The transthean exit lead wires are then each separately tunneled to an exit site pattern for correlation to the electrode implant location. A final stimulation check is done with the abdomen desufflated for confirmation of no cardiac capture with maximal electrical diaphragm stimulation.

The patient is allowed to recover from the implant surgery for 2 weeks. Following the recovery period, complete diaphragmatic assessments are made to determine the stability of the implanted electrodes.

An encapsulation layer begins to form around the electrode during this initial postimplant period that prevents electrode dislocation or migration and results in stable and repeatable recruitment characteristics. Thus, if the recruitment of an implanted electrode at the time of implant and 14 days after implant are similar, the electrode can be assumed to be in a stable position.

**RESULTS**

A series of 3 patients underwent implantation of the pacing system after appropriate IRB and FDA approval. The first patient has been off the ventilator for over 2 years after a second revision surgery. The second patient did not have an adequate diaphragm for stimulation because of the possibility that the phrenic nerve was not truly intact, which is necessary for motor point stimulation. The third patient, Christopher Reeve, underwent the operation and in the early time period is doing well with the strengthening of the diaphragm allowing him extended times off the ventilator with respiration dependent on the pacing electrodes alone. Aside from being able to achieve more physiologic negative pressure ventilation, these 2 successful patients have been pleased with the increased natural ability to communicate with a natural tone of voice and increased sense of smell.

**CONCLUSION**

We have developed a low-risk, cost-effective, outpatient, diaphragm pacing system that will support the respiratory needs of patients with compromised respiratory function who have intact phrenic nerves.

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Department of Surgery, University Hospitals of Cleveland; Department of Surgery, Medicine and Biomedical Engineering, Case Western Reserve University, Cleveland, Ohio (all authors).
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see next page for details

12:00 pm - 6:00 pm  
Congress Registration
5:00 pm - 6:30 pm  
Opening Ceremony/Presidential Address/Honorary Chair Presentations
6:30 pm - 8:30 pm  
Welcome Reception in Exhibit Hall

TUESDAY, SEPTEMBER 23, 2003 • Day 1 of International Congress and Endo Expo 2003
6:45 am - 7:00 am  
Moderator Briefing
7:00 am  
Congress Registration/Complimentary Continental Breakfast in Exhibit Hall
7:30 am - 8:30 am  
GENERAL SESSION: Best of Laparoscopy Updates
Key Laparoscopy Updates presented by SLS Special Interest Group (SIG) Committee members highlighting the newest developments and future expectations of surgical and diagnostic procedures.

8:30 am - 10:00 am  
MULTI-DISCIPLINARY PLENARY SESSION: (Gynecology, General Surgery, Urology)
Laparoscopy in Pregnancy

9:00 am - 1:00 pm  
Accompanying Guest Activity: Las Vegas City and Backstage Tour
10:30 am - 12:30 pm  
GYNECOLOGY AND UROLOGY SESSION: Pelvic Reconstructive Surgery
10:30 am - 12:30 pm  
GENERAL SURGERY SESSION: Laparoscopic Endocrine Surgery
12:30 pm - 1:45 pm  
Lunch Available in Exhibit Hall
1:00 pm - 1:30 pm  
Poster Presentations
Directors: Raymond J. Lanzaflame, MD, MBA; Douglas E. Ott, MD, MBA

1:45 pm - 5:00 pm  
CONCURRENT SESSIONS: Laparoscopy Updates, Scientific Papers, Open Forum Presentations, and Videos
5:00 pm  
Adjourm for the day
6:30 pm - 10:00 pm  
Fun Night Dinner with Faculty “Star Trek Experience” Las Vegas Hilton (Ticket Required)

WEDNESDAY, SEPTEMBER 24, 2003 • Day 2 of International Congress and Endo Expo 2003
7:00 am  
Congress Registration/Complimentary Continental Breakfast in Exhibit Hall
7:30 am - 8:30 am  
AWARD WINNING SCIENTIFIC PAPERS AND VIDEOS PRESENTATIONS
Director: Richard M. Satava, MD; Co-Director: Paul Alan Wetter, MD

8:30 am - 11:30 am  
LIVE TELESURGERY from Atlanta, Georgia
Gynecology Surgery: Surgeon: Ceesa Nezhat, MD
Laparoscopic General Surgery: Surgeons: Isabed Garcha, MD; Scott Miller, MD

