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### About the Cover

Laparoscopy Today, Vol. 7, No. 2  
**The GREEN issue**  
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While all the talk these days seems to be about going green, SLS’ first green issue of Laparoscopy Today isn’t filled with articles about hospitals’ green surgical suites or how to’s in the clinical setting. The issue itself simply is... a pure example of one of the ways organizations can be greener—through the utilization of electronic media. There are no plans to have the issue “go to press,” as it will be offered only in this virtual format, available online at www.LaparoscopyToday.com.

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Single Port Laparoscopic Surgery
AsianAmerican MultiSpecialty Summit: a Diverse Program Covering Innovative Techniques

William E. Kelley, Jr., MD

SLS members attending the AsianAmerican MultiSpecialty Summit III in Honolulu were treated to an excellent and diverse program of scientific as well as cultural presentations. We learned about endoscopic breast surgery in India, multiple approaches to laparoscopic colon surgery (including robotic), complex laparoscopic surgery for endometriosis, the varied surgical presentations of tuberculosis, robot-assisted laparoscopic aortoiliac surgery, and complex advanced laparoscopic surgery through a single 18-mm umbilical incision.

Dr. Paul Curcillo and his colleagues from Drexel University presented their multidisciplinary experience with single-port access (SPA) laparoscopic surgery, also known as single-incision laparoscopy (SIL). Laparoscopic gallbladder, foregut, and gynecologic procedures were described in detail. Other current applications include urologic, colorectal, hernia, and spleen surgery.

The multidisciplinary applications of SPA are expanding, and the potential significance of the technique is yet to be recognized. Safety and efficacy studies of SPA are underway in many institutions. The technique has potential incremental advantages over traditional MIS for cosmesis, wound infection, postoperative pain (especially in upper abdominal surgery), and recuperation. Specialized disposable and reusable instruments are being produced to facilitate SPA, but no major capital investments are required. Many advanced laparoscopic procedures are being performed via SPA using traditional laparoscopic instruments, thus keeping costs competitive with costs for traditional MIS. Traditional laparoscopic 2-handed dissection, ablation, and suturing techniques are utilized, so surgeon training in SPA should be much less painful than the transition from open surgery to traditional laparoscopic surgery in the early 1990s was. Most procedures are currently being carried out using a 5-mm camera trocar and two 5-mm working trocars, all introduced through one peri-umbilical incision. A flexible, radially dilating, 3- or 4-channel port could certainly be envisioned for the near future.

Much attention is being paid to totally incision-free, natural orifice transluminal endoscopic surgery (NOTES). This surgery, presently experimental, has the potential for more significant improvement in cosmesis, skin infections, hernias, postoperative pain, and recuperation. NOTES must be distinguished from fully endolumenal, natural orifice surgery (NOS), such as cystoscopic, colonoscopic, transanal, and endoscopic procedures carried out within a hollow structure. NOTES technology, by contrast, is designed to produce an opening in an unrelated organ which must be safely and reliably repaired at the end of the procedure. In NOTES, a highly specialized, sophisticated instrument is passed through an incision in the stomach, vagina, bladder, or colon to access the peritoneal cavity, thus upgrading the potential severity of complications as a result of the entry process. Animal studies are underway in many institutions evaluating the risks of transluminal entry of this kind and attempting to develop the optimal endoscopic closure technique,1 as well as the ideal endoscopic vehicle and effector instruments. As of July, 2008, seven clini-
cal papers have been published describing experience with 10 peritoneoscopies,2,3 appendectomies,3 1 cholecystectomy,4 and 1 repair of a dislodged PEG tube,5 four cholecystectomies,6 and two hybrid studies of one cholecystectomy with two 3 mm umbilical trocars,7 and three cholecystectomies with a 5 mm left upper quadrant trocar.8 It is widely recognized that substantial technological development and years of experience in dedicated centers will be needed to evaluate and perfect NOTES technology.1 As the instrumentation evolves, safety and efficacy studies will be needed followed by extensive outcome studies comparing NOTES results with results for traditional MIS.

In the meantime, SPA has a much stronger potential to be safely learned by experienced laparoscopic surgeons and may offer some advantages over traditional MIS with comparable cost. Practicing surgeons and community hospitals that are so inclined should be able to acquire the skills and instrumentation and offer patients this alternative to NOTES during the early developmental phase of the transluminal procedures. SPA may serve as a bridge, a transition, an adjunctive safety procedure, or ultimately an alternative to NOTES. Comparative outcome studies among all of these techniques will be critically important.

SLS is indeed fortunate to have hosted the first presentation of single-port access surgery at a national meeting, delivered by Dr. Curcillo at the SLS Cyber Café during the San Francisco meeting in 2007. The first scientific paper presentations were performed by Dr. Curcillo and his colleagues at the AsianAmerican MultiSpecialty Summit in February. They have submitted 4 papers for the SLS Meeting and EndoExpo in Chicago this September discussing SPA hysterectomy and oophorectomy, SPA colon resection, their first 100 SPA cholecystectomies, and 1-year follow-up for their early cohort of SPA cholecystectomies. Dr. Dan Geisler will also be presenting Single-Port Laparoscopic Colectomy in Chicago.

William E. Kelley, Jr., MD, President of the Society of Laparoendoscopic Surgeons, is the Director of General Surgery for the Minimally Invasive Surgery Center of Virginia. He is in private practice with The Richmond Surgical Group in Richmond, Virginia, and serves on the clinical faculty at the Medical College of Virginia. Dr. Kelley serves on the editorial board of JSLS. He has contributed over one hundred-fifty papers and presentations in the fields of surgical oncology, minimally invasive surgery, image guided breast surgery, and robot-assisted surgery, and textbook chapters in laparoscopic antireflux, colon and spleen surgery.

Correspondence: William E. Kelley, Jr., MD, 8921 Three Chopt Rd, Ste 300, Richmond, VA 23229, USA. Telephone: 804 285 9416, Fax: 804 285 0840, Email: Bill.Kelley@Earthlink.com

References
Virtual Reality and Computer-Enhanced Training Devices Equally Improve Laparoscopic Surgical Skill in Novices

Prathima Kanumuri, MD, Sabha Ganai, MD, Eyad M. Wohaibi, MD, Ronald W. Bush, BS, Daniel R. Grow, MD, Neal E. Seymour, MD

INTRODUCTION

The advent of simulation training of minimally invasive surgical skills has created significant opportunities for ongoing development of innovative training methods. Several recent investigations have shown that the use of computer-driven simulation training devices results in transfer of skills into the operating room environment,1,4 and mandatory application of simulation methods has been forwarded as a means of improving surgical results and patient safety.5 A growing number of laparoscopic simulation training platforms and generally limited institutional resources have created difficulties for educators faced with the prospect of introducing these training methods into their programs.6 Ideally, the decision to procure a specific device ought to be based on the anticipated effectiveness in the specific application for which it will be used.

A wide variety of laparoscopic simulators is now available, and they can be broadly classified into videoscopic and computer-driven laparoscopic simulation platforms, which are further divided into virtual reality (VR) and computer-enhanced videoscopic (CE) trainers. These trainers primarily differ in their user interface and ability to provide reliable performance measurements. Videoscopic trainers allow manipulation of actual physical objects and require manual data collection. In contrast, VR trainers utilize a virtual environment and provide computer automated performance metrics. CE trainers attempt to bridge the gap between videoscopic and VR systems, their user interface is similar to the former, but they provide computer-generated performance metrics like VR trainers do.7 Despite these fundamental differences, their intended purpose is the same: To provide assessment and training in specific skills based on sophisticated performance measurement capabilities that would not be available without the use of desktop computing. Effective performance measurement is the basis for establishment of performance objectives and for proficiency-based training, which is emerging as the educational model of choice in skills training.8

In the present study, we examined training effectiveness of examples of the 2 classifications of computer-driven laparoscopic skills trainers using proficiency-based training models with the specific aims of (1) demonstrating that novice surgical trainees can acquire complex laparoscopic skills using fundamentally different simulation systems and (2) to demonstrate that the use of performance objectives established by a homogeneous group of more advanced trainees will result in similar levels of skills improvement with the 2 systems.
METHODS

Study participants were 16 Tufts University School of Medicine third-year medical students on their General Surgery and Obstetrics and Gynecology clerkships at Baystate Medical Center. The study was exempted from full review by our Institutional Review Board, and informed consent was not required for enrollment. The general study design called for students to undergo a pretraining assessment in laparoscopic intracorporeal suturing and knot tying. Participants were then randomized to train to perform this task using either a VR (n=8) or CE (n=8) simulator. At the end of the 4-week clerkship, a posttraining assessment identical to the pretraining assessment was conducted, and students had to complete an end of study survey characterizing qualitative aspects of their training experience.

PRE- AND POSTTRAINING ASSESSMENTS

The pre- and posttraining assessments consisted of performance of a laparoscopic suturing and intracorporeal knot tying task in a live anesthetized porcine model (25 kg to 30 kg, Yorkshire pig sedated with intramuscular ketamine 100 mg/kg and xylazine 10 mg/kg and maintained under general anesthesia using endotracheal isoflurane) under a specific protocol approved by the Institutional Animal Care and Use Committee. Immediately before both assessments, all participants received standardized didactic instruction explaining task performance as described in the SAGES Fundamentals of Laparoscopic Surgery (FLS) course, and viewed the FLS video demonstration of a suturing and knot tying sequence. This was followed by a brief quiz to assess their understanding of the task and associated errors. In the operating room, each student was given 5 minutes (min) to perform the task, which was video-recorded for subsequent analysis. The specific task consisted of approximation of 2 loops of small intestine using standard instrumentation and laparoscopic port placement. This was accomplished with 2-0 silk suture and SH needle (Ethicon) with an initial surgeon’s knot and then 2 subsequent square throws. The animal was euthanized after the assessments were completed. Although general instructions were provided, no mentoring or feedback was given during student performance of any task.

