Strategies for
Lowering the Rate of Bile Duct
Injuries in Laparoscopic
Cholecystectomy
G. Kevin Gillian, MD

Pelvic Floor Hernias: Tissue Repair or Replacement?
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Latest Techniques in Laparoscopic
guinal Hernia Repair
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Strategies for Lowering the Rate of Bile Duct Injuries in Laparoscopic Cholecystectomy

G. Kevin Gillian, MD

Laparoscopic cholecystectomy is the modern "gold standard" for gallbladder extraction, but its level of difficulty and morbidity are often underappreciated by referring physicians and patients. The surgical community is quick to point to the humanistic benefit patients derive from a successful laparoscopic cholecystectomy, but quietly fears the consequences of the infrequent, but devastating, bile duct injury (BDI). These complications reached an incidence of 0.4% to 0.8% during early experiences with laparoscopic cholecystectomy.1 The transition from open to laparoscopic cholecystectomy has involved the incorporation and evaluation of new instrumentation, changing technology, and surgical technique. Each of these areas has continued to evolve along with our parameters for performing laparoscopic cholecystectomy. It should not be surprising that the mechanisms and decisions that result in bile duct injuries are multiple.

It was a plausible and logical argument that the abrupt rise in bile duct injuries associated with the earliest efforts to perform laparoscopic cholecystectomy could be expected to drop significantly once surgeons and residents progressed beyond their own learning curve for this novel technique. Presumably, with proper surgical education and experience, bile duct injuries from laparoscopic cholecystectomy would rapidly be reduced to or below the historically and contemporarily observed rate of 0.06% to 0.2% seen in open cholecystectomy.2-4 Unfortunately, the data have demonstrated that the rate of BDI has not dropped below that of open cholecystectomy. In fact, studies indicate that the rate of BDI in laparoscopic surgery is approximately fivefold higher than that in open surgery.5-6 Some have suggested that this complication rate has leveled off and is no longer improving.7 Why has this operation resisted our efforts to reach a more acceptable complication rate? Certainly, it has not been for a lack of research on laparoscopic cholecystectomy. A Medline review found more than 20,000 articles published on the subject in 2001 alone. Perhaps processes in play, unrecognized by surgeons, have prevented us from making progress in our efforts against the learning curve.

Bile duct injuries resulting from laparoscopic cholecystectomies show patterns not often seen in open cholecystectomy. These injuries present earlier and are associated with higher ductal injuries and more persistent bile leaks than their open counterparts.1,6 When BDI occurs with a concomitant major vascular injury, the morbidity and lethality is significantly worse.9 Although many BDIs are managed by therapeutic endoscopy or Roux-en-Y hepaticojejunostomy, end-stage liver disease resulting in liver transplantation is also described. The dramatic nature of therapy required to repair BDIs after laparoscopic cholecystectomy has a prolonged and lasting effect on the surgeon and patient. This is illustrated by the fact that in one review 31% of 89 patients undergoing successful repair of a major BDI pursued legal action afterwards.10 On a basic level, the fact that bile duct injuries associated with laparoscopic cholecystectomy tend to be more seri-
ous when they do occur should suggest that fundamental problems exist with this procedure. Have we been pushed into accepting and providing an operation for our patients that is less safe than the one it proposes to replace? After nearly 15 years of effort, can laparoscopic cholecystectomy be made safer?

To improve our results, we need to accurately identify the cause of our mistakes. A review of cases where BDI occurs has identified 2 areas on which to focus: risks associated with equipment choices and surgeon/human errors of interpretation with respect to information being provided from the surgical field. Once points of risk are accurately identified, alternative instrumentation and techniques can be devised and evaluated to improve our outcomes.

Monopolar cautery is a comfortable surgical workhorse, but in a laparoscopic field unrecognized and delayed injury from thermal damage has been associated with significant morbidity. Strictures and delayed bile duct perforation from cautery induced injury can not be identified with intraoperative inspection or cholangiogram. The difficulty in controlling lateral spread of thermal injury puts all structures in the Triangle of Calot in harms way during dissection. Relative to monopolar cautery, ultrasonic dissection has been demonstrated to cause significantly less thermal injury to nontargeted tissues. Surgeons familiar with these devices find them nearly indispensable in advanced laparoscopic cases. The multitasking nature of the instrument allows the surgeon to remain visually focused on his work while dissecting, grasping, cutting, and gaining hemostasis.

The use of surgical clips early during the dissection in laparoscopic cholecystectomy has expedited control of vessels and ducts, but they have also been implicated in creating complications. Blind clip placement in an effort to control unexpected bleeding can create unintended ductal injury or stricture. Past pointing of clips can cause injury to structures outside of the visualized field. It is possible to place clips completely across the common bile duct, and, as a consequence, it becomes available for misidentification and transection. Control of the cystic duct, the artery, or both of these, after the gallbladder is completely free from the liver bed should improve the accuracy of clip placement. This technique is similar to the “top down” technique of open cholecystectomy (Figure 1). An advantageous 360-degree view of the gallbladder and cystic duct is now available for surgical inspection. If a top down technique is adopted, an endo loop can be placed over the gallbladder and then the cystic duct, eliminating the need for clip application. Such a technique would prevent surgeons from inadvertently capturing a major bile duct in their clips while eliminating most cases of anatomic confusion.

Anatomic variation is a known source of difficulty in this operation. Eighteen percent of patients suffering BDI have aberrant bile duct anatomy on review of cholangiograms. The indications for operative cholangiography have been changing. Most surgeons perform what they consider “selective” cholangiograms. The criteria for application most often reflect the need to evaluate the possibility of clinically suspected common bile duct stones or to clarify anatomic confusion. A small statistical reduction in BDI (0.39 vs 0.58%) has been shown when surgeons use intraoperative cholangiography (IOC) as opposed to not performing it. Bile duct injuries are more likely to be discovered and perhaps minimized when IOC is completed than if IOC is omitted. Unfortunately, intraoperative cholan-

Figure 1. “Top down” laparoscopic cholecystectomy.
giograms have been interpreted as normal by the surgeon in approximately 80% of cases where BDI was later confirmed. Also, an accurately interpreted IOC offers no protection against delayed perforations and strictures. In short, many of the bile duct injuries are sustained during the dissection that precedes the decision to perform IOC.