9:30 am - 3:00 pm  
Accompanying Guest Activity: Hoover Dam, Lake Mead, Boulder City and Ethel M Chocolate Factory Tour
11:30 am - 12:30 pm  
Lunch Available in Exhibit Hall
12:00 pm - 12:30 pm  
New Product Presentations By Exhibitors
Director: Carlos A. Suarez, MD

12:30 pm - 12:45 pm  
Best Poster and Resident Award-Winning Paper Presentations
Featured Speaker: Winner of the $1,000 Award for Best Paper by a Resident

12:45 pm - 1:45 pm  
EXCEL AWARDS LECTURES AND PRESENTATIONS
Recipients: Hubert Mathews, MD; Jacques Maerescaux, MD

1:45 pm - 5:00 pm  
CONCURRENT SESSIONS: Laparoscopy Updates, Scientific Papers, Open Forum Presentations, and Videos
5:00 pm  
Adjourm for the day

THURSDAY, SEPTEMBER 25, 2003 • Day 3 of International Congress and Endo Expo 2003
7:00 am  
Congress Registration
7:30 am - 9:00 am  
BREAKFAST WITH KEYNOTE SPEAKER William M. Kier, MD (Ticket required)
9:00 am - 10:30 am  
FUTURE TECHNOLOGY SESSION: BIOSURGERY
10:30 am  
12th International Congress is adjourned
10:45 am - 11:15 am  
SLS Business Meeting – All SLS Members are Encouraged to Attend.

Faculty, Program, and Topics subject to change. All postgraduate courses and congress events are held in Bally’s Las Vegas Hotel and the adjoining Paris Hotel unless otherwise noted.
**PRE-CONFERENCE POSTGRADUATE COURSES**

**Monday, September 22, 2003**

**Half-Day Courses (3 AMA PRA Category 1 Credits):**
9:00 am – 12:00 pm and 1:00 pm – 4:30 pm

**Full-Day Courses (6 AMA PRA Category 1 Credits):**
9:00 am – 4:30 pm

**POSTGRADUATE #1A**

**HALF-DAY** (9:00 am – 12:00 pm)

Prevention and Management of Laparoscopic and Endoscopic Complications

**FACULTY**

Course Director: Raymond J. Lanzafame, MD, MBA; Co-Director: Carl J. Levinson, MD; Ceyana Nezhat, MD, Joseph B. Petelin, MD

**NEW**

**POSTGRADUATE #1B**

**HALF-DAY** (1:00 pm – 4:30 pm)

Adhesions: Laparoscopic Treatment for the General Surgeon, Gynecologist and the Urologist

**FACULTY**

Course Director: Harry Reich, MD; Co-Director: Jay A. Redan, MD; Stephen M. Kavic, MD, J. Barry McKernan, MD, PhD, Charles E. Miller, MD, Douglas E. Ott, MD, MBA, Arnaud Wattez, MD

**NEW**

**POSTGRADUATE #2**

**FULL-DAY** (9:00 am – 4:30 pm)

IntraOperative Surprises: Planning for and Resolving IntraOperative Surprises for All Specialists

**FACULTY**

Course Director: Charles H. Koh, MD; Co-Director: Morris E. Franklin, Jr, MD; Lyle G. Henry, MD, Farr Nezhat, MD, Harry Reich, MD, Arnaud Wattez, MD

**NEW**

**POSTGRADUATE #3A**

**HALF-DAY** (9:00 am – 12:00 pm)

Robotics: What You Should Know to Get Started

**FACULTY**

Course Director: William E. Kelley, Jr, MD; Co-Director: Tommaso Falcone, MD; Sandra McRee, Mark Talamin, MD

**POSTGRADUATE #3B**

**HALF-DAY** (1:00 pm – 4:30 pm)

Hysteroscopy and Hysteroscopic Surgery: Update

**FACULTY**

Course Director: Rafael F. Valle, MD; Co-Director: Franklin D. Loffer, MD; Bruno J. van Herendaal, MD

**POSTGRADUATE #4**

**FULL-DAY** (9:00 am – 4:30 pm)

**PART A:** Diagnosis and Treatment of GERD: Surgical Approaches **PART B:** Laparoscopic Cholecystectomy and Common Bile Duct Management: The 21st Century

**FACULTY**

Course Director: Michael E. Fenoglio, MD; Co-Director: Alan P. White, MD; Stephen R. Freeman, MD, W. Peter Geis, MD, J. Barry McKernan, MD, PhD