SIMULATION TRAINING

VR simulation training was conducted using MIST-Suture software (SimSurgery, AS, Oslo, Norway). “Interrupted Suture” task was run on a MIST-VR simulator (Mentice AB, Göteborg, Sweden) with an Immersion Virtual Laparoscopic Interface (Immersion Medical, Gaithersburg, MD) (Figure 1). This device was set up to run MIST-Suture software (SimSurgery, AS, Oslo, Norway) on the “Interrupted Suture” task (B).
Penrose drains that permitted the intracorporeal suturing and knot tying task to be performed with the same technique and instrumentation used for the operating room assessments. This simulator consists of a torso model containing optical motion sensors to detect instrument movement characteristics. Performance metrics consisted of time, instrument path length, and smoothness of motion.

To facilitate distributed learning of the task, students were scheduled for 8 one-hour mentored training sessions over the 4-week rotation, but were permitted to have additional training under the same conditions. VR and CE training was mentored by either the full-time skills lab training technician or a surgeon researcher, both of whom were experts in performing the task. The training objectives for each system were based on the performance scores of 2 fourth- and 2 fifth-year general surgery residents. For the purposes of this study, proficiency was defined as achievement of performance scores within one standard deviation (SD) of the predefined objectives on 3 consecutive task iterations.

**End-of-Study Survey**

After the posttraining assessment, students completed a survey soliciting demographic information and prior laparoscopic experience (description of specific activities during cases). Qualitative impressions of the importance of simulation training, the importance of haptic cues in simulators, and the educational value of the specific training system used, were surveyed with responses given on a 3-point scale of “very effective,” “effective,” or “not effective.”

**Video Analysis**

The pre- and posttraining assessment videos were reviewed by 2 independent surgeon raters, blinded to student identity and training status, using a performance assessment tool previously validated at our institution. For the purposes of this analysis, the task was divided into 2 phases. In the “Suturing Phase,” the needle was brought to a functional position, driven through the 2 loops of bowel, and then secured after the suture was pulled through the tissue to the appropriate length to permit knot tying. The “Knot-tying Phase” was defined as the performance of a surgeon’s knot and then 2 successive square simple throws to complete a square knot. Video rating consisted of quantifying discreet events during each phase that pertained to efficiency, expert-defined correct behaviors, and specific errors to produce a summative performance score.

**Statistical Analysis**

Data are expressed as means with 95% confidence intervals (CI). Comparisons between groups were conducted by Mann Whitney U test and comparisons within groups before and after training by Wilcoxon matched pairs test. Comparisons of achievement of proficiency, task completion rates, and questionnaire data were by Fisher’s exact test. The Mann Whitney U test was performed using Epi Info software (Version 3.3.2, Centers for Disease Control, Atlanta, GA), and Wilcoxon matched pairs test and Fisher exact test were performed using GraphPad Instat software (San Diego, CA). Statistical significance was taken at a P<0.05.
RESULTS

The average age of the participants was 26±1 years, and the sex distribution was 63% (n=10) male and 37% (n=6) female. The participants had minimal prior laparoscopic experience, ranging from no experience to holding the camera.

TRAINING SESSIONS

Performance curves for the VR and the CE-trained groups had a classic appearance of early, rapid improvement, followed by a more gradual pattern of incremental improvement (Figure 3). There were no significant differences in the proportion of students who reached proficiency [VR 75% (n=6); CE 88% (n=7)] and in percentage compliance for scheduled training sessions (VR 73%; CE 67%) (Table 1). The sum of total recorded task time was comparable between groups [VR 115 min (range, 61 to 169); CE 111 min (85-136); P>0.05]. However, the total number of iterations completed by the VR-trained students was significantly lower compared with that of CE-trained students [VR 17 (8-26); CE 38 (30-45); P<0.05], because the time taken to complete one iteration on the VR trainer was longer than that on the CE trainer (VR 9±2 min; CE 3±1 min). Time taken to reach the predefined proficiency level was significantly shorter in the VR group compared with that in the CE group [VR 43 min (range, 28 to 59); CE 75 min (range, 45 to 104); P<0.05].

PRE- versus POSTTRAINING ASSESSMENT PERFORMANCE

The interrater reliability for video analysis of pre- and posttraining performance was 0.88. The overall task completion rate was significantly higher posttraining for both the VR-trained and CE-trained groups (P<0.01) (Table 2). The time to task completion decreased on the posttraining assesse
ment (P<0.01) for both the VR (P<0.05) and CE (P<0.01) groups. It must be noted that time to task completion did not represent a true value, reflecting completion of the task in all students because the longest possible figure for task time capped at the 300 second limit. This resulted in a larger effect on the pretraining assessment, where 13 of 16 students did not complete the task. Despite this limitation, the decrease in mean time after training was highly significant. Suturing phase time and video analysis score were also compared because all students completed this phase on both pre- and posttraining assessments. A significant improvement was demonstrated for both measures in the VR-trained group but not in the CE-trained group. Comparison of pre- and posttraining total video analysis scores was not feasible due to the very low task completion rate on pretraining assessment (3 of 16 participants). No significant differences were noted between groups on the pretraining assessment with the exception of the suturing phase score, which was higher in the CE group. The 2 groups did not differ in their posttraining assessment time or total video analysis score.

**End-of-Study Survey**

Survey responses indicated that students had minimal exposure to laparoscopic surgery, ranging from no experience to watching cases and holding the camera. Students generally felt that haptic feedback was important during training on simulators, and that the use of the 2 platforms was effective in increasing their skill levels, without any significant differences in the frequency of “effective” and “very effective” responses between the 2 groups (Table 3). However, all students in the CE group felt that their system simulated reality effectively, compared with only 38% in the VR group, a difference that was statistically significant.

**DISCUSSION**

Based on results from previous studies, we assumed that laparoscopic skills in novices would improve with objectives-based training and did not include an untrained control arm in the study design. This reflects our belief that properly implemented training on simulator systems with demonstrated face and construct validity will result in skills transfer to an OR setting and that examination of performance relative to totally untrained individuals does not have to be pursued in every circumstance. The repeated measures model utilizing each subject as his or her own control was selected instead, permitting us to address the study aim with an appropriate number of subjects. Medical students with minimal prior laparoscopic
experience achieved a training benefit within the framework of a 4-week clerkship. Survey results indicate that over the course of their rotations, activities during laparoscopic teaching cases contributed minimally to the observed improvement in skills.

Although there were no significant differences in either the magnitude of skills improvement achieved with training on the VR system versus the CE system, or in the absolute levels of measured skills at the end of training, the study may not have been sufficiently statistically powered to detect small differences in the magnitude of skills transfer. Despite this, the skills transfer effects of simulation training to operative performance, can be described as comparable. Although pretraining skills were otherwise homogeneous in the 2 groups, a slightly higher CE-trained group pretraining suture phase scoring was observed. This is likely due to a sampling phenomenon with a fairly small experimental group size. The proficiency targets proved to be achievable for the majority of students, and the fact that 3 students did not achieve these objectives did not hinder demonstration of skills transfer.

Because training was conducted on platforms that used different performance metrics (time and error composite scores on the VR trainer, and time, path length, and smoothness on the CE trainer), it is difficult to compare some of the training results. Students in the VR training group took less time to reach the designated proficiency targets compared with the CE training group. However, we cannot conclude that the VR system facilitates faster learning because we did not stop training on either system when the proficiency targets were reached, and some students did additional task iterations after achieving proficiency levels. In addition, as stated above, 3 of the students did not achieve proficiency levels. Performance objectives were based on historical performance of PGY 4 and 5 residents, with objectives for VR established 1 year before CE objectives. It is possible that uneven skill levels between disparate groups of residents may have confounded the simulator performance data on which the objectives were based, and also contributed to the differing times to achieve proficiency targets.

The inability to make comparisons of total video analysis scores pre- and posttraining due to the low task completion rate on the pretraining assessment was a limitation in our study. Although we have given the results of the suturing phase score, this value is limited as it represents only a portion of the task that is arguably less difficult than knot tying. The low task completion rate was probably because the task is a fairly difficult one for novices and task performance time was limited to 5 minutes. Time was capped based on the expectation that all students would be able to complete the task in the posttraining assessment after sufficient training. We felt that it was important not to allow the initial assessment to constitute a training opportunity by allowing essentially unlimited time to complete the task. Though a truncated task completion time may seem problematic, we successfully demonstrated a significant improvement in task completion rate and task completion time during the posttraining assessment.

Several prior studies have compared the effectiveness of videoscopic and VR trainers. These have made recommendations that both systems are effective in improving skills,10 that there may be training value to concurrent use of both system types,11 or that VR training has an advantage.12,13 The application of performance objectives in our study allowed us, to a great extent, to ensure that desired performance benchmarks on the 2 system types were comparable. Under these circumstances, although a minority of participants (comparable proportions on the 2 systems) did not achieve these objectives, we have demonstrated that comparable levels of performance improvement can be achieved with trainers that are fundamentally different in the experience provided to users.

Although performance results were similar, we have found in our experience that VR trainers offer
some practical advantages over videoscopic and CE trainers. These pertain to automated performance metrics that can be easily retrieved and examined, but more importantly, are obtained under very standardized conditions. During self-directed practice, even with the performance measures available with a sophisticated system such as ProMIS (CE trainer), it is impossible to comment on what actually occurred during training unless video recordings are examined. Because VR tasks are, for the most part, rules-based, performance measures reflect achievement of steps specifically defined in the simulator software. Although this facilitates standardization, software-dependent tasks can be less free-form compared with videoscopic and CE trainers, and such constraints can be viewed as a disadvantage.

Both VR and CE training devices are roughly equivalent in price ($35,000 to $50,000), and the number of facilitator hours for training on the respective systems was also approximately the same (despite the small difference in “time to reach proficiency” between the systems). Hence, there does not appear to be an advantage that would steer a program director to one or the other of these systems. However, it is important to note that VR trainers may prove to be more cost-effective when compared with videoscopic trainers (computer-enhanced, or not) due to considerations that enter the usage picture that might influence the quality of the training experience during self-directed practice. These include automation in the course of uniform task setup, consistent qualitative performance metrics, and mentoring cues in more advanced systems. These features allow more effective self-directed practice in VR, and might necessitate the use of a facilitator with all associated costs to achieve a similar effect on a videoscopic (or CE) trainer. Our study was not designed to analyze the cost-benefit ratio of individual systems, but we believe it is an important question that ought to be addressed in our future work.