Many injuries occur as a consequence of misinterpretation of visual cues in the surgical field. A fascinating study by Way and colleagues reviewed 252 major bile duct injuries from a unique perspective. They used the cognitive science concepts of visual perception, judgment, and human error to analyze surgeon performance. They concluded that laparoscopic bile duct injuries stem principally from misperception, not errors of skill, knowledge, or judgment. Once accepted, the misperceptions can be so strongly held by surgeons that irregularities are ignored and corrective feedback does not occur. We tend to stick to our first impressions and discount further information from the field during laparoscopic cholecystectomy. The fallout from a single misinterpretation is magnified as we continue to work. Modifications to current techniques of laparoscopic cholecystectomy are required if we are to further reduce the overall rate of BDI. The operation in its current form creates a number of hazards for the surgeon to negotiate. The combination of imperfect visualization of vital structures, and the ability of our instruments to injure nontargeted tissue is the Achilles’ heel of this operation. A willingness to consider equipment changes and alternative dissection methods is necessary if we are to further progress already made with this operation. The top down dissection as discussed above may be a useful surgical alternative and allow us to avoid the “compelling anatomic illusions” that result in misperception and injury during the performance of laparoscopic cholecystectomy.

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Dr Gillian is a board certified, general surgeon with a private practice in Alexandria, Virginia. His fellowship training in minimally invasive and laparoscopic surgery has resulted in a unique practice that combines both standard and cutting edge techniques for patients. He lectures and preceptors surgically across the country in advanced laparoscopic and hand-assisted surgery.

Dr Gillian is the director of a multi-specialty center for the diagnosis and treatment of gastroesophageal reflux disease at Inova Alexandria Hospital. He has written about laparoscopic hernia repairs and has spoken extensively about a simpler, more efficient laparoscopic repair of ventral/incisional hernias. Dr Gillian was a featured speaker at the European Hernia Society meeting in London this summer. His latest article, “Laparoscopic Incisional and Ventral Hernia Repair (LIVH): An Evolving Outpatient Technique,” was published in JSLS in October 2003.

References:


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**JOURNAL WATCH: J Laparoendosc Adv Surg Tech**

Evaluation of Face-Mounted Binocular Video Display for Laparoscopy: Outcomes of Psychometric Skills Testing and Surgeon Satisfaction • Mirmich DJ, Schell SR. J Laparoendosc Adv Surg Tech(2003)13:333-338. This study used psychometric skills tests designed based on previous reports to evaluate the use of a face-mounted binocular high-resolution video display. Procedure speed and surgeon satisfaction with the binocular display, open operative visualization, and standard laparoscopic monitor were also compared revealing slower performance with the standard laparoscopic monitor.

**JOURNAL WATCH: Outpatient Surgery Magazine**

Improving Your Electrosurgery Safety • Dennis V. Outpatient Surgery Magazine. October 2003.44-46. The author discusses how to develop effective policies and procedures for electrosurgery through the following key points: (1) Don’t reinvent the wheel, (2) Consult the manufacturer, (3) Evaluate safety technologies, (4) Consider the variables, and (5) Instruct staff and docs. The article is accompanied by a sample electrosurgery policy.

**JOURNAL WATCH: JSLS**

Surgeon-led Initiatives Cut Costs and Enhance the Quality of Endoscopic and Laparoscopic Procedures • Allen JW, Hahm TX, Polk HC. JSLS(2003)7:243-247. Protocols known as “better practices” were developed based on review of the medical literature and surgeon experiences. Those protocols served as practice guidelines and as the basis for recommendations for patient care. Using these guidelines, significant cost savings were realized without compromising the quality of care.

**JOURNAL WATCH: Surg Endosc**

Increased Transperitoneal Bacterial Translocation in Laparoscopic Surgery: Relative Effects of Type of Gas and Insufflation Pressure in an Animal Model of Peritonitis • Horattas MC, Ricciuti D. Surg Endosc. (2003)17:1464-1467. Bacterial translocation with different gases at different pressures of pneumoperitoneum was measured. The authors found an increased risk of bacterial translocation in groups that underwent pneumoperitoneum compared with those that did not.
SYNTHETIC MESH AND XENOGENIC GRAFTS

Pelvic Floor Hernias: Tissue Repair or Replacement?

Jim W. Ross, MD, PhD

The recurrence of ventral abdominal or inguinal hernias has been reported to be 16% to 25% with "classical" hernia repairs, demonstrating that weakened in situ tissue used in these repairs has a poor long-term outcome. Today, these same hernia repairs have recurrences of less than 1% to 4%. This dramatic improvement in successful long-term outcome is due to extensive use of tissue replacement and improvements in tissue substitution engineering. The most common tissue replacement sources include synthetic and biological materials. The use of synthetic mesh and xenogenic grafts in pelvic floor reconstructive surgery is extensive and will be reviewed here.

Synthetic Mesh. Synthetic mesh can be either a mono- or polyfilament weave (polyethylene, polypropylene, polytetrafluoroethylene). These materials have high-tensile strength, are long lasting, inert, nontoxic, and lack antigenicity. They can be engineered for mechanical mismatching to surrounding tissue, such that a stiff woven polypropylene mesh can promote intensive tissue ingrowth and develop intense scarification. This engineering design can be advantageous when high load-bearing is necessary. Polypropylene has been used extensively in general surgical repair of inguinal and abdominal wall hernias. In gynecologic laparoscopy, it has been used for mesh-staple colposuspension and for sacrocolpopexy.