**NEW**

**POSTGRADUATE #5**

**FULL-DAY** (9:00 am – 4:30 pm)

Masters Class in Gynecologic Endoscopic Surgery

**FACULTY**

Course Director: Camran Nezhat, MD; Co-Director: Farr Nezhat, MD; Andrew I. Brill, MD, Tommaso Falcone, MD, Harrieth M. Hasson, MD; Stephen M. Kavic, MD, William E. Kelley, Jr, MD, Charles H. Koh, MD, Franklin D. Loffer, MD, Charles E. Miller, MD, Ceyana Nezhat, MD, David L. Olive, MD, Radha Syed, MD, Rafael F. Valle, MD, Enrico Zupi, MD

**POSTGRADUATE #6**

**FULL-DAY** (9:00 am – 4:30 pm)

Masters Class in Laparoscopic General Surgery

**FACULTY**

Course Director: Michael S. Kavic, MD; Co-Director: W. Peter Geis, MD; Morris E. Franklin, Jr, MD, Michel Gagner, MD, William B. Inabnet, MD, Joseph B. Petelin, MD, Jeffrey L. Ponsky, MD, Philip R. Schafer, MD

**WHAT’S NEW IN 2003?**

Live 3D gynecologic telesurgery and a live general surgery procedure from Atlanta, Georgia • New Sessions: Multi-Disciplinary Laparoscopy in Pregnancy; Gynecology and Urology-Pelvic Reconstructive Surgery and General Surgery-Laparoscopic Endocrine Surgery • New research, new findings, and new sessions covering the most important topics in laparoscopic, endoscopic, and minimally invasive surgery • Scholarship Opportunities for Residents, Fellows-in-Training, Nurses, and Affiliated Medical Personnel • Guest Tours.