The absence of haptic feedback features on the VR system we used permitted some information to be gleaned on the value of these characteristics in this type of training. The presence of “haptic cues,” defined as “sense of touch” or tactile characteristics associated with interactions between physical objects, may have contributed to the higher perceived level of realism associated with the CE trainer. The end-of-study survey results for the 2 systems were comparable, except that CE trainees were more likely to feel that their system simulated reality effectively compared with VR trainees. Because subjects performed pre- and posttests with real laparoscopic instruments in live porcine models, they were able to compare their simulation training experience with “reality,” despite the fact that laparoscopic surgical exposure was limited. Our results are supported by other studies comparing videoscopic trainers and nonhaptic VR trainers. We hypothesize that this is due to both realism and familiarity issues that do not necessarily result in a degraded training experience. Although the ability to appreciate tactile features of objects with which a surgeon interacts may be perceived as an essential component of learning, there is no compelling evidence to show that it is necessary for the types of skills acquisition we have studied. Despite a clear perception among the participants, irrespective of the training platform used, that haptic features are important in a simulator, the performance results of our study do not substantiate this belief. Because VR trainers at an approximate price point less than $80,000 do not feature haptic user interfaces, this finding is an important one, irrespective of any preconceived beliefs. Considerable development efforts are required to achieve believable force feedback interactions, and newer generation high-fidelity VR simulators that offer this feature are quite expensive. It may be that this higher level of fidelity will be shown to be important for full procedural simulations, but for basic manipulative skills training, the haptic component of fidelity appears to be dispensable. The newest full haptic VR trainers may offer force feedback interactions of sufficiently high
quality to permit a comparison of training effectiveness with nonhaptic VR systems to be made using identical software platforms. This would remove the variable of fundamentally different operating environments from the comparison.

**CONCLUSION**

Based on this study’s data, we conclude that novice surgical trainees can acquire complex laparoscopic skills using fundamentally different simulation systems provided that training is objectives based and ample opportunities are given to achieve these objectives. However, it is not possible to recommend one simulator type over another. Given the devices that are currently available, it is our belief that expected performance outcomes are more tightly linked to the quality of training and to the clinical assessment methodology, than to the specific features of the simulator. Although the assumption that haptic feedback is important for simulator fidelity may be supportable, it appears that use of a VR system with a nonhaptic user interface permits very similar training results to that achieved with a CE system that allows interaction with real physical objects. Based on our use of these 2 systems, we feel that either can be used in a formative training program with the expectation of a good training effect. The results of future use in routine training activities should provide additional opportunities to confirm the achievement of training goals with virtual reality and hybrid, computer-enhanced training platforms.


Baystate Medical Center, Department of Surgery, Tufts University School of Medicine, Springfield, Massachusetts, USA (Drs Kanumuri, Ganai, Wohaibi, Seymour, Mr Bush).

Baystate Medical Center, Department of Obstetrics and Gynecology, Tufts University School of Medicine, Springfield, Massachusetts, USA (Dr Grow).

Correspondence: Neal E. Seymour, MD, Associate Professor of Surgery, Tufts University School of Medicine, Vice Chairman, Department of Surgery, Baystate Medical Center, 759 Chestnut Street, Springfield, MA 01199, USA. Telephone: 413 794 4025, Fax: 413 794 1764, E-mail: neal.seymour@bhs.org

**References**


The WHO Surgery Safety Checklist

Michael Stark, MD, Henning Baberg, MD

INTRODUCTION

Mortality and complications are undesirable but occur occasionally following any surgical procedure. Traditionally, many complications are considered unavoidable and result from uncontrollable factors related to the nature of the disease and general health condition of the patient (for example, the existence of diabetes or obesity). Efforts have been made to reduce morbidity and mortality through preoperative risk assessment, identifying risk factors, and preparing patients accordingly. Preoperative assessment of patients with heart diseases, for example, has proved to be beneficial. Despite careful evaluation, complications still occur. In a prospective study of colon cancer operations, the mortality rate for elective cases was 3.5% and the complication rate 24% compared with 10% mortality and a 38% complication rate in emergency procedures. In the developing world, postoperative complications may be even higher. An audit of anesthesia-associated mortality in Zimbabwean teaching hospitals demonstrated that poor preoperative and postoperative management was a factor contributing to 51% of the avoidable deaths.

Although Hieronymus has already declared that “errare humanum est,” preventable complications are inexcusable. Despite the best of clinical intentions, preventable complications resulting from human factors are frequent and pervasive. Examples include improper procedures for identifying patients, inadequate preoperative evaluation, ignorance of important clinical history (like allergies), and the failure to confirm that adequate equipment and blood products are available when needed. Essential imaging, appropriate and timely administration of antibiotics, and venous thromboembolism prophylaxis, preparation for blood loss, confirmation of equipment sterility, surgical counts, and appropriate labelling of specimens are of utmost importance but are frequently neglected. In addition, clear plans for postoperative management are infrequently communicated but should be defined at the end of the operation, taking into account the condition of the patient and the procedure he or she underwent.

Despite over 100 years of modern surgical experience and many avoidable complications being reported in the media and professional literature, errors still do occur. Although the experience of the surgeon plays a vital role, communication between surgeons, anesthesiologists, and nurses is critical for success in avoiding preventable human error. Checklists have proved useful to ensure safety in many industries that require complex human interaction. In aviation, checklists for flight safety are routine. The aviation safety authorities demand that pilots should use predesigned checklists before takeoff or landing, leaving nothing to the pilot’s memory. The items checked anticipate most seen or unforeseen occurrences. This approach is beginning to infiltrate the medical world, and checklists are already being used in anesthesia practice. Although safety measures have been taken for quality surgical improvement, such as the American College of Surgeon’s National Surgical Quality Improvement Program (NSQIP), a general strategy has not been introduced.
THE WHO GUIDELINES FOR SAFE SURGERY (SAFE SURGERY SAVES LIVES)

In 2002, the 55th World Health Assembly adopted a resolution calling to secure the safety of health care and monitoring systems. In May 2004, the 57th World Health Assembly approved the creation of an international alliance for improving patient safety, and the World Alliance for Patient Safety was launched in October 2004. As part of this initiative, the “Safe Surgery Saves Lives” program was formed. For the first time, policy makers, surgical associations, anesthesia societies, and nurses from the entire world met to discuss and find pathways to reduce the adverse consequences of unsafe health care.10

One of the results of this work was the creation of a surgical safety checklist, introduced to a wide clinical audience after a year of intensive consultative work with surgeons, anesthesiologists, nurses, and patient safety experts. The project was lead by Atul Gawande from the Department of Health Policy and Management at the Harvard School of Public Health, who is a surgeon at Brigham and Women’s Hospital in Boston. The WHO Surgical Safety Checklist identifies crucial safety steps divided into 3 phases, each corresponding to a specific period during normal operative workflow: before the induction of anesthesia (“sign in”), before skin incision (“time out”), and before the patient leaves the operating room (“sign out”). In each phase, the checklist helps confirm that the surgical team has completed its critical safety tasks before proceeding. This checklist is clear and concise, user friendly, and promotes an ongoing dialogue among surgeons, anesthesiologists, and surgical nurses (Figure 1).

The WHO Surgical Safety Checklist identifying crucial safety steps corresponding to the following three stages:

- before the induction of anesthesia (“sign in”);
- before skin incision (“time out”);
- and before the patient leaves the operating room (“sign out”).

The WHO Surgical Safety Checklist identifying crucial safety steps corresponding to the following three stages:

- **Before induction of anaesthesia**
  - Patient has confirmed:
    - Identity
    - Site
    - Procedure
    - Consent
  - Site marked/not applicable
  - Anaesthesia safety check completed
  - Pulse oximeter on patient and functioning
  - Does patient have a:
    - Known allergy?
      - No
      - Yes
    - Difficult airway/aspiration risk?
      - No
      - Yes, and equipment/assistance available
  - Risk of >500ml blood loss (7ml/kg in children)?
      - No
      - Yes, and adequate intravenous access and fluids planned

- **Before skin incision**
  - Confirm all team members have introduced themselves by name and role
  - Surgeon, anaesthesia professional, and nurse verbally confirm:
    - Patient
    - Site
    - Procedure
  - Anticipated critical events
    - Surgeon reviews: what are the critical or unexpected steps, operative duration, anticipated blood loss?
    - Anaesthesia team reviews: are there any patient-specific concerns?
    - Nursing team reviews: has sterility (including indicator results) been confirmed? Are there equipment issues or any concerns?
    - Has antibiotic prophylaxis been given within the last 60 minutes?
      - Yes
    - Not applicable
    - Is essential imaging displayed?
      - Yes
    - Not applicable

- **Before patient leaves operating room**
  - Nurse verbally confirms with the team:
    - The name of the procedure recorded
  - That instrument, sponge and needle counts are correct (or not applicable)
  - How the specimen is labelled (including patient name)
  - Whether there are any equipment problems to be addressed
  - Surgeon, anaesthesia professional, and nurse review the key concerns for recovery and management of this patient

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

**Figure 1**

LAPAROSCOPY TODAY
During the sign in, patient identity and consent for surgery are confirmed; the operative site is marked; and the risk of blood loss, airway difficulty, and allergic reaction is reviewed. For the time out, team members introduce themselves, confirm out loud that they are performing the correct operation on the correct patient and site, and then verbally review any critical elements of the operation. Antibiotic administration and imaging availability are also confirmed as appropriate. The sign out guides a review of the operation performed, completion of sponge and instrument counts, labeling of any surgical specimens, equipment malfunctions or issue, and the key plans and concerns for postoperative management and recovery.

This checklist was designed to be suitable for any operation in any surgical discipline and can be used in developed countries as well as in countries with limited resources. It is accompanied by a WHO Guideline book that outlines the 10 essential objectives of safe surgery, explaining the importance of each one and reviewing the relevant literature.

**INTRODUCTION OF THE CHECKLIST**

The New European Surgical Academy (NESA) was a consultant in this project and decided to initiate use of the checklist. The checklist was introduced and accepted for use by the HELIOS Hospitals Group, one of the biggest of its kind in Europe. The departments of obstetrics and gynecology were the first to adopt the checklist into daily clinical practice.