A 5-year long-term success rate of 91% in 51 patients has been reported for laparoscopic sacrocolpopexies, which is comparable to that in studies utilizing an open abdominal approach. Polypropylene mesh (Prolene, Ethicon, Inc., Sommerville, NJ) was used in this laparoscopic study. Erosion has been reported with most synthetic materials, and 2 patients (4%) had vaginal erosion of the mesh, which is comparable to that in other reports (3% to 7%). One patient responded to trimming of the mesh and nightly estrogen vaginal cream. The second patient required trimming of the mesh and advancement of vaginal mucosa over the erosion site. The stiffness of polypropylene mesh plays a role in erosion, especially when attached to postmenopausal thinned out atrophic vaginal mucosa. We routinely amputate the proximal vaginal hernia sac down to the level of the ischial spines in severe prolapse. At this level, the endopelvic fascia (EPF) is more substantial for mesh attachment. Mesh stiffness can lead to increased rejection, fistula formation, encapsulated scar, erosion, pain, and nonfunctional end organs. One patient (work in progress) treated with a sacral colpoperenopexy had perineal and vaginal mesh erosion, which required removal of the mesh from the vaginal apex to the perineal body. Polypropylene with a softer weave is now available and should decrease erosion potential.

The newer multifilament polyesters now available are soft and their macroporosity results in less intense scarring and encapsulation. Polyesters have the same tensile strength as polypropylene and are much easier to work with laparoscopically because of their increased pliability. These polyesters appear to cut down on possible erosion and sinus tract formation, which are serious complications of sacral colpopereineopexies utilizing polypropylene. Colpopereineopexy is the procedure of choice for descending perineum syndrome, fre-
quently present with severe apical vault prolapse. In this repair, mesh is sutured to the perineal body, the posterior vaginal wall, and to the sacral promontory, effectively replacing the rectal vaginal septum and uterosacral ligaments. Attachment to the entire length of the posterior vaginal wall requires repair material that is soft, pliable, strong, and does not cause encapsulation. Intense scarification could lead to a nonfunctional vagina. We have a study in progress testing wide-weave polyesters with good early outcomes.

Xenogenic Grafts. The most common biological sources for tissue grafting are syngeneic, allogeneic, or xenogeneic in origin. Most recently, porcine dermis and small intestine submucosa (SIS) have been used extensively in pelvic floor reconstruction, especially posterior vaginal wall repair. Most studies utilize site-specific repairs, in conjunction with porcine dermal grafts, for a posterior vaginal wall defect.\textsuperscript{12,13} We have an ongoing study of 57 women followed for greater than 6 months with Stage 2 or greater posterior vaginal wall defects (Pelvic Organ Prolapse Quantification System—POP-Q).\textsuperscript{14} Porcine dermis (n=33) or SIS (n=24) xenogeneic grafts were used for all repairs. These grafts were fixed to the uterosacral ligaments proximally, the rectovaginal septum arcus attachments laterally, and to the perineal body distally (Figures 1 and 2). No site-specific repairs utilize the patient's own tissue. When an enterocoele was present, the vaginal apex was opened via laparoscopy and the xenogeneic graft attached to the pubocervical fascia anteriorly and the uterosacral ligaments posterior-laterally. This technique results in a total replacement of the posterior EPF, reestablishment of the pericervical ring, and is not dependent on compromised in situ collagen tissue. The range of follow-up has been 6 to 33 months (mean, 17 months) with pelvic grading at 3 and 6 months and yearly. The average point A(p) was 0.25 and -.7 pre- and postoperatively (POP-Q). Surgical definition of cure was point A(p) -2.0 or less. At 1 year, 54 of 57 patients (95%) met the criteria for cure. Point A(p) in the 3 patients not meeting these criteria for cure was -1.0 in 2 and 0 in 1. All 3 patients were asymptomatic.

Both types of xenogeneic grafts were easy to use and suture in place. Porcine SIS implant sites were completely healed by 3 months and had a thinner pliable posterior wall, with the grafts being indiscernible. Porcine dermis healed more slowly and at 6 months, the posterior wall was still mildly indurated and thicker than the SIS implants. Differences in healing rate did not appear to be an important factor to patients. Neither early pliability nor increased thickness of the vaginal repair appeared to affect sexual function, as suggested by equal improvement in the sexual quality of life for patients with both grafts. Patients reported significant improvement in splinting, protrusion, evacuation, and dyspareunia in both groups. No grafts were rejected, and no significant complications occurred.

These xenogeneic grafts are being used just as successfully in anterior vaginal wall repair (Figures 1 and 2). The early studies for tissue replacement are encouraging.
They have been used in combination with both tension-free vaginal tape (TVT) and laparoscopic Burch colposuspension. In our clinic, we have found patients with severe paravaginal defects in which the arcus white line has been avulsed from the obturator internus muscle. Porcine SIS grafts have been used as a bridge to reapproximate the pubocervical fascia and arcus white line back to the lateral pelvic sidewall with excellent results.

We have used both types of xenogeneic grafts sutured to the distal end of polyester mesh strips (Parietex, Sofradim) for sacrolcopexies. The end of the graft with porcine dermis or SIS is fixed distally to the perineal body or rectovaginal septum, and the polyester end is fixed to the promontory. The xenogeneic materials provide an excellent matrix for tissue ingrowth, and the polyester mesh has superior tensile strength. This “dual mesh” should decrease mesh erosion, because the polyester does not come in contact with the thinned out vaginal wall. The xenogeneic graft should result in a thicker, stronger vaginal wall with increased pliability. The ability to mix different materials for tissue replacement greatly increases our surgical options for reconstructive surgery.