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**Laparoscopy Updates**

- **Abdominal/Pelvic Pain**
  - Jay A. Redan, MD
- **Bariatrics**
  - Atul K. Madan, MD
- **Cardiac Surgery**
  - Francis J. Podbielski, MD
- **Colon**
  - Arthur P. Fine, MD
- **Endometriosis**
  - Larry A. Demco, MD
- **Fertiloscopy/Transvaginal Endoscopy**
  - Antoine Watrelot, MD
- **Future Technologies**
  - Arthur P. Fine, MD
- **GERD**
  - J. Barry McKernan, MD, PhD
- **Hernia**
  - Deborah Metzger, MD
- **Hysterectomy**
  - Farr Nezhat, MD
- **Infertility**
  - Philippe G. Judlin, MD
- **Office and Outpatient Laparoscopy**
  - Beverly R. Love, MD
- **Pediatric Surgery**
  - Gustavo Stingel, MD
- **Pelvic Reconstructive Surgery/Stress Incontinence**
  - Maurice K. Chung, MD
- **Thoracic**
  - Neil A. Christie, MD
- **Ultrasound**
  - G. Kevin Gillian, MD
Consequences of Conversion in Laparoscopic Colorectal Surgery, Rodrigo Gonzalez, MD
Are Technical Skills in Minimally Invasive Surgery and GI Endoscopy Identical?, Vaidar Grancher, MD
Objective Assessment of GI Endoscopic Skills: Constructive Validity of the GI Mentor, Victor Grantham, MD
Tension-Free Repair of Hiatal Hernia During Laparoscopic Fundoplication, Paul Grypka, MD
Futurist First Laparoscopic Cholecystectomy in Simple and Severely Inflamed Gall Bladders, Amit Gupta, MD
Modern Tendencies of Surgical Treatment of Ventral Hernias, Alexander Hityany, MD
Laparoscopic Partial Nephrectomy Without Control of the Renal Hilum, David Hoenig, MD
Lymph Node Harvest in Laparoscopic Colectomy for Cancer, Masaraki Ishii, MD
Early Experience With Laparoscopic Incisional Hernia Repair in Obese Patients, Samit Johna, MD
Reducing Gastric Arrhythmias During Laparoscopy by Warming and Wetting the Carbon Dioxide Gas, George Johnston, Jr., MD
Video-Assisted Thorascoscopic Decompression of Pott's Spine, Sudhir Kapoo, MD
Role of Laparoscopic Early Diagnosis of Tiny Cancer Lesion From Yellow Nodule in Cervicar Liver, Chen-Guo Ke, MD
Laparoscopic Management of Chronic Pancreatic Pseudocysts, Ammin Khan, MD
Operative Blood Loss and Utilization of Blood Products After Laparoscopic and Conventional Open Colorectal Operations, Ravi Kiran, MD
Cost Effectiveness of Reusable Instruments vs Disposable Instruments in Laparoscopic Inguinal Hernia Repair, Anthony Kopajtic, MD
Retropneumonitis Pneumolithicus vs Extra-corporeal Shockwave Lithotripsy for Management of Renal Stones, Pawan Lal, MD
A Comparative Study of Routine Laparoscopic vs Open Appendectomy, Wee Lam, MD
Therapeutic Lung Biopsy in Patients With Interstitial Lung Disease: 5 Years Experience, Yun-Han Lee, MD
Video-Assisted Thorascoscopic Treatment of Giant Biloma, Hsi-Pin Liu, MD
Study on the Safety of First Funtion of Laparoscopic Surgery, You Li, MD
Effects of Laparoscopic Hysterectomy on Immune Function, Yan Liu, MD
Laparoscopic Cholecystectomy in the Elderly With Gallstone Disease, Cesare Lorenzini, MD
Laparoscopic Skills Course Participation Does Not Affect Student Interest to Enter Surgical Residencies, Atul Madan, MD
Postoperative Gastrointestinal Complications After Laparoscopic Nissen Fundoplication, Atul Madan, MD
Effects of Laparoscopic Gastric Bypass on Changes in Body Composition, Robert Marenco, MD
Tool Tip Distance Travel is a Determining Metric on the Xcart Virtual Reality Simulator, David McCorkle, MD
Endoscopic Myotomy: Indications, Technique, Results, Franz Messenbrook, MD
Uterine Fibroids Treated by Laparoscopic and Laparoscopic Pneumolysis and LAVH, Lindaette Markle, Prof Dr med
Partial Vien Thrombosis After Laparoscopic Splenectomy: A Continuing Therapeutic Challenge, Douglas Minini, MD
The Diagnostic and Prognostic Value of Peritoneal Cytology as an Adjunct to Staging Laparoscopic for Gastric and Esophagal Malignancy, Subhro Mitra, MD
Tubal Ligation Under Microwave Laparoscopy, Walden Modetti, MD
Laparoscopic Cholecystectomy Related to Bile Duct Injuries: Risk Factors, Avoidance and Treatment, Ahmed Mostafa, MD
Hand-Assisted Laparoscopy Bridges a Smooth Transition From Open to Laparoscopic Live Donor Nephrectomy, Ravi Murvee, MD
Early Lap-Band Erosion Associated With Colonic Inflammation: Case Report, Houshmand J. Noam, MD
Laparoscopic Hysterectomy in Condition of Samarkand Region, Khusen Narzueva, MD
Laparoscopic Adrenalectomy: Transperitoneal Lateral Approach, Vincenzo Neri, MD
Laparoscopic Treatment of Non-parasitic Hepatic Cysts: Short and Medium Term Results, Vincenzo Neri, MD
Limited Endoscopic Thoracic Symptomatic Block for Hyperhidrosis and Facial Blushing: Initial Results, Christoph Neumann, MD
Laparoscopic Cryogastronomy: The Transgastric Approach, Dmitry Olaymikc, MD
Portional Desiccation and Its Sequelae as the Source of Postoperative Shoulder Pain, Douglas Ott, MD
Modified Brooke Ileostomy and Sutureless Colostomy Using Delayed Primary Self-Maturation, Mathew V. Pidtule, MD
Avoiding Major Duodenal Complications in Laparoscopic Cholecystectomy: A Review of 2500 Patients, T. Bartley Pickron, MD
Laparoscopic Port-Site Metastases in Gynecologic Malignancies, Pedro Ramirez, MD
Infrared Stents in Laparoscopic Procedures: General Applications, Francesco Rubin, MD
Robot-Assisted Laparoscopic Cholecodochoiomyomectomy and Roux-en-Y Diversion: An Experimental Study With Pigs, Jelle Ruarda, MD
Robot-Assisted Laparoscopic Vaginal Myectomy for Spastic Disorders of the Esophagus, Jelle Ruarda, MD
Laparoscopic-Assisted Distal Gastrectomy as a Treatment Option for Early Gastric Cancer: Our Experience, Abhijeet Sarma, MD
Laparoscopic Treatment of Intestinal Malrotation in Adults, Noel Seynow, MD
Factors Associated With Complications During Open and Laparoscopic Resection for Diverticulitis, Timothy Simon, MD
Cougulation of the Cystic Artery Rather Than Clipping in Laparoscopic Cholecystectomy: Results of a Prospective Study, Lakshvinder Singh, MD
HUMBREPI: Hands-Free Ultrasound Manipulator Pelvicczaube Holder for Robotic Endoscopy, J. Steven Singh, MD
Role of Laparoscopy in Abdominal Tuberculosis: Diagnostic and Therapeutic, Lakshvinder Singh, MD
Total Laparoscopic Hysterectomy (TLH): New Cannula and Funnel for Use in TLH, J. Steven Singh, MD
Difficult Laparoscopic Cholecystectomy in Acute Cholecystitis: Timing and Modification in Methodology, Ravep Sinha, MD
Gongouos Cholecystitis in the Decade Before and After the Introduction of Laparoscopic Cholecystectomy, Dimitri Stefanidis, MD
Non-Invasive Diagnostic Methods in Assessment of Asymptomatic Cholelithiasis, Dragos Stejnovic, MD
Strage for Endoscopic and Surgical Management of Common Bile Duct Stones, Dragos Stejnovic, MD
Clinical Outcomes of 30 Consecutive Cases of TTV in a Private Community Practice Setting, Radha Syed, MD
Minimally Invasive Therapy in Mechanical Jaundice Resulting From Tumor Pancreaticobiliary Zone, Stephen Tabac, MD
The Comparison of Ways of Extraction of a Gallbladder at Laparoscopic Cholecystectomy, Dmytro Tsekhukh, MD
Mini-laparoscopy: Setup and Maneuvers, Daniel Tur, MD
Video-Assisted Axillary Dissection Following Simple Mastectomy for Breast Cancer, Selguik Unalimoglu, MD
The Immune Response After Laparoscopic and Open Hernia Surgery, Ali Uzunkaya, MD
Can An Old Dog Learn New Tricks? Laparoscopic Urology in a Community Based Practice, John Valvo, MD
The Etiology of Indirect Inguinal Hernias: Congenital and/or Acquired?, Karlin Van Wessen, MD
Advantages of Early Splenic Artery Occlusion During Laparoscopic Splenectomy for Massive Splenomegaly, Rosario Vecchio, MD
Laparoscopic Radiofrequency Ablation of Liver Tumors, Rosario Vecchio, MD
Comparison of System Inflammable Response at Endoscopic and Transabdominal Extraction of Stones From Common Bile Duct, Zuraya Vovk, MD