The checklist was introduced to all the heads of Ob/Gyn departments on March 20, 2008, and the concept was unanimously accepted. Between April 15, 2008 and July 15, 2008, clinicians used the checklist during the performance of 1340 major operations. Using the checklist has not caused undue delays, and with practice it has been easily incorporated into the normal operating room routine. The staff were enthusiastic, and its use seems to have improved communication between all clinical disciplines involved in surgical care.

**DISCUSSION**

All patients undergoing surgery expect the best possible care and trust clinicians to minimize the risks of injury and death. There are always unavoidable risks related to the underlying condition and comprise an important part of the informed consent. Risks resulting from lack of communication between staff members or from failure to follow basic standards of safe care can cause severe harm and violate the dictate of “primum non nocere.” Our goal as surgeons is to reduce this risk. In addition to the clear benefits to the patient and clinicians, the financial savings associated with reduced complication rates cannot be ignored.

**CONCLUSION**

The experience with the checklist demonstrates that introducing a checklist designed to improve safe practices has been uneventful, has promoted interdisciplinary dialogue, and has been enthusiastically accepted. Following this initial pilot study, the checklist will be introduced to all the surgical departments of the HELIOS Hospitals Group and is expected to contribute to the safety and well being of patients. We recommend any surgical department to start using this simple, efficient checklist as a tool to reduce the likelihood that proven standards of care have been omitted or overlooked and to improve the safety of surgery everywhere.

Michael Stark, MD, the president of the New European Surgical Academy, created the first European based working group on Natural Orifice Surgery. He is the chairman of the ob/gyn departments of the HELIOS group and developed modified surgical procedures like the Misgav-Ladach CS and the Ten-Step Vaginal Hysterectomy.

Henning Baberg MD, is a graduate of the Bochum Medical School (Germany) and also studied at San Diego University. He is a cardiologist and associate professor for internal medicine. Since 2005 he is the head of organization and process development of the HELIOS group which manages 60 hospitals with 30,000 employees.

The authors thank Dr. Thomas Weiser from the Department of Health Policy and Management of the Harvard School of Public Health for his assistance.

Correspondence: Michael Stark, MD, President, The New European Surgical Academy (NESA), Karower Str. 11/214, 13125 Berlin, Germany. Telephone: +49 30 9401 2403, Fax: +49 30 9401 2430, Email: mstark@nesacademy.org
References


A great new approach to poster presentations was launched at the 16th SLS Annual Meeting and Endo Expo 2007. It is called the Poster Town Hall. From all the posters presented, the “Best Poster” was chosen in general surgery, urology, gynecology, and multispecialty. Recipients of these Best Poster awards re-presented their work in five minute oral slide presentations. The “Best of the Best” poster was chosen, and the authors received a $500 prize. This year’s “Best of the Best” poster award went to “Does Purchasing a da Vinci Robot Make Sense for a Mature Laparoscopic Prostatectomy Program?” by Peter L. Steinberg, MD, Paul A. Mergurian, MD, John A. Heaney, MB, William Bihrlle, III, MD, John D. Seigne, MB.

**Best Poster—General Surgery**

**Does Purchasing a da Vinci Robot Make Sense for a Mature Laparoscopic Prostatectomy Program?**

*Submitted by Peter L. Steinberg, MD, Paul A. Mergurian, MD, John A. Heaney, MB, William Bihrlle, III, MD, John D. Seigne, MB*

Robotic-assisted prostatectomy (RAP) and laparoscopic prostatectomy (LRP) are equivalent in terms of outcomes. We performed a cost-benefit analysis of obtaining a da Vinci robot to provide recommendations about transitioning from LRP to RAP. We found that if a center does a high volume of prostatectomies, then converting to RAP is feasible and profits can be maintained. However, for low-volume programs (<25 cases/year), the high cost of the robot makes it not fiscally viable. If a robot is donated, costs are less and allow for reasonable revenues without drastic increases in caseloads. Because LRP and RAP outcomes are comparable, hospitals should weigh the market forces against the intangible benefits of robotics to determine whether such benefits outweigh the expenses of owning and operating a robot.

**Best Poster—Multispecialty**

**Development of a Method for the Consistent Creation of Experimental Pelvic Adhesions in a Swine Model**

*Submitted by Bradford W. Fenton, MD, PhD, Michelle Evancho-Chapman, James Fanning, DO*

An animal model is lacking that allows for an easily replicable wound that produces consistent pelvic adhesions for use in adhesion prevention research. In this study using a swine model, a low-powered longitudinal electrocautery injury to the pelvic sidewall adjacent to a similar injury of the uterus and held in place with retention sutures for 14 days consistently generated dense, but anatomically delimited, adhesions between the pelvic sidewall and uterine horn. This technique can provide the basis for further quantitative analysis of adhesion prevention techniques.

**Best Poster—Gynecology**

**A Case of Large Urachal Cyst Treated by Laparoscopic-assisted Surgery**

*Submitted by Takashi Yamada, MD, Hiroshi Mori, MD*

Laparotomy is the usual treatment of symptomatic urachal cysts, which develop from persistent urachal remnants. Our patient had a clinical diagnosis of an ovarian cyst. However, upon laparoscopic surgery for its removal, no ovarian cyst was found. Through the laparoscope, a cystic mass was seen hanging from the anterior abdominal wall. Using laparoscopic assistance, the cystic fluid and the tissue were removed. A histology study indicated that this was a urachal cyst. Thus, laparoscopic-assistance was used both for removal of this large type of cyst as well as for its diagnosis.
Postoperative Pain After Laparoscopic Ventral Hernia Repair: a Prospective Comparison of Sutures Versus Tacks

Scott Q. Nguyen, MD, Celia M. Divino, MD, Kerri E. Buch, FNP, Jessica Schnur, MD, Kaare J. Weber, MD, L. Brian Katz, MD, Mark A. Reiner, MD, Robert A. Aldoroty, MD, Daniel M. Herron, MD

INTRODUCTION

Laparoscopic ventral hernia repair has grown in popularity since it was first reported in the early 1990s. Numerous studies have found it to have many advantages over traditional open repair.\(^1,3\) Lower recurrence rates, fewer complications, and shorter hospital stays have led some to believe that it sets the new standard of care for ventral hernia repair.\(^1,2\) Controversy exists regarding the optimal method to fix the prosthetic mesh to the anterior abdominal wall. Currently, the 2 most popular methods of mesh fixation are via transabdominal sutures and laparoscopic tacks. Sutures pass through all layers of the fascia and muscle of the anterior abdominal wall, while tacks secure the mesh to the innermost millimeters of the peritoneal cavity.

Most controversy in laparoscopic repair centers on the tensile strength of the mesh fixation method. Recurrence is thought to be the result of inadequate or failed fixation. Postoperative pain produced by the securing methods is another consideration in deciding between sutures and tacks. Sutures are felt to cause worse and more persistent pain.\(^3,4\) However, no comparative studies investigate which method truly causes more discomfort. This study compares these 2 methods and examines the consequential pain that occurs after each type of fixation.

METHODS

From 2004 through 2006, patients undergoing laparoscopic ventral hernia repair by 8 different surgeons at the Mount Sinai Medical Center were prospectively enrolled in the study. Patients undergoing other simultaneous procedures were excluded. The patients were sorted into 2 groups: (1) those undergoing hernia repairs primarily with transabdominal sutures (Sutures Group) and (2) those undergoing hernia repairs primarily with tacks (Tacks Group). Patients in the Sutures Group had repairs with transabdominal sutures placed circumferentially approximately 2 cm to 3 cm apart. These patients typically had 10 to 20 sutures placed, depending on the size of hernia. Patients in the Tacks Group included those with hernias completely repaired with only tacks and repairs that may have involved 4 stay sutures with the rest of the mesh secured to the anterior abdominal wall with tacks. The patients were not randomized into these groups. Choice of repair was made by surgeon preference, including type of mesh and type of tacks.

Patients’ demographics and clinical data were prospectively recorded. Telephone follow-up was used to determine verbal pain scores at 1 week, 1 month, and 2 to 3 months postoperatively (0=pain free, 10=excruciating pain/worse pain ever). In addition, patients were asked regarding time to return to work and need for narcotic pain medications. Informed consent was obtained, and this study was approved by the institutional review board. We needed to enroll 50 patients into the...
study to detect a 50% difference in pain scores (Power 80%, Level of significance P=0.05).

**RESULTS**

Fifty patients were enrolled in this study. Twenty-nine were in the Sutures Group and 21 in the Tacks Group. Demographics and clinical characteristics of the 2 groups are outlined in Table 1. Both groups were of similar age and body mass index (BMI). More females were in the Sutures Group. No significant difference was found between the groups in terms of proportion of patients with recurrent hernias, multiple hernia defects, and total defect size. The type of mesh used was surgeon dependent and was variable across both groups.

Table 2 shows the operative and postoperative characteristics of the 2 groups. Both groups were similar in operative time. The Tacks Group had a longer length of postoperative hospital stay (2.4 vs 1.7 days); however, this difference was not statistically significant. There was no early recurrence during the follow-up period. The Tacks Group had a higher morbidity rate (19% vs 4%). The most common complications between the 2 groups were pneumonia and urinary retention.

Verbal pain scores as reported via telephone interview are shown in Figure 1. No difference was reported in mean pain scores between the 2 groups at 1 week, 1 month, and 3 months (P>0.05). On a scale of 0 to 10, patients from both groups had moderate pain 1 week after the operation. Pain scores in both groups decreased at 1 month and were minimal by 2 to 3 months. In addition, use of narcotic pain medications during the postoperative period was similar in both groups (Table 3). A similar proportion of both groups required such pain medications at 1 week. Time to return to work was also similar between the groups. No patients required local anesthetic injection for chronic, persistent pain in either group.
DISCUSSION

The preferred method of mesh fixation during laparoscopic ventral hernia is controversial. Many proponents of the use of transabdominal sutures cite lower recurrence rates due to higher tensile holding strengths of sutures in comparison to tacks. Other authors argue that the use of tacks reduces surgical time considerably while maintaining similar recurrence rates. These authors also argue that the use of tacks significantly reduces postoperative pain. To date, most studies of mesh fixation during laparoscopic ventral hernia repair focus on the risk of recurrence. However, this is the only study that compares postoperative pain after hernia repair with sutures versus tacks.