**Conclusion.** Recurrent prolapse is a common complication in pelvic reconstructive surgery. Classical repairs are dependent on the use of weakened tissue with demonstrated abnormal collagen. This issue has been compromised by pelvic floor muscle atrophy secondary to pelvic neuropathy. Currently, no treatment exists for pelvic neuromyopathy. The ability to use material that is stronger than in situ tissue or that has the potential to act as a scaffold for new tissue regeneration could be an alternative approach for pelvic reconstructive surgery. Synthetic mesh can be woven to have great tensile strength and be rapidly incorporated into surrounding tissue, making it ideal for areas of high stress. Biomaterials have multipotential for many types of repair. Xenogeneic grafts can be engineered for site-specific repairs that require both strength and function. Like all new technology, the use of these materials must be studied carefully.
before they are promoted for extensive use in patients. It is necessary to evaluate the long-term outcome of tissue replacement to determine which xenogeneic grafts and synthetic meshes will meet the unique requirements of pelvic floor reconstruction. The early studies for tissue replacement are encouraging.

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References:
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Latest Techniques in Laparoscopic Inguinal Hernia Repair

Lawrence C. Biskin, MD

With the remarkable success of laparoscopic cholecystectomy, a new approach for hernia repair has become forever embedded in the surgeon’s armamentarium.

To accept laparoscopic inguinal hernioplasty, first the posterior approach must be accepted. In 1920, Cheatle developed the preperitoneal approach to groin herniorrhaphy. Henry reintroduced the repair in 1935, but it was not until 1960 that Nyhus popularized the posterior approach. The next step for surgeons was to alleviate the fear of prosthetic infection. Synthetic mesh was used in France in 1949 by Acquaviva and not until 1959 in the United States by Usher.

The value of a tension-free prosthetic posterior repair was first demonstrated by Stoppa in 1965. In the 1980s, Lichtenstein demonstrated the value of a tension-free prosthetic anterior repair. In the prelaparoscopic era, the majority of inguinal hernias were repaired by a nonprosthetic anterior approach; and with Lichtenstein’s excellent results, the use of a prosthesis for anterior repairs gained universal acceptance.

In 1982, Ger closed the neck of inguinal hernia sacs with intraabdominal placement of Michele clips, then in 1989 demonstrated a laparoscopic technique for hernia sac closure. Around the same time, Schultz et al presented the laparoscopic plug and patch technique. This marked the beginning of the laparoscopic hernia learning curve.

McKinnon and Laws then presented a totally extraperitoneal approach. Mesh was initially secured with sutures, and balloon dissectors were not available, making preperitoneal dissection tedious and timely with an average operative time of 76 minutes. Nevertheless, the results were excellent noting few complications and a recurrence rate of 0.3%. This was comparable to recurrence rates in the open preperitoneal approaches of Nyhus (1.7%) and Stoppa (1.4%).

During the developmental phase of laparoscopic hernioplasty, basic surgical principles were often overlooked, resulting in high recurrence rates and complications only rarely seen with open techniques. Skepticism was high until technical improvements and operative experience helped decrease recurrence rates to 0.3% for the TAPP and TEPP repairs. Leib analyzed phases of the repair; and by keeping the technique and surgeons constant, he demonstrated the importance of the learning curve. If cost is based partially on time, the reduction of operating room time will reduce the overall cost. The only way to reduce operation time is for the surgeon to operate through the learning curve in order to improve his or her performance (Figure 1).

Reluctance to perform laparoscopic hernioplasties is proportional to the learning curve and
inversely proportional to reimbursement rates. Hospital costs were initially high due to long operating times. With unilateral repairs now less than 30 minutes, costs have decreased substantially. Conclusions have been made using a decision analytic approach that from a societal perspective, laparoscopic hernia repair is a cost-effective operation associated with higher quality of life benefits. Studies comparing open and laparoscopic hernia repair are problematic due to patient and investigator bias, surgeon and technical inconsistencies, and various social influences.

Utilization of the laparoscopic technique for only bilateral and recurrent hernias would minimize the surgeon's experience because this group represents a small percentage of total hernia patients. Appropriate patient selection is important because a primary unilateral hernia is usually without scar tissue, providing a truss was not used and the anatomy is not displaced or distorted. By first performing 25 to 50 unilateral primary endoscopic hernioplasties, confidence and proficiency will improve rapidly.

Surgical training programs are now integrating into their teaching facilities' inanimate labs with specialized trainers, cadaver dissection, virtual reality, telemedicine, and experienced surgeons to instruct the residents. Didactic and hands-on skills have become an integral part of the curriculum so that graduating surgeons clear the learning curve before entering private practice. Over the past decade, practicing surgeons had to rely on weekend courses, individual proctorships, and self-teaching. Now, fellowships are available for advanced laparoscopic training. The use of a simulator combined with didactic sessions improves operative performance, technical knowledge, and comfort in performing the operation. A valuable learning method for residents and practicing surgeons is to review their own performance by taping the operation and then reviewing it later in the day in a relaxed atmosphere. This method will eliminate inefficient and potentially dangerous maneuvering in future procedures.

The choice of TEPP (totally extraperitoneal) or TAPP (transabdominal preperitoneal) endoscopic hernioplasty is ultimately made by the surgeon, but it is important that the type of operation conforms to the patient and not the reverse. Random techniques and random searches for anatomic structures must be avoided. Consistency will minimize anatomic surprises and potential complications.

An advantage of the TAPP approach is a shorter learning curve because the landmarks are easier to identify. With TAPP, a hernia on the contralateral side can easily be seen without tissue dissection; however, cord lipomas will be missed unless the cord is properly manipulated in the preperitoneal space, which is best done with the TEPP approach. Incarcerated large scrotal hernias (Figure 2), recurrent hernias previously repaired via the posterior approach, and patients with prior prostate or bladder operations are best approached with TAPP. A complication that seems to be unique to the TAPP repair is postoperative bowel obstruction secondary to incarceration between defects in the improperly closed peritoneum. To prevent this problem, the peritoneum should be closed...it is important that the type of operation conforms to the patient and not the reverse.