28 LAPAROSCOPY AND SLS REPORT
Breakfast and Future Technology Session
7:30 am – 10:30 am
Thursday, September 25
Breakfast starting at 7:30 am
Keynote Lecture at 8:00 am

The last day of the congress offers you an opportunity to share the morning with colleagues and accompanying guests at the seated breakfast, Keynote Speaker’s Presentation, and Future Technology Session. William M. Kier, PhD, our Keynote Speaker, will present a lecture on Nature’s Flexible Manipulators—Learning From the Octopus and Squid.

Dr. Kier is the Associate Chairman, Department of Biology at the University of North Carolina. His presentation will be of interest to the laparoscopic surgeon who strives to do more intricate and detailed minimally invasive surgical procedures that demand increasing precision and flexibility of movement.

The Future Technology Session will cover BioSurgery. Randall Kevin Wolf, MD, will review BioSurgery in Cardiac Surgery; Joseph Bielitzki, MS, DVM, will speak on Beyond Anesthesia: Controlled Cellular Metabolism Based upon Principles of Hibernation; and Mohammad R. Koozemhpur-Mofrad, PhD, will present Replacing Organs: The Role of Tissue Engineering. Tickets are required for accompanying guests for this exciting morning.

Special SLS Events
Welcome Reception
Monday, September 22 • 6:30 – 8:30 pm
Kick off the congress at this informal reception open to all registrants in the Exhibit Hall. A great time to meet old and new friends as well as to get a preliminary look at the commercial exhibits.