Anecdotally, pain is generally worse after repair with sutures than with tacks. Sutures penetrate through the full thickness of abdominal wall musculature and fascia. This has been theorized to cause local muscle ischemia resulting in severe pain postoperatively. In addition, numerous sutures are typically needed around the perimeter of the hernia defect. Because mesh overlap on normal muscular fascia is usually aimed for around 3 cm to 5 cm, the circumference around which sutures must be secured becomes quite large. We found no difference in postoperative pain in patients undergoing hernia repair with sutures or tacks. Both groups had moderate pain at one week and minimal pain on further follow-up. It is possible that early pain caused by multiple tacks penetrating the parietal peritoneum is equivalent to the pain caused by transfascial sutures. In the long-term, both repairs seem to level off in terms of discomfort.

Cobb et al has also proposed that intercostal nerves may become entrapped within the transabdominal sutures causing chronic, persistent neuropathic pain. Series of repairs using transfascial sutures report persistent pain and discomfort in 1% to 6% of patients. Most authors feel oral anti-inflammatory medications or injections of a local anesthetic can alleviate the symptoms in the majority of cases. Others have reported re-explorations for persistent pain, finding immediate relief after the release of a suture from the site of symptoms. None of the patients in our study had persistent pain severe enough to undergo local anesthetic injection or reoperation. The reports of persistent cases of pain seem to be isolated at one particular suture site, supporting the nerve entrapment theory. Pain from muscle ischemia would seem to be more generalized at all of the suture sites. Our data suggest that both methods of mesh fixation are generally not different in terms of their resultant postoperative pain. However, because our study only included 50 patients, occasional episodes of chronic persistent pain due to nerve entrapment are certainly possible if more patients were followed. Our findings are somewhat consistent with those of LeBlanc et al, whose study noted that patients in the earlier half of their series had more pain. These patients had fewer sutures used, suggesting the use of these sutures was unrelated to postoperative pain.

Though the use of laparoscopic tackers may seem to be simpler and faster, we did not find a significant difference in operative time between the 2 fixation methods. This is contrary to the general opinion that the use of tacks reduces surgical time. Operative time during laparoscopic ventral hernia repair significantly involves extensive adhesiolysis and dissection of peritoneal contents from the anterior abdominal wall. Conceivably, surgeons may misinterpret the amount of time spent on the different phases of the operation and focus on time spent on mesh fixation. In our study, we did not specifically look at operative time during different components of the operation. Moreover, no other prospective studies compare operative time in laparoscopic ventral hernia repair. Therefore, the assumption that repair with transabdominal sutures takes longer than tack repair remains largely unproven.

The limitations of this study center on the sample size. Fifty patients were followed, and comparisons were made between the 2 groups. Small differences
in pain scale between the groups may be difficult to assess. However, large differences should be found. Considering that most anecdotal evidence suggests a large difference in pain experience, we feel our conclusions are still valid. In addition, although data were prospectively recorded, the patients in this study were not randomized to treatment arms. The type of repair was based on surgeon preference, as each had his or her own strong feeling regarding the best method of fixation. Larger controlled trials may be necessary to optimally determine which method contributes to the most pain.

CONCLUSION

Patients undergoing laparoscopic ventral hernia repair with primarily transabdominal sutures or tacks experience similar overall postoperative pain. Symptoms are moderate by the end of the first postoperative week and mild by 1 month. Occasional episodes of chronic, persistent suture site pain are possible and have been reported. Postoperative pain should be a minor factor when deciding between repair with sutures or tacks in laparoscopic ventral hernia repair.

References

Laparoscopy Updates

**Update Urology**

**The Winners and Losers: Urologic Update in Minimally Invasive Surgery 2007**  
*Presented by Howard Winfield, MD*

Over the past 15 years, almost every type of abdominal or pelvic surgery has been tried laparoscopically or robotically. Which of these procedures have proven to be better than the open procedure (the winners) and which have proven to be worse (the losers)? Laparoscopic radical, simple and donor nephrectomy and laparoscopic adrenalectomy are winners and have become the gold standard. Patients have a better postoperative outcome and the end points of cancer cure or removal of the disease organ are equal to that of open surgery. Robotic-assisted radical prostatectomy for prostate cancer is a winner, being as good as or better than the open procedure in terms of blood loss, continence, hospitalization, and convalescence. In 2007, it is estimated that over 50% of radical prostatectomies will be done robotically. Some losers include laparoscopic partial nephrectomy, radical cystectomy and urinary diversion, ureterolysis for retroperitoneal fibrosis, and retroperitoneal lymph node dissection for testis tumor, which have not been shown to be better than the open procedures. Laparoscopic varix ligation for treatment of varicoceles and bladder neck suspension for female stress urinary incontinence are not as good as microsurgical varix ligation and transvaginal bladder suspension. As for pediatric laparoscopic and robotic procedures, they are still developing and have little strong support among practitioners.

**Update Abdominal and Pelvic Pain and Adhesions**

**Does Adhesion Cause Pain? Should We Perform Adhesiolysis for Treatment of Pelvic Pain?**  
*Presented by Maurice K. Chung, MD*

Adhesions, fibrous tissues connecting organs that are normally separated, cause infertility, chronic pelvic pain, small bowel obstruction, and intraoperative complications, all of which generally lead to subsequent surgery. Pelvic adhesions are very common after pelvic surgery. If adhesions to the peritoneum are mobile, pain is more frequent, but when adhesions are fixed, no pain is experienced. Pelvic adhesions exist in 15% to 45% of patients with chronic pelvic pain; however they may or may not be the cause of the pain. Treatment of adhesions is controversial because surgery may cause the formation of more adhesions. Adhesiolysis decreases pain, but many patients experience a recurrence over time. In a study of 105 patients with previous abdominal surgeries, 50% (52) had adhesions on second look, and 52% (27) had pelvic pain. Twenty of the 27, however, had a positive potassium sensitivity test (74%) and 2 had a positive cystoscopy/ hydrodistention (7.4%), indicating painful bladder syndrome. After treatment for IC/PBS, the pain stopped or decreased by at least 50%.

**Update Hysterectomy**

**The Role of Laparoscopy and Robotics in Hysterectomy**  
*Presented by Ceana Nezhat, MD*

The rate of hysterectomies performed has remained stable for the past 2 decades, but the number of laparoscopic and laparoscopic-assisted vaginal hysterectomies has doubled. Laparoscopy is being used more frequently in complicated hysterectomies in patients with malignancy. Instruments are being improved that will decrease OR time, reduce morbidity and patient recovery time, and will advance minimally invasive hysterectomies. With progress in radio frequency technology, advances are being made in vessel sealing devices. These new devices allow quick sealing of uterine vessels and ligaments with little tissue damage and charring, thus decreasing OR time, blood loss, and recovery time. Robotic surgery has made laparoscopy even more advantageous because of the improved physical comfort for the surgeon, better visualization with 3-D images and magnification, and instrumentation that corrects for hand tremor and allows better access. Some drawbacks to robotic surgery, however, are expensive equipment, lack of tactile feedback for the surgeon, and increased preparation time and staff training.
**Next Generation New Technologies for the Laparoendoscopic Surgeon**

**Recent Advances in Robotic TeleSurgery**  
**Presented by Timothy Broderick, MD**

On September 7, 2001, in Operation Lindberg, a surgeon in Strasbourg using the Zeus robot performed a laparoscopic cholecystectomy on a patient in New York City. This event was to be announced on September 11, 2001, but because of the attacks on 9/11, the media did not report on this significant event in surgical history. On February 28, 2003, Canadian surgeons successfully performed 21 telerobotic surgeries. In March-April, 2005, the da Vinci robot was used at the American Telemedicine Surgery Conference to perform surgery with the images being transmitted via the Internet.

TeleSurgery evolved from the surgical robot to telemedicine to telesurgery, from open to minimally invasive and finally to robotic telesurgery. Telesurgery uses the same technologies that are used in daily life, such as computers, cameras, television screens, video recording, and others. Telesurgery is safe, but it takes longer because of the distance between the surgeon and patient and the time it takes for signals to be transmitted.

Telemedicine is primarily funded by the military; therefore, telesurgery is being experimented with in extreme environments. Mobile robotic telesurgery is being tried in the dessert to treat wounded soldiers and in microgravity environments and in parabolic flight in preparation for eventual flights to Mars. For such trips that may take 3 years, a surgeon is needed on board the spacecraft if an astronaut becomes ill. Also if astronauts are on the Moon, a surgeon on Earth could operate remotely if needed. Robotic telesurgery can improve medical care in extreme and remote environments. It has many military and NASA applications.

**Ablative Technology**  
**Presented by Jaime Landman, MD**

The trend in ablative technology is moving from mechanical instruments to directed energy. In the future, ablation will be achieved through imaging and targeting. Current ablation is cryoablation or freezing tissue and radiofrequency ablation or heating tissue. But high-intensity focused ultrasound can deliver more precise heating. Combining ultrasound with axial imaging, ablation can be targeted more precisely. The MRI Stealth Robot is an important achievement in MRI instrumentation. It is a pneumatic, fully actuated robot located within the scanner alongside the patient and operating under remote control based on the images. These robot systems are also multi-imager compatible, the surgeon being able to operate with the imager of choice or cross-imaging modalities. Another advancement is ultrasound that uses microbubbles to better visualize tumors. In the near future, tumors will be treated in the office by using imaging ultrasound to locate and treat tumors with cryoablation. More precise targeting means more precise ablation.

**Gynecology Technology**  
**Presented by Farr Nezhat, MD**

One should not perform surgery where one cannot see. By using the LapCap, which is a cup that can lift up the stomach to make insertion of a needle easier, laparoscopic surgery can be more successful. Limitations of laparoscopy are that it is 2-dimensional and has a limited range of motion. Robotics has improved dexterity, motion, scaling, and tumor reduction. Docking the robot takes time, but the robot makes it easier for someone less experienced to suture. In time, robots will become less bulky and will be installed in the ceiling for easier set-up. In the
future, we will be using 3-dimensional monitors and devices that have better articulation and range of motion. Natural Orifice Transgastric Endoscopic Surgery (NOTES) is developing. Surgery, such as tubal ligation via colpotomy and culdolaparoscopy, can be done through the vagina. This surgery will reduce pain, speed recovery, and leave no scars. Magnetic Resonance Imaging (MRI) that visualizes the patient’s anatomy and controls the treatment by monitoring the tissue effect in real time.