Figure 1. TEPP average operating time.
with a continuous running suture. With TEPP, the peritoneum is not opened, which not only saves time, but also diminishes the possibility of adhesions and possible bowel obstruction. If the peritoneum cannot be completely closed, then it can be left open and specialized mesh [Parietex (polyester/gel)/Composix (polypropylene/PTFE)/Sepramesh (polypropylene/Seprafilm)/Bard-Dulex/Dualmesh (PTFE-Corduroy)] is utilized to minimize bowel adherence and possible fistulization. Other potential drawbacks of the TAPP approach are port-site hernias,26 injuries to the inferior epigastric vessels secondary to lateral trocar placement, and bowel injuries from intraabdominal manipulation and adhesiolysis.

General anesthesia is utilized for the majority of cases; however, TEPP can be done successfully with local14,27 and spinal anesthesia.14 The TEPP repair is better tolerated in patients with minimal cardiac reserve because the CO₂ is contained within the pelvic preperitoneal space.

In addition to good video equipment, proper graspers and S-retractors are instrumental in facilitating a smooth operation. The use of scissors and thermal energy is usually unnecessary and should be minimized to avoid vascular and visceral injuries.28,29 Equipment that should be available for certain situations includes 5- and 10-mm clip appliers or hemolocks, suturing equipment, and 5-mm camera lenses. Foley catheters are not necessary, as they will generate more complaints from the postoperative patient than the actual operation.

The dissecting balloon rapidly develops the preperitoneal space without significant bleeding and the structural balloon keeps the space open to allow safe instrument handling. Innovative techniques to replace these balloons may be cheaper but are less effective and ultimately may increase operating time and subsequent cost.

The choice of mesh must meet the surgeon’s as well as the patient’s needs. It must be soft and pliable not only to conform to the patient’s anatomy and minimize postoperative stiffness, but also to permit easy insertion through the trocar. Mesh transparency and adhesiveness are also important qualities because wide interstices minimize displacement and help identify structures beneath the mesh. Placement of the mesh behind the epigastric vessels is unnecessary and time-consuming. Spiral tacks have replaced staples to fix the mesh in position, and the placement and number of tacks should be consistent. No more than 6 tacks total should be used with 2 in Cooper’s ligament, 2 in the rectus muscle, and 2 in the lateral wall, well above the ileopubic (IP) tract. The placement of staples or tacks too close to or below the IP tract has led to injuries of the lateral femoral
cutaneous nerve (meralgia paraesthetica)\textsuperscript{30,31} (Figure 3). Careful external abdominal wall pressure will prevent skin penetration by the tack during deployment. Fibrin glue fixation or no mesh fixation at all will minimize potential nerve and vascular injuries but the long-term success rate of these techniques has not been proven.\textsuperscript{32,33}

For high-riding cords or large hernia defects, wrapping the cord with the mesh and then buttressing with a second piece is an effective technique. If the mesh is wrapped too tightly, it can erode through the cord.\textsuperscript{34,35} However, if done carefully no significant difference occurs in postoperative complaints or problems as confirmed by duplex flow studies of the testicular vessels.\textsuperscript{36}

Large indirect hernias can be repaired with minimal complications by adhering to certain technical principles. Use a bowel preparation preoperatively and be prepared to convert to or commence with the TAPP approach. If incarcerated, attempt to reduce the hernia after induction of general anesthesia before prepping. If unsuccessful, prep the penis and scrotum into the field because intraoperative external manipulation may be required. Use a Foley catheter to keep the bladder decompressed. Open the sac if necessary to reduce the hernia, but do not dissect the sac off the cord because this increases potential injury to the cord structures. Divide the sac, leave the distal sac in place, and close the proximal sac. This does not increase hydrocele formation.\textsuperscript{37}

Excess manipulation of the cord may rarely cause testicular atrophy or hypozoospermia by increasing serum antibody levels. Damage to the retroperitoneal sheath beneath the cord increases the contact between the mesh and external iliac vessels, which may limit access for future vascular and lymphatic procedures. If it is possible that vascular reconstruction, lymph node dissection, or prostate surgery will be needed, then hernia repair is best done at the same time to avoid future tedious and dangerous dissection through fibrotic tissue.\textsuperscript{38}

Patients with lower abdominal incisions may have an insignificantly higher incidence of complications and recurrence from laparoscopic hernia repairs.\textsuperscript{39} Prior operations with lower midline/paramedian and even transverse scars (Pfannenstiel) are only relative contraindications to the TEPP repair because balloon dissection can usually proceed away from the incisions.

Postoperative hematomas and seromas are common after repair of direct hernias. They can be prevented by tacking the pseudosac to the rectus muscle or Cooper’s ligament to eliminate the dead space (Figure 4). If a fluid collection does occur, it will usually resolve spontaneously after 6 weeks. If it does not resolve or is symptomatic, then sterile aspiration is appropriate. Postoperative groin swelling with a fluid wave can easily be misinterpreted as a recurrence. Hasty reoperation should be avoided. Scrotal swelling, subcutaneous (SQ) emphysema, even pneumomediastinum are not uncommon and will resolve spontaneously after several days.

A distinct advantage of the laparoscopic repair is that bilateral inguinal hernias can be repaired simultaneously through the same incisions by
adding only a few minutes to the operative time. Not only is this very cost-effective, but the morbidity and recurrence rates are unchanged.\textsuperscript{40,41} Other operations performed simultaneously without additional incisions are umbilical herniorrhaphies and vasectomies. Infection rates are extremely low, probably because the mesh is placed through the trocar and never touches the skin.