Fun Night Dinner with Faculty
“Star Trek Experience”
Tuesday, September 23 • 6:30 – 10:00 pm
Meet in the Bally’s Hotel Lobby to be transported (by deluxe motor coach) to the Las Vegas Hilton’s Star Trek Experience. Guests will enjoy Quark’s Bar an exact replica from the Star Trek: Deep Space Nine television series. Meet authentic alien characters, including a Klingon and a Ferengi. The experience is complete with music, open bar, and buffet dinner. Tickets are required for this event. See registration form.

Exhibit Hall Events
SLS Cyber Cafe
Stop by with a cup of coffee and check your email or log onto the web and WiFi Station. Educational programs will be scheduled throughout the day. Top Gun Laparoscopic Shoot Out
This is a fun and challenging approach to training in the use of the nondominant hand in minimally invasive surgical procedures. Presented by Dr. James C. Rosser, Jr. of Beth Israel Hospital, New York. SLS Innovations of the Year
The SLS Innovations of the Year will recognize the SLS Innovations of the Year at the 12th International Congress and Endo Expo 2003. It is not necessary for a company to exhibit or advertise to be eligible for this recognition. SLS encourages all commercial entities to enter their most innovative product for consideration. New Product Presentation
The Society of Laparoscopic Surgeons invites all exhibitors to share information about new products, technology and developments during the New Product Presentation Session. Exhibitors who submit new product information will be allowed an oneminute presentation during the lunch break, Wednesday, September 24, 2003. Note: each exhibitor will be allowed to present only one product that must have been developed within the past year.

MORE ON-LINE AT WWW.SLS.ORG
REGISTER AT WWW.SLS.ORG

The Value of Exploratory Laparoscopy in Preperitoneal Hernia Dissection, John Wang, MD
Fertility VS Laparoscopy, The FLY Study: A Prospective Multicentric Study Comparing Fertility VS Diagnostic Laparoscopy in Infertile Patients, Antoine Wondel, MD
Actual Time Required for Dynamic Fluoroscopic Intrathoracic Cholangiography, Donald Wexner, MD
Endoscopic Surgical Skill Qualification System of Japan Society of Endoscopic Surgeons (Draft), Tatso Yamakawa, MD
Robot-Assisted Esophageal-Myotomy for Achalasia, Edward Yoko, MD
Laparoscopic Management of Complications From Ventriculoperitoneal Shunts, Jeffrey Zerr, MD
Hand-Assisted Laparoscopic Splenectomy, Jiang Fan Zhu, MD

VIDEOS
Laparoscopic Resection of Biliary Cyst, B. Gerard Adhoute, MD
Laparoscopic Repair of an Incarcerated Traumatic Diaphragmatic Hernia, Avi Madan, MD
Tricks for Exposure in Laparoscopic Colon Surgery, Mara Amenes, MD
Laparoscopic Selectography for Terminal Ileal Crohn’s Disease With Abscess Formation and Recurrent Crohn’s Disease in Taiwan, Chou-Chen Chen, MD
Laparoscopic Left Lobectomy for Liver Tumor, Hang-Yaw Chen, MD
Zea-Assisted Roux-en-Y Gastric Bypass, Ritu Chopra, MD
Laparoscopic Nissen Fundoplication for Severe Gastroesophageal Reflux Disease, Ignazio M. Civillo, MD
Laparoscopic Treatment of Salitary Non-Parasitic Liver Cyst, Ignazio M. Civillo, MD
Right Laparoscopic Adrenalectomy for Metastatic Renal Tumor, Carmen De Cruz, MD
Laparoscopic Repair of Perforated Hernia With Prosthetic Reinforcement, Constantine Frountzas, MD
Laparoscopic Cysto-Gastrostomy and Cysto-Ileostomy, Ajay Goyal, MD
Laparoscopic Roux-en-Y Gastric Bypass: Is a Tube Insertion Safe and Effective?, Muhammad Jawed, MD
Small Bowel Obstruction—Pouch Laparoscopic Roux-en-Y Gastric Bypass: Follow-Up Management, Muhammad Jawed, MD
Laparoscopic Gastric Bypass in a Patient With Intestinal Non-Rotation, Ashutosh Kaul, MD
Laparoscopically Harvested Omental Flap for Stomal Wound Dehiscence, Ashutosh Kaul, MD
Transabdominal Ultrasound to Assess Intrabdominal Adhesions Prior to Laparoscopic Gastric Bypass: A Novel Technique, Sharan Kohli, MD
Laparoscopic Hiatal Hernia Repair and Roux-en-Y Gastric Bypass, Avad Madan, MD
VATS: Exision of Mediastinal Mass, Joseph C. Moran, MD
The Use of Suture Locks in Myomectomies, Anthony Pagadas, MD
Laparoscopic Management of Giant Diaphragmatic Hernia, Tama Pajarlev, MD
Laparoscopic Treatment of Rectal Prolapse, Francesca Rubin, MD
Laparoscopic Tubal Suturing for Ectopic Pregnancy, Jesus Alberto Ruiz, MD
Raves II/III (Reto-Sigmoidectomy via Vagal and Laparoscopic)—A New Technique for Treatment of Diseases of the Recto-Sigmoid Transition and Sigmoid, Univaldo Sappe, MD
Laparoscopic Splenectomy for Trauma, Shashank Shah, MD
Laparoscopic Cysto-Gastrostomy of Pseudo Pancreatic Cyst: Report of 3 Cases, Gulshanjit Singh, MD
Laparoscopic Management of Polyethylene Liver Disease, Douglas Sikes, MD
Roller Blind Techniques: An Easy Placement of Mesh in Laparoscopic Inguinal Hernia Repair, Victor Stremsman, MD
Retropereitoneoscopic Laparoscopic Distal Pancreaticum With Preservation of Spleen, Mariuty Takada, MD
Laparoscopic Splenectomy Using a Resorbable Prosthesis in Splenic Injury, Stefano A. Thyes, MD
Laparoscopic Technical Pearls in the Treatment of Liver Hydatid Cysts, Rosario Vecchi, MD