...Single Port Access (SPA) Bilateral Oopherectomy and Hysterectomy...

**Introduction**

Laparoscopic techniques have been widely accepted in gynecologic surgery since the 1960’s facilitating easier dissection and visualization in the confines of the pelvis. A variety of procedures have become the standard of care making sometimes difficult open procedures safer and quicker. In the 1970’s, the single arm operative scope was employed for tubal ligations. This scope required a single abdominal port of entry and allowed one rigid functional instrument to be inserted alongside the scope. Its use was limited in other procedures by the rigidity of the instruments. A single port access (SPA) surgical technique has been developed at our institution. Using one umbilical incision with articulating instrumentation, this technique reduces surgical scarring while broadening the variety of procedures to be performed through a single incision.

**Methods**

Five SPA bilateral salpingoophorectomies were performed at our institution. A transverse umbilical incision following the medial fold was used as the portal of entry for all five procedures. A 5 mm trocar was inserted at the midline for a 5 mm scope. Skin flaps were raised laterally allowing for two 5 mm accessory trocars to be inserted inferior and lateral to the initial trocar. Using the accessory trocars the round ligament and infundibulopelvic ligaments were transected. The suspensory ligament, fallopian tube, and mesosalpinx were then dissected. The ovary was removed through the umbilicus. The same procedure was repeated on the opposite side. The fascia was closed using 0 Vicryl and the skin with a running 4 Vicryl subcuticular stitch.

**Results**

All five women tolerated the procedure well. Operative time and length of stay were comparable to the traditional multiple port procedures. Postoperative recovery was uneventful. No complications were encountered. Cosmetic results were excellent with scars being hidden in the umbilicus.

**Discussion**

Gynecologic surgery was among the first surgical specialties to adopt minimally invasive surgery. Improved visualization allows for easier dissection of the tight pelvic anatomy. Laparoscopy also allows for reduction of surgical scarring. In the 1970’s the single arm operative scope further reduced operative scarring by utilizing a single incision at the umbilicus. This technique was limited because only one instrument could be inserted alongside the scope. A single eyepiece was used for visualization restricting this procedure to single operator.

Single port access (SPA) surgery uses the umbilicus for a single portal of entry into the abdominal cavity. In more difficult dissection, articulating instruments allowed us to maintain the procedure as a single port technique. The technique of dissection is the same as being done in standard pelvic minimally invasive surgeries. Although the articulating instruments were not necessary for all procedures their availability facilitated difficult dissections.
THE BEST PAPERS

Best Scientific Paper—Gynecology
Staging of Advanced Ovarian Cancers: Interest in Thoracoscopy
Submitted by Anne-Sophie Bats, MD, Sandra Cohen-Mouly, MD, Reda Souilamas, MD, Cheraza Bensaid, MD, Marie Junger, MD, Florence Larousserie, MD, Fabrice Leceru, MD, PhD

Thoracoscopy can improve the staging of ovarian cancer and allow the changing of therapeutic management of patients with advanced ovarian cancer associated with pleural effusion. Eight thoracoscopies were performed on the right side and 3 on the left side. One of them was stopped for refractory hypoxemia. Pleural effusion recurred in only one case. Of these 11 patients, 4 women had pleural metastases diagnosed by thoracoscopy, whereas the thoracic CT scan was normal; 3 patients were classified in the 4th stage of cancer because of pleural effusion, but thoracoscopy confirmed the diagnosis due to negative biopsies. In 2 patients, the pleural disease was more severe than was the abdominal extension. These women were recommended for chemotherapy.

Best Scientific Paper—Urology
Comparative Review of Laparoscopic and Robotic-assisted Radical Cystectomy with Ileal Conduit Urinary Diversion
Submitted by Matthew N. Simmons MD, PhD, Inderbir S. Gill, MD, MCh

No uniform reporting methods are available to compare outcomes data for laparoscopic partial nephrectomy (LPN); therefore, outcomes data are limited. We used a standardized complications reporting system to analyze complications in a contemporary cohort of 200 patients from an LPN database of over 500 patients. Thirty-five (17.5%) patients had complications. The overall complication rate was 19%. Of the complications, 20% were grade I, 42% were grade II, 26% were grade III, and 2.6% were IV. No grade V complications occurred. Compared with the first 200 patients in our LPN cohort, this contemporary cohort had significant decreases in overall, urologic, and hemorrhagic complication rates despite an increase in tumor complexity. Increased experience with advanced laparoscopic techniques has allowed for a significantly reduced complication rate after contemporary laparoscopic partial nephrectomy (LPN), which now appears comparable to that of open partial nephrectomy. We advocate the development of a standardized complication reporting system.

Best Scientific Paper—Multispecialty
Experimental Studies of Peroral Transgastric Abdominal Surgery: Tubectomy, Hysterectomy. Is it the Next Minimal Invasive Approach?
Submitted by Stefanos Chandakas, MD, MBA, PhD, Chris Feretis, MD

Peroral transgastric surgery, a less invasive type of surgery, is technically feasible and safe in a porcine model and needs to be studied further. We performed incisionless endoscopic peroral transgastric procedures on 10 anesthetized pigs, which included peritoneoscopy, liver biopsy (1), cholecystectomy (6), fallopian tube excision (1), and hysterectomy (1). In 4 animals, peritoneoscopy liver biopsy and cholecystectomy were performed successfully without intraoperative complications. In survival studies, 6 of the 10 pigs that underwent cholecystectomy, tubectomy, and hysterectomy had uncomplicated recover at 4 to 6 weeks.

Best Scientific Paper—General Surgery
Laparoscopic-assisted Colonoscopic Polypectomy: Long-term Results
Submitted by Morris E. Franklin, Jr, MD, Guillermo Portillo, MD, Jeffrey L. Glass, MD, John J. Gonzalez, Jr, MD

A combined endoscopic-laparoscopic approach offers a valid alternative for treating difficult colonic polyps and eliminates the morbidity of a segmental resection. Long-term follow-up demonstrates that this technique is safe and effective. A total of 190 polyps were removed as follows: 112 right colon (59%), 23 transverse (12%), 12 left colon (7%), and 33 rectosigmoid (22%). In 96% of patients, laparoscopic-monitored colonic polypectomies were performed successfully. Full-thickness resection was required in 4% of patients because of technique problems and positive margins. In a mean follow-up of 74 months, there have been no recurrences.
The Iron Intern, a single or double arm retractor holder by Automated Medical Products Corp, can be used in general, bariatric and transplant surgery. The Iron Intern is used to hold minimally invasive surgery instruments such as Nathanson Hooks Liver Retractor, Pediatric Liver Retractors, grippers, graspers, suturing devices, ports and cameras. The arm is held by specially designed rail clamps including the newly redesigned 3/D swinger with grooves. Grooves on the inner collar of the table clamp provide extreme stability even under maximum pressure, creating excellent functionality in bariatric cases. Contact Automated Medical Products Corp, www.IronIntern.com

Luxtel's IsoLED Headlight has been specially designed for examinations and minimally invasive surgeries. The LEDs are coupled closely to the optics, enabling the focused light to be even and uniform, edge to edge—no hot spots or irregular light patterns. The device has been designed to be less bulky than comparable systems. With over 650,000 lux 10,000 K cool white light, Luxtel boasts having the brightest LED available. Other features include a rechargeable lithium ion battery pack and charger, a dimming control for an intensity range of 3 to 100 percent, and a life expectancy of 800 cycles. Contact Luxtel, www.Luxtel.net

Sony Medical's The ImageCore HD Digital Capture System digitally records high definition still and video images in full 1920 x 1080 resolution. Offering universal connectivity to major manufacturers’ endoscopic camera systems, the ImageCore HD system acts as the imaging control center in the operating room. Ready for mounting on a cart, boom arm or tabletop, the unique one-piece design utilizes a 17-inch touchscreen with simple user interface. Captured images can be sent directly to the hospital network, stored locally (over 90 hours) in its robust hard drive or saved to a wide variety of portable media formats, including Blu-ray Disc. Contact Sony Medical, www.Sony.com/Medical

SuturTek promises “Gold Standard Intracorporeal Suturing and Knot-Tying” simply with the squeeze of a handle using their Endo360° devices. The Endo360° minimally invasive suturing devices are designed for simple, intuitive suture placement with consistent, uniformly high-quality intracorporeal stitches; suturing into flat planes of tissue with full-thickness bites using standard technique, standard curved needles, and standard types and sizes of sutures; access to awkward, difficult, and restricted surgical sites in any plane due to unique articulation and roticulation. Contact SuturTek, www.SuturTek.com

The Covidien SILS (Single Incision Laparoscopic Surgery) Procedure Kit allows surgeons to perform laparoscopic procedures through a single skin incision in the umbilicus, drastically minimizing pain and scarring. Contents include: Roticulator Endo Dissect 5 mm Instrument, Roticulator Endo Mini-Shears 5 mm Instrument, Roticulator Endo Grasp 5 mm w/Spin Lock, Endo Clip III, and 3 Dexide 5 mm Threaded Trocars. Contact Covidien, www.AutoSuture.com

The Efficacy of Viewing an Educational Video as a Method for the Acquisition of Basic Laparoscopic Suturing Skills. Akl MN et al. 2008;15(4):410–413 • The twelve participants in this prospective observational study were evaluated performing 5 tasks after watching a 6 minute basic principles video: needle intro through trocar, needle loading and positioning, running continuous suture, intra- and extracorporeal knot tying. The authors concluded that an educational video appears to be an effective method.
In the News
MEGADYNE introduces the education program “It’s So Easy Being Green.”

It has been stated that more than 4 million tons of general waste is produced each year by US healthcare facilities (See “Medical waste: the issue,” Health Care Without Harm, www.noharm.org/us/medicalWaste/issue).

MEGADYNE introduces the education program “It’s So Easy Being Green.”