Many good hernia operations are available, and the optimal operation should be decided by several factors, including age, operative history, sex, size of the patient and hernia, unilateral or bilateral, primary or recurrent, incarcerated or reducible, general medical condition, and the patient’s expectations. The establishment of a comprehensive national hernia register will not only improve overall quality of care, but patient satisfaction will be optimized. Tremendous variation exists in the time when a patient returns to work, and factors other than operative technique must be considered.\textsuperscript{42}

When patients are selected properly and surgeons are well trained and experienced, laparoscopic hernioplasty is performed with excellent results. Because overall outcomes are improved with the surgeon’s experience, some studies advocate the move toward hernia specialists.\textsuperscript{40} Prospective outcome evaluation will determine whether the performance of specialized groups of surgeons can be reproduced.\textsuperscript{44}

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Dr Biskin is actively involved in developing new laparoscopic techniques and instruments. He began teaching courses and precepting laparoscopic hernioplasties over a decade ago. Now with several thousand hernia repairs, he has accumulated significant data for journal and conference presentations.

References:


UPDATE

Uterine Fibroids and Bleeding

Herbert A. Goldfarb, MD

The approach to the gynecological patient with abnormal bleeding requires specific diagnosis prior to any consideration of specific therapy. The first intervention after a thorough pelvic and rectovaginal examination should be an endovaginal pelvic ultrasound. Should the uterus be quite large, an abdominal ultrasound may be performed. The endometrial cavity can be best visualized by saline infusion ultrasound. In the absence of fibroids or endometrial polyps, an endometrial biopsy will differentiate anovulatory or dysfunctional bleeding that can be treated with cyclic progestrone. Ovulatory metrorrhagia (secretory) that is recurrent is best treated with an endometrial ablation procedure.

GLOBAL ENDOMETRIAL ABLATION PROCEDURES

The first technique described in 1985 by Goldrath used a bare Nd:Yag laser fiber dragged along the endometrium to destroy the entire lining. Vancaille subsequently described a rollerball electrode via the hysteroscopic resectoscope. Later variants of the procedure utilized a loop electrode to resect the endometrium with the distinct advantage of obtaining tissue for evaluation, and finally some operators finished off the procedure with the grooved electrode at a high power to finely sculpt the cavity.

ThermaChoice. Neuwirth developed a balloon (latex-silicon) device that expanded inside a basically normal (<10 cm) cavity filled with up to 30 cc of D5W pressurized to 160 to 180 mm Hg and heated to 87°C. Distortion of the cavity due to fibroids is a contraindication. This procedure is approved for premenopausal women with metrorrhagia due to benign causes for whom childbearing is complete.

Novasure. This procedure consists of an impedance-controlled bipolar grid and moisture transfer with controlled and contoured tissue ablation. Treatment time averages 90 seconds. This self-terminating procedure is based on tissue impedance. Amenorrhea rates of 47% to 58% result. It is approved for patients with polyps and submucous fibroids <2 cm.

Her Option. A 5.5-mm cryoprobe is placed in the endometrial cavity, and by using abdominal ultrasound guidance, the probe is cooled to -90°C. A 3.5- to 5-cm elliptical ice ball forms. A temp is reached -20°C 1.5 cm from the edge of the ice ball. The procedure requires 10 to 20 minutes to complete. The bladder is filled to help monitor the procedure via abdominal ultrasound. Inclusion criteria are a cavity <10 cm and uterine volume <300 cc. This procedure is not approved for use with cavitary myomas.

Microsulis Microwave. This procedure, recently approved by the FDA, is a non-contact system that uses a microwave generator to develop radiant heat and destroy tissue. Anderson, the lead investigator, has shown that the radiant energy is not limited by cavitary distortion. The uterus is sounded, the radiant wand is placed in the cavity and the intracavitary temperature monitored. The wand is oscillated manually and slowly withdrawn until the endometrium is completely ablated. Results are comparable to those achieved with electrosurgical ablations.

Hydrothermablation. Hot water is delivered into the uterine cavity and the process is monitored using a hysteroscope. The cavity should be <10 cm. Fibroids and polyps can be treated with this method. The procedure is microprocessor controlled with visual control of low-pressure gravity fed saline heated to 90°C for 10 minutes. An insu-
lated hysteroscopic sheath 7.8 mm accepts a 3-mm hysteroscope. Results are 54% amenorrhea: 23% oligo, and 14% eumenorrhea.9

The downside to all these methods is cost, which is approximately $700 to $900 per case, requiring an approved facility for reimbursement, which is at the mercy of the third party carrier. All of the described procedures are effective, with the operative hysteroscopic technique requiring the greatest learning curve.

Uterine Artery Embolization. First reported in 1995 by Ravina,10 uterine artery embolization is a temporizing method in a hemorrhaging patient awaiting a hysterecetomy. More than 20 000 procedures have been performed since 1997. Speis11 reported on 200 patients with fibroids and menorrhagia with improvement in 87% to 91%. Bulk symptoms were improved in 90%. Hospitalization was required in 10.5% of patients. Complications include misplaced polyvinyl particles. Immediate menopause secondary to uterine ovarian anastomosis was experienced by 10% to 15% of patients. Submucosal myomas often prolapse and require hysteroscopic surgery; Other complications include infection, necrosis, pulmonary embolus, and readmission for severe pain. Volume reduction is reported to be 40% to 60%. Volumetric reduction of 10x10x10 cm with a 40% reduction will result in a size of 8x8x8 cm. Therefore, 7 to 8 cm should be a rational size limit for uterine artery embolization.

FIBROID SOLUTIONS

Large multinodular myomatous uteri require surgical intervention. The diagnostic insight provided by magnetic resonance imaging (MRI) can help the clinician make the decision as to what course to recommend. Myomectomy should not only be offered to women wishing to be pregnant. Preserving the uterus for many women has very significant psychological implications. Myomectomy can be performed laparoscopically, and Miller12,13 has reported on a large series of cases. Most very large myomatous uteri can be made whole with mini-laparoscopic techniques.