Keynote Speaker: William M. Kier, PhD

LAPAROSCOPY AND SLS REPORT
Accreditation The Society of Laparoendoscopic Surgeons (SLS) is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Designation The SLS designates this educational activity for a maximum of 26 category 1 credits toward the AWM Physician's Recognition Award. Each physician should claim only those credits that he/she actually spent in the activity.
- Half-Day Postgraduate Courses: 3 credits
- Full-Day Postgraduate Courses: 6 credits
- 12th International Congress: 3 days: 20 credits

Congress Educational Methods and Objectives
The 12th International Congress and Endo Expo employs a variety of educational formats including topical general sessions, the presentation of scientific papers, open forums, posters, and original videos offered in small specialty-specific breakout sessions, and informal gatherings of participants and expert faculty.

The increasing complexity of minimally invasive diagnostics and therapy requires a continuous educational process. The exchange of knowledge and expertise among the physicians taking part in this congress contributes to the continuation of excellence in minimally invasive surgery.

Upon completion of the congress participants will be able to:
- Increase comprehension of the basic and fundamental principles of laparoscopic, endoscopic, and minimally invasive techniques, enhancing the participant's understanding of these techniques;
- Understand the recent advances in laparoscopic, endoscopic, and minimally invasive techniques;
- Determine the appropriate use of laparoscopic, endoscopic and minimally invasive equipment as part of a treatment plan in the care of patients;
- Comprehend the developing technologies that will be available in the future to enhance the standard of patient care; and
- Acquire educational information within the physicians' specialty, which will enhance their professional development and patient care.

Accommodations/Official Hotel and Meeting Site
Bally's Las Vegas
3655 Las Vegas Boulevard, South
Las Vegas, Nevada 89109
Tel: 702 739 4111
Fax: 702 967 3890
Reservations: 800 634 3434
www.ballys.lv.com

Hotel Rates
Single Rooms and Double Rooms $140.00

These rates are European plan (no meals) plus tax. The SLS room block will be released after August 21, 2003, and rooms will be on a space available basis only. Rates are applicable 3 days before and after the conference based on availability.

In order to qualify for the special rate, you must make reservations by August 21, 2003, and mention that you are attending the SLS Congress.

Please make reservations early!

Travel Information
For negotiated airline discount rates contact Steve at The Store For Travel, toll free at 800 284 2538. Outside the United States call 305 251 6331. Please be sure to mention you are attending the SLS 12th International Congress and Endo Expo in Las Vegas.

For those attending the conference who require special assistance (accessibility, dietary, etc.), please contact SLS no later than August 21, 2003 with special requests.