MEGADYNE’s “It’s So Easy Being Green” training program allows healthcare providers to earn continuing education credit for learning about green practices. The program covers waste management, resource conservation, and recycling practices, applied conservation, item reprocessing, reuse and repair, and federal regulations and standards.

PRACTICEGREENHEALTH.org From providing “The Business Case...” to highlighting best practices, this site covers the many issues associated with the greening of healthcare. Visit the education and resources section for details about operations (mercury elimination, green cleaning, waste management); building design and construction; clean energy; environmental purchasing; and federal regulations and standards.

GOTBARIATRICJOBS.com recently posted the results of the ESA Medical Resources’ “Bariatric Surgery Program Survey.” While most are content with the practice or program they’ve set up, many who responded to the survey are displeased with the insurance reimbursement process. The ESA invites you to continue the discussion on the blogsite, www.blog.esamedicalresources.com. The site continues to offer bariatric news and job opportunities.


OUTPATIENTSURGERY.net Outpatient Surgery Magazine online gives you free access to all of the magazine’s regular issues as well as manager’s guides (includes a series on facility building) and e-newsletters. Read about featured products and services. Download guidelines, templates and forms such as the pre-op patient questionnaire. Choose one of the site’s categories to quickly pull up everything you need on a specific topic. Recent articles include “Thinking of Buying...An Endoscopic Camera,” and “Is Laparoscopic Colorectal Surgery Staging a Comeback? 7 signs that colorectal surgeons are pushing laparoscopy into the mainstream.”

SLS.org In addition to its open access publications, Laparoscopy Today; JSLS, Journal of the Society of Laparoendoscopic Surgeons; and Prevention and Management of Laparoendoscopic Surgical Complications, the site now also features a History of Endoscopy. Chronologically segmented into easy-to-read chapters, this text covers the important history and progression of techniques, advancements and improvements in the field.

LAPAROSCOPY WEB

JOURNAL WATCH: SURG ENDOSC

A Lifelike Patient Simulator for Teaching Robotic Colorectal Surgery: How to Acquire Skills for Robotic Rectal Dissection. Marecik SJ et al. 2008;22:1876-1881 • The authors report on the creation and use of a cost-effective, portable, and reusable model for training in robotic rectal dissection. Various components were included or added to the device depending on the procedure being simulated, but the basis of the tool is a plastic model of the human pelvic skeleton mounted onto a sturdy laminate-covered base using an adjustable bracket to alter the pelvic angle. The authors concluded that the trainer provided an accurate simulation of true robotic rectal dissection.
A UNIQUE EXCHANGE OF CULTURE AND EDUCATION...

ORGANIZATIONS

Adana Numune Hospital
Asociacion Latinoamericana de Cirujanos Endoscopists (ALACE)
ARCE
Argentine Society of Surgery
Asociacion Nicaraguense de Cirugia General (ANCG)
Association Suisse Romande de Chirurgie Coelioscopique
British Society Of Gynaecological Endoscopy and European Society of Gynaecological Endoscopy
Catholic University of Sacred Heart, Rome
Club Coelio
Croatian Association of Endoscopic Surgery
Cukurova University School of Medicine, Department of Surgery
Egyptian Society of Laparoscopic Surgery
Emirates Society of Laparoendscopic Surgeons
European Society of Gastrointestinal Endoscopy (ESGE)
German Society of Gynecological Endoscopy
Gynaecological Endoscopic Platform
Gynecologic Endoscopy Department
Hellenic Society of Endoscopic Surgery
International Society of Sympathetic Surgery
Israeli Society of Endoscopic Surgery
Italian Endourological Association
Italian Society of Young Surgeons
Mediterranean Society for Reproductive Medicine
Mexico Surgeons for Gynecologic Endoscopy
Romanian Group
Royal Belgian Society and its Sections
Sociedade Portuguesa De Cirurgia Minimamente Invasiva
Turkish Cukurova Delegation
Turkish Society of Endoscopic-Laparoscopic and Minimal Invasive Surgery

REASONS TO ATTEND

• Experience a unique summit offering a multispecialty approach to minimally invasive surgery.
• Expand your knowledge of the use of laparoscopic diagnostic and treatment techniques taught by acknowledged leaders in their respective specialties and countries.
• Topics are presented in general sessions providing a multidisciplinary approach to specialty minimally invasive surgical techniques and procedures.
• Understand how different countries have met the challenges of training and practicing minimally invasive surgery.
• Learn about the cultural differences and similarities between neighboring countries.

ATTENDEE OBJECTIVES

The objectives of this program are to provide attendees with:

• A multidisciplinary and multicultural exchange of information between surgeons representing their country or a professional organization on the challenges faced practicing and teaching minimally invasive surgery.
• A clearer concept of new and standard laparoscopic and endoscopic instrumentation and techniques and how they enhance the standards of patient care and education of minimally invasive surgeons.

CONFERENCE HOTEL / ACCOMMODATIONS

Disney’s Contemporary Resort®
4600 North World Drive, Orlando, Florida 32830
Tel: +1.407.824.3869
Fax: +1.407.824.3738

Rising majestically between the shores of Bay Lake and Seven Seas Lagoon, Disney’s Contemporary Resort® immerses you in a world of modern art and landmark architecture as sleek monorails silently glide through the center of the stunning atrium lobby.

You’ll enjoy the distinctive style of oversized guest rooms and suites, most with dramatic lakefront or Theme Park views, along with a marina, health club, tennis center and an expansive pool area.

For a truly memorable dining experience, the award-winning California Grill offers breathtaking views of Cinderella’s Castle from high atop the hotel. And, you’re just a short stroll or monorail ride away from all the sights and sounds of the Magic Kingdom® Park and Epcot®.

CALL NOW AND MAKE YOUR RESERVATIONS

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 SLS designates this educational activity for a maximum of 14 AMA PRA Category 1 Credit(s)™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

CONFERENCE FEES

SLS Members, Delegates & Organizing Committee: Register Online at www.SLS.org before December 11, 2008 and save an additional $100 on your conference registration!

<table>
<thead>
<tr>
<th>Category</th>
<th>Fee</th>
</tr>
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<tbody>
<tr>
<td>Members</td>
<td>$595</td>
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<tr>
<td>Non-Members</td>
<td>$595</td>
</tr>
<tr>
<td>Delegates/Organizing Committee Members</td>
<td>$495</td>
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<tr>
<td>Resident/Nurse/Fellow</td>
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</tbody>
</table>


SLS SOCIAL EVENT: FLAME TREE GARDENS DINNER Per person $125
# Preliminary Program Agenda

## Wednesday, February 11, 2009

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>3:00 – 6:00pm</td>
<td>Conference Registration</td>
</tr>
<tr>
<td>6:00 – 7:00pm</td>
<td>Opening Ceremony and Welcome Delegation Introductions, Cultural Presentations</td>
</tr>
<tr>
<td>7:00 – 8:00pm</td>
<td>Welcome Reception</td>
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## Thursday, February 12, 2009

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 – 12:00pm</td>
<td>Conference Registration Open</td>
</tr>
<tr>
<td>7:00 – 7:30am</td>
<td>Continental Breakfast</td>
</tr>
<tr>
<td>7:30 – 8:00am</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>7:45 – 8:00am</td>
<td>MR Guided Focused Ultrasound Surgery (MRgFUS): An Overview on Current Gynaecological Applications (for the Treatment of Uterine Fibroids, Adenomiosis, and Fertility)</td>
</tr>
<tr>
<td>8:00 – 8:15am</td>
<td>The FLS Program for Teaching and Evaluating Fundamental Laparoscopic Skills</td>
</tr>
<tr>
<td>8:15 – 8:30am</td>
<td>Laparoscopic Management of the Acute Abdomen</td>
</tr>
<tr>
<td>8:30 – 8:45am</td>
<td>Laparoscopic Colposacropexy in the Treatment of Pelvic Organ Prolapse: Is It Always Feasible?</td>
</tr>
<tr>
<td>8:45 – 9:00am</td>
<td>Laparoscopic Lymphonode Dissection in Gynecology Oncology: Indications and Techniques</td>
</tr>
<tr>
<td>9:00 – 9:15am</td>
<td>The Molecular Mechanism of Peritoneal Dissemination of Cancer and of Adhesion Formation After Laparoscopy and Laparotomy</td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>Laparoscopic Gastrectomy for Cancer: Adequacy of Surgical Resection; Outcome</td>
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<tr>
<td>9:30 – 9:45am</td>
<td>Laparoscopic Total Gastrectomy for Gastric Cancer</td>
</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>Break</td>
</tr>
<tr>
<td>10:00 – 10:15am</td>
<td>Laparoscopic Aortoiliac Surgery</td>
</tr>
<tr>
<td>10:15 – 10:30am</td>
<td>Staging Laparoscopy in Oncological Abdominal Diseases</td>
</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>Cultural Presentation: Evolution (Or Involution?) of Laparoscopic Gynaecological Surgery in the Past 20 Years. A Window on Italy</td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>Major Complications in Vaginal Laparoscopic Hysterectomy</td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>LTH a Simplified Technique with the RUIW System and the Koh Cup: 150 Cases</td>
</tr>
<tr>
<td>11:30 – 11:45am</td>
<td>Technical Aspects Step by Step of Laparoscopic Radical Prostatectomy</td>
</tr>
<tr>
<td>11:45 – 12:00am</td>
<td>Laparoscopic Radical Cystectomy with Ileal Conduit Diversion. Can It Be Already Considered a New Standard of Care?</td>
</tr>
<tr>
<td>12:00 – 12:15pm</td>
<td>Laparoscopic Partial Nephrectomy: What’s the Real Time of Warm Ischemia?</td>
</tr>
<tr>
<td>12:15 – 12:30pm</td>
<td>Factors Influencing Successful Completion of Laparoscopic Cholecystectomy</td>
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<tr>
<td>12:30 – 12:45pm</td>
<td>Minimally Invasive Surgery for Hepatic Malignancies (Resection, Ablation): Techniques, Short and Long-Term Outcome</td>
</tr>
<tr>
<td>12:45 – 1:00pm</td>
<td>Clinical Dilemma: How to Deal with Rare Congenital Gallbladder Anomalies</td>
</tr>
<tr>
<td>2:00 – 3:00pm</td>
<td>Tour of the Florida Hospital Celebration Health</td>
</tr>
<tr>
<td>6:30 – 9:00pm</td>
<td>SLS Social Event with Faculty</td>
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## Friday, February 13, 2009

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 – 12:00pm</td>
<td>Conference Registration Open</td>
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<tr>
<td>7:00 – 7:30am</td>
<td>Continental Breakfast</td>
</tr>
<tr>
<td>7:30 – 7:45am</td>
<td>The Use of the CUSUM Model for Critically Evaluating the Learning Curve</td>
</tr>
<tr>
<td>7:45 – 8:00am</td>
<td>Laparoscopic Appendectomy in Routine Emergency Basis</td>
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<tr>
<td>8:00 – 8:15am</td>
<td>N.O.T.E.S. Procedures</td>
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<tr>
<td>8:15 – 8:30am</td>
<td>Laser Tissue Soldering – Animal Studies of a New Device</td>
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<tr>
<td>8:30 – 8:45am</td>
<td>Laparoscopic Procedures for Colorectal Cancer</td>
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<tr>
<td>8:45 – 9:00am</td>
<td>The Challenges Encountered to Initiate a Gynaecological Oncology Unit and Developing Minimal Invasive Surgery in Kuwait</td>
</tr>
<tr>
<td>9:00 – 9:15am</td>
<td>Oncological and Functional Results of Laparoscopic Radical Prostatectomy</td>
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<tr>
<td>9:15 – 9:30am</td>
<td>Cultural Presentation</td>
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</tbody>
</table>

Program continued on page 33
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 – 9:45am</td>
<td>BREAK</td>
</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>GENERAL SURGERY</td>
</tr>
<tr>
<td>10:00 – 10:15am</td>
<td>Laparoscopic Inguinal Hernia Repair: Is It Preferable to the Open Repair?</td>
</tr>
<tr>
<td>10:15 – 10:30am</td>
<td>Cultural Presentation: The Birth and Rise of Endourology in Cukurova University since 1973: The Historical Cornerstones</td>
</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>Laparoscopic Use of a Novel Matrix Hemostatic Sealant (FloSeal) for Ovarian Cyst and Myomectomy</td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>The Evolving Role of Laparoscopic Surgery in Gynecology in Greece</td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>Surgical Approaches to Rectovaginal Septum Endometriosis</td>
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<tr>
<td>11:15 – 11:30am</td>
<td>Complications in Laparoscopic Urology: Prevention and Management</td>
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<tr>
<td>11:30 – 11:45am</td>
<td>Technical Aspects of Laparoscopic Partial Nephrectomy</td>
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<tr>
<td>11:45 – 12:00pm</td>
<td>Laparoscopic Radical Nephrectomy: Retroperitoneal vs. Transperitoneal Approach</td>
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<tr>
<td>12:00 – 12:15pm</td>
<td>Laparoscopic Pyeloplasty: Pro and Con of Extrapitoneal and Transperitoneal Approach. Is It the New Standard of Care?</td>
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<tr>
<td>12:15 – 12:30pm</td>
<td>Surgical Treatment of Paraesophageal Hernia: Evidence for the Minimally Invasive Approach</td>
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<tr>
<td>12:30 – 12:45pm</td>
<td>Laparoscopic Pancreaticoduodenectomy: Part I – Resection, Part II – Reconstruction</td>
</tr>
<tr>
<td>12:45 – 1:00pm</td>
<td>Compression Gastrointestinal Anastomosis – The Revival of an Old Idea and Novel Compression Technologies</td>
</tr>
<tr>
<td>7:00 – 12:00pm</td>
<td>Conference Registration Open</td>
</tr>
<tr>
<td>7:00 – 7:30am</td>
<td>CONTINENTAL BREAKFAST</td>
</tr>
<tr>
<td>7:30 – 7:45am</td>
<td>Training &amp; Assessment in Minimal Access Surgery for the New Generation</td>
</tr>
<tr>
<td>7:45 – 8:00am</td>
<td>Robot-Assisted Vascular Surgery</td>
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<tr>
<td>8:00 – 8:15am</td>
<td>The Future of Endoscopic Surgery – Back to the Fingertips</td>
</tr>
<tr>
<td>8:15 – 8:30am</td>
<td>The Role of Laparoscopy in Abdominal Emergency</td>
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<tr>
<td>8:30 – 8:45am</td>
<td>Laparoscopic Hernia Repair</td>
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<tr>
<td>8:45 – 9:00am</td>
<td>Robotic Total Gastric Bypass Using the Da Vinci</td>
</tr>
<tr>
<td>9:00 – 9:15am</td>
<td>MR Guided Focused Ultrasound Surgery (MRgLUS) for the Ablation of Liver, Prostate and Bone Lesions: State-of-the-Art</td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>Cultural Presentation: Culture and Leisure in Greece</td>
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<tr>
<td>9:30 – 9:45am</td>
<td>BREAK</td>
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<tr>
<td>9:45 – 10:00am</td>
<td>GYNECOLOGY</td>
</tr>
<tr>
<td>10:00 – 10:15am</td>
<td>Indications and Conditions for Laparoscopic Surgery in Severe Endometriosis</td>
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<tr>
<td>10:15 – 10:30am</td>
<td>Cultural Presentation: Gobekli Tepe (Sanliurfa) Known as First Settlement in the World</td>
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<tr>
<td>10:30 – 10:45am</td>
<td>Laparoscopic Cholecystectomy Without Using Any Energy Source—Ensuring Better Results, Brij Bhushan Agarwal, MD • India</td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>Approach and Management of Bile Leaks After Laparoscopic Cholecystectomies, Atilla Cokmez, MD • Turkey</td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>Cultural Presentation</td>
</tr>
<tr>
<td>11:15 – 11:30am</td>
<td>Laparoscopic Salpingectomy for the Patients With Hydrosalpinx Before IVF, Erdal Akkan, MD • Turkey</td>
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<tr>
<td>11:30 – 11:45am</td>
<td>Ten Years Review of Chronic Pelvic Pain Via Laparoscopy in Siriraj Hospital, Thailand, Pongsakdi Chaisilwattana, MD • Thailand</td>
</tr>
<tr>
<td>11:45 – 12:00pm</td>
<td>Laparoscopic Endometrioma Cystectomy Before IVF, Aygul Demirol, MD • Turkey</td>
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<tr>
<td>12:00 – 12:15pm</td>
<td>Cultural Presentation</td>
</tr>
<tr>
<td>12:15 – 12:30pm</td>
<td>DELEGATES MEETING</td>
</tr>
</tbody>
</table>
Events Presented by the Society of Laparoendoscopic Surgeons

FEBRUARY 11–14, 2009 EuroAmerican MultiSpecialty Summit IV Laparoscopy and Minimally Invasive Surgery. Disney’s Contemporary Resort Orlando, Florida, USA

SEPTEMBER 9–12, 2009 18th SLS Annual Meeting and Endo Expo 2009. Westin Copley Place Boston, Massachusetts, USA

FEBRUARY 10–13, 2010 AsianAmerican MultiSpecialty Summit IV Laparoscopy and Minimally Invasive Surgery. Hilton Hawaiian Village Beach Resort and Spa Honolulu, Hawaii, USA

SEPTEMBER 1–4, 2010 19th SLS Annual Meeting and Endo Expo 2010. Sheraton New York Hotel & Towers New York, New York, USA

SEPTEMBER 2008

22–26 Intensive Course in Laparoscopic Surgery (General Surgery). IRCAD/EITS. Strasbourg, France

OCTOBER 2008

2–5 9th Asian Congress of Urology of the Urological Association of Asia. Urological Association of India. New Delhi, India

8–11 17th ESGE Annual Congress. European Society for Gynaecological Endoscopy. Amsterdam, The Netherlands

9–11 9th Annual Congress of the Asia–Pacific Association of Gynecologic Endoscopy & Minimally Invasive Therapy. APAGE. Seoul, Korea

12–16 ASC 94th Clinical Congress. American College of Surgeons. San Francisco, California, USA


16–18 Advanced Course: Videosurgery in Pediatric Urology. IRCAD/EITS. Strasbourg, France

22–25 71st Annual Colon and Rectal Surgery Conference. University of Minnesota Division of Colon and Rectal Surgery. Minneapolis, Minnesota, USA


November 2008

6–8 Contemporary Management of Chronic Pelvic Pain. IMET. Atlantis Paradise Island, Bahamas

8–9 Mentored Laparoscopy. American Urological Association. Houston, Texas, USA


30–Dec 4 26th World Congress of Endourology. Endourological Society. Shanghai, China

DECEMBER 2008

1–5 Intensive Course in Laparoscopic Surgery (Urological Surgery). IRCAD/EITS. Strasbourg, France

4–5 Advanced Course in Laparoscopic Colorectal Surgery. IRCAD/EITS. Taiwan

8–12 Intensive Course in Laparoscopic Surgery (General Surgery). IRCAD/EITS. Strasbourg, France

15–16 New York–Presbyterian Hospital Second Annual International NOTES Course. New York Presbyterian Hospital Weill Cornell Medical College Columbia University College of Physicians and Surgeons. New York, New York, USA

15–17 Advanced Course: Advanced Techniques in Operative Gynecological Endoscopy. IRCAD/EITS. Strasbourg, France

JANUARY 2009

12–14 The International Robotic Urology Symposium (IRUS). The Vattikuti Urology Institute at the Henry Ford Hospital. The Bellagio Hotel Las Vegas, Nevada, USA

28–Feb 14 Annual Minimally Invasive Robotic Association (MIRA) Meeting. MIRA. Le Chateau Frontenac, Quebec City, Canada

FEBRUARY 2009

11–14 EuroAmerican MultiSpecialty Summit IV. Laparoscopy and Minimally Invasive Surgery. The Society of Laparoendoscopic Surgeons. Orlando, Florida, USA

15–18 8th Annual Surgery of the Foregut Symposium & Endoscopy / Natural Orifice Surgery Workshop. Cleveland Clinic Florida Department of Continuing Medical Education. Coral Gables, Florida, USA

MARCH 2009

13–15 Ohio Urological Society (OUS) Annual Meeting. OUS. Columbus, Ohio, USA