Myolysis and Variants. Goldfarb14 performed Nd:Yag laser myolysis in 1990 and subsequently converted to bipolar electromyolysis, developing sturdy 5-cm needles for the procedure. The present technique was described in the journal of the AAGL in 1995 and subsequently in the Society of Laparoendoscopic Surgeons' journal in 1999.15 The procedure involves undermining identifiable myomas with electrified bipolar needles using the endpoint of cyanosis. Pretreatment with GnRH analog allows a therapeutic trial. Symptoms should abate prior to definitive therapy. Pelvic ultrasound, (MRI), and endometrial biopsy are performed preoperatively. Average volume reduction was 72%. Hysterectomy was avoided in 93.5% of cases. Complications of myolysis (<1%) were minimal. Fibroid degeneration was rare as was infection. Hysterectomy in the myolysis and ablation group was 2.5% in cavities <9 cm.

Cryomyolysis. A cryoprobe is placed laparoscopically into a fibroid via a 5-mm trocar, and an ice ball is created that can extend to 5 cm causing myoma cells necrose. The downside is the expense of the equipment, ranging up to $35 000 plus $750 per case. Cryomyolysis has also been described as an MRI-guided procedure. If you add the expense of an MRI to that of the cryoprobe, then you have a procedure whose expense cannot be justified. Electrobipolar myolysis needles sell for about $750 and can be used for years.16,17

Radiofrequency Myolysis Technique (RTA). After initial puncture, a StarBurst-type probe is advanced into a myoma and with RF coagulation 45D to 50D results in protein denaturation. Cost is similar to that of cryo.18

Myolysis is effective in select cases of moderately sized myomas 5-cm to 7-cm after a therapeutic trial with a GnRHa agonist. All systems described are effective but cannot compete with Bipolar electromyolysis in price and ease of performance.

OTHER NEW TECHNIQUES

Intravaginal occlusion of the uterine artery described by Istre19 and Lichtinger utilizes a spe-
cialized clamp placed in the uterine fornix. The uterine blood vessels lie within 1 cm to 3 cm from the fornix. A Doppler is attached to the clamp and identifies the occlusion of uterine blood flow. Vessels are pinched for 6 hours. Studies have shown that even after uterine embolization, uterine reperfusion takes place after 6 hours. Postproce-
dure MRIs have revealed fibroid microcirculation clotting confirming myomectomy death.

CONCLUSION

Multiple techniques have been described in the ongoing attempt to offer women alternatives to hysterectomy. All have been presented at major meetings and most have been published in refereed journals. It is important to differentiate what we can do from what is cost effective and appropriate for our patients. When all other factors are equal, cost is an important factor. Patients need to be educated and share in their health care decisions.

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Herbert A. Goldfarb, MD, is an Assistant Clinical Professor of Ob-Gyn at the New York University School of Medicine and the Director of Gynecological Endoscopy at NYU Downtown Medical Center. In 1986, Dr Goldfarb performed the first video laser laparoscopic surgery in the New York metropolitan area and the first Nd:YAG laser hysteroscopic ablation of the endometrium. In 1990, he pioneered the myoma coagulation (myolysis) procedure, and developed bipolar needles designed to make the procedure easier to perform. Dr Goldfarb, an advocate of alternative solutions to hysterectomy, has authored two books and several scientific articles and book chapters. The No-
Hysterectomy Option was written in 1990, with a second edition published in 1997 and Overcoming Fertility was published in 1995.

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NOT JUST SHOWING SLIDES

Making a Presentation

Gustavo Stringel, MD

Everyone is eventually asked to make a presentation. Some people are natural presenters, and the task is easy for them. Others, however, have great difficulty speaking in public. A presentation is not a speech; it is not just showing slides, figures, or facts to an audience. A presentation is more complex and involves a series of dynamic aspects. A presentation often has the impact of an audience's impression of the character and personality of the presenter and many times will influence the present position and future standing of the person. We often judge a person based on his or her presentations. Ron Hoff defines a presentation as "a commitment by the presenter to help the audience do something—and a constant, simultaneous evaluation of the worth of that commitment by the audience."

As physicians, we are often asked to make presentations related to our specialty. We are experts in this field and generally have no problem delivering a reasonable presentation. I once heard a definition of an expert as "a guy from out of town with a bunch of slides." It is amazing how difficult it is to present topics that are not directly related to our area of expertise in the medical profession. Even talking about ourselves can be taxing. I recently attended a course given by the American College of Physician Executives where I was asked to make a 5-minute presentation by myself, with no audiovisual assistance. I was given 5 minutes in which to present my most important accomplishments and the skills that were necessary to achieve them. It was one of the most difficult presentations I have ever made. The 5 minutes passed very quickly, and I was forced to economize time, measure my words, and know exactly what I was going to say before I said it. I selected the subject, wrote the outline, memorized the introduction and the conclusion, and practiced my presentation many times, until I could deliver it in 4 minutes and 45 seconds. It was a humbling and excellent learning experience.

I have been making presentations all my life, in a few different languages. Now, I will present some of the experiences and hints that have helped me feel more in control and in contact with the audience.

Subject. Always know exactly what the subject is and why you are presenting it. If you are invited to speak, ask for details. What are the expectations? If you are asked to select the topic, choose something that you are totally familiar with, an area where you are considered an expert. The name of the game is preparation. To present with authority, you must prepare the subject.

Audience. Analyze your audience. You must know your audience's characteristics, age demographic, gender, degree of education, and more. Are you presenting to colleagues? Does the audience understand medical terminology?

Time Yourself. Do not go over your allotted time. Nothing is worse than a speaker who continues to go on and on past his or her time allotment. If you are asked to give a 30-minute presentation, plan to talk for 25 minutes. It is always better to stay under your time. An educated audience will always appreciate the extra time. It is impolite and inconsiderate to other speakers to be late in your presentation. The only way to stay on time is to practice.

Practice Makes Perfect. Before you talk to the audience, talk to yourself. You can practice in front of a mirror or use a video camera. You can also give your presentation to a small group of friends or relatives.
or a spouse or significant other. Ask for advice and criticism. A spouse, relative, or a good friend will tell you what you need to improve.

Practice your posture, stand erect, do not move excessively, and select your space. Using hand motions and other gestures is good but should not be overdone. Do not let your eyes wander during the presentation. Select a point in the audience or 2 or 3 different people, and talk to them.

Select appropriate clothing. Avoid scratching yourself, playing with a pen or other object, jingling keys, and other obnoxious mannerisms.

Speech. Your voice should be loud and clear. If you have a microphone, you need to speak softly and close to the microphone. If no microphone is available, then you must speak loudly enough to be heard. A remote microphone attached to your lapel will give you the great advantage of movement, enabling you to gesture with your hands and body, and make better contact with your audience. A stationary microphone, especially if you are speaking on a podium, will limit your motion. Be aware of this situation and avoid standing still like a tree or statue. Try to occasionally move away from the podium to keep contact with your audience. Above all, be a dynamic speaker.

Interactive. It is fine to be an interactive presenter, but you must analyze your audience first. Is it the type of audience that is capable of interacting with you, and likely to do so? Interaction will keep the audience interested, but it can derail your timing. If you like interaction, you must practice first. I recently attended a presentation where the speaker claimed from the beginning that he was going to be making an interactive presentation. We in the audience prepared ourselves accordingly. He opened the presentation by showing a short video clip of a popular movie and asking the audience to identify it. He rewarded the winner with a piece of candy. From that point on, however, he continued with a 60-minute scientific presentation and never again interacted with the audience. At the end, he showed another video clip and rewarded the participant with another piece of candy. Was this truly an interactive presentation?

Audiovisual Aids. A variety of audiovisual aids, such as overheads and transparencies, slides, flip charts, and computer-generated audiovisu als, are available that can be useful in a presentation. You must always ask about the availability of different aids ahead of time. Computer-generated audiovisuals, especially Power Point, are now almost universally available. I was recently invited to South America to give a series of presentations. I had Power Point presentations, but I made the mistake of assuming that my hosts would not have the computer equipment necessary to display them, so I converted all my power point presentations to slides. To my surprise and embarrassment, I was the only speaker with slides. I learned a lesson from the experience: always ask what kind of equipment is available. When in doubt bring both slides and your Power Point presentation. Always bring your laptop and a CD with your presentations and video clips. Make sure your computer is compatible with the available equipment. If you have a Mac, bring your adapter or connecting cable. As a general rule, Power Point presentations run better directly from the hard drive, but it is always wise to have a back up.

Keep visual aids simple. Generally, a blue background is best. Avoid complicated backgrounds, as they can be distracting from the main subject of your presentation. The lettering should be big enough for the audience to read. As a general rule, letters in a 24-point font size are recommended. You can save time by attaching pictures, figures, or video clips to your slides, but if the picture is important, show it alone. Computer-generated presentations have become very sophisticated. You must stay within your limits of sophistication and technical expertise. Do not overdo it. A simple laser pointer is absolutely necessary. I often carry my own laser pointer to my presentations.

Do not apologize for spelling or similar errors. For one thing, you should always do a spell check before your presentation. If you must clarify something, do it without apologizing. Most of the time, the audience will not notice the error until you point it out. You, not your slides, should be the center of the presentation. It is acceptable to have notes to guide you. Avoid the tediousness of reading the
presentation verbatim. Use the notes to guide you; do not let the notes distract the audience. I recently attended a presentation by Barbara Linney, Vice President of Career Development for the American College of Physician Executives. She is a master presenter. She had notes in her hands throughout the presentation, but we did not notice them until she pointed out to us how she was holding them. She did it inconspicuously and skillfully and did not let her notes take away from her presentation.

Taking Off and Landing. The most important times of your presentation are comparable to the take-off and landing of an airplane. You can make it or break it right from the beginning or at the end. Always practice and memorize the first 60 to 90 seconds of your presentation, and always allow time for a strong closure with conclusions. Beware of lengthy, unnecessary, or overstated introductions. Do tell the audience the plan or contents of your presentation. Always introduce yourself and your position in a simple, matter-of-fact way. Acknowledge people who have collaborated with you, as well as personalities, guests, chairpersons, or presidents of the association who invited you to make your presentation. Do not forget to smile and look relaxed. Some speakers regularly practice relaxation breathing and exercises before the presentation. Breathing is extremely important in pacing your presentation. If your presentation is long, request a glass of water to moisten your throat and take a brief pause during your speech.

When you are running out of time, be prepared to close; do not wait until the moderator asks you.

Humor. A sense of humor is always good. Do not start or end your presentation with a joke unless you are a natural comedian and good at telling jokes. Although making humorous remarks keeps the audience happy and interested, do not over do it. The same goes for cartoons. Tasteless or difficult-to-understand cartoons will only detract from your presentation. Pictures of family or beautiful scenery are generally well accepted, especially if they are related to the presentation.

Evaluation. It is extremely important to look at the evaluation from the audience. You should request it from the organization that invited you to make the presentation. If you have a bad evaluation, then you should find out the reasons why and correct them. If your presentation made an impression, then you will get a good evaluation. An important presentation always merits an evaluation. You can always ask for an honest opinion from members of the audience or organization for your educational feedback.

I hope that the experience with presentations that I have acquired over many years can be of help, especially to new speakers aiming to improve the quality of their presentations. Remember that aids for presentations constantly change and improve. We must continue to educate ourselves and always aspire to improve our presentations. If you make an excellent presentation, then accept the