Guest Tours
LAS VEGAS "Showbiz" TOUR
Tuesday, September 23, 2003
9:00 am – 1:00 pm
$62.50 per person

HOOVER DAM TOUR
Wednesday, September 24, 2003
9:30 am – 3:00 pm
$72.00 per person

No refunds will be made after September 9, 2003

For information contact SLS:
Toll Free: 800 446 2659
Tel: 305 665 9959
Fax: 305 667 4123
Email: Conferences@SLS.org
Website: www.sls.org

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U. S. Surgical/Tyco Healthcare

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JOURNAL WATCH: JSLS
THE LAPAROSCOPY WEB
www.SurgeryU.com is a powerful medical portal providing viewing of state-of-the-art surgical procedures! If you are a Surgeon, Medical Resident, or Patient, SurgeryU is your personalized, step-by-step online mentor. Providing a variety of constantly updated streaming surgical videos, SurgeryU brings together the world's top leaders in OB/GYN surgery, right before your eyes. Content providers contribute their distinct techniques to each specific surgical procedure, thus giving subscribers an unprecedented ability to compare varying surgical approaches.

www.WebSurg.com, which already makes available online more than 100 operative procedures, 300 videos, over 1000 photos and animated illustrations, has added a “Current Literature” section. Users of the site now have access to many of the recently cited general surgery, gynecology, and urology articles pertaining to content at WebSurg.com. The list of articles is powered by Surgery Linx.

www.Surgicalproductsmag.com resource for new products, supplies, and services. Here you will find feature articles, literature and web reviews, products of the week, industry insight, career center and much more.

www.Laparoscopy.org the website of the Society of Laparoendoscopic Surgeons contains information about the Society and upcoming CME activities, patient information pages, and a find a doctor directory.

www.SAGES.org website of the Society of Gastrointestinal Endoscopic Surgeons has back issues of SCOPE: The Official SAGES Newsletter available in PDF format, clinical guidelines, and patient information.

www.Medicinenet.com 100% doctor produced, is organized by diseases and conditions, procedures and tests, and medications and has a medical dictionary to which over 100 terms were added in the past month.

www.AUANET.org, the website of the American Urological Association provides a urology calendar of events, clinical guidelines, and patient guides. The site includes a government and research section and links to UrologyHealth.org the society's patient information resource.

www.OGSS.net, website of the Obstetrical and Gynaecological Society of Singapore, has links to obstetrical and gynecological educational websites, ask your doctor section for patients, and the society's journal and other online resources for registered members.

www.ASBS.org is the website of the American Society for Bariatric Surgery and contains information about the Society and guidelines for granting privileges in bariatric surgery.

CALENDAR OF EVENTS

August 2003
14-16 10th Scientific Meeting on Chronic Pelvic Pain. The International Pelvic Pain Society. Alberta, Canada

28-30 Society for Medical Innovation and Technology 2003 Conference. Amsterdam, The Netherlands

September 2003
21-24 21st World Congress on Endourology. Endourological Society. Montreal, Canada

22-25 12th International Congress and Endo Expo 2003, SLS Annual Meeting. Society of Laparoendoscopic Surgeons. Las Vegas, Nevada, USA

October 2003
19-24 ACS Clinical Congress. American College of Surgeons. Chicago, Illinois, USA

November 2003
6 Individualized Hands-On Gynecological Surgical Training in Diagnostic and Operative Hysterectomy; 7-8 Individualized Hands-On Gynecologic Surgical Training in Advanced Laparoscopy With Cadavers. Innovations in Medical Education Training. New Orleans, Louisiana, USA

13-16 AANA Fall Course. Arthroscopy Association of North America. New Orleans, Louisiana, USA

16 Hands-On Gynecologic Surgical Training in Diagnostic and Operative Hysterectomy; 17-18 Advanced Laparoscopic Anatomy Including Cadaver Dissection and Reparative Pelvic Surgery Labs. Innovations in Medical Education Training. Las Vegas, Nevada, USA


26-29 12th Congress of the ESGE. European Society for Gynaecological Endoscopy. Luxembourg

February 2004
4-7 Asian American MultiSpecialty Congress of Laparoscopy and Minimally Invasive Surgery. Society of Laparoendoscopic Surgeons. Honolulu, Hawaii, USA

March 2004
31-April 3 SAGES Scientific Session and Postgraduate Course. Society of American Gastrointestinal Endoscopic Surgeons. Denver, Colorado, USA

April 2004

September 2004

For more information about these and other upcoming events, visit www.laparoscopy.org.
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¹ Based on patient assessment. ² As rated by gastroenterologists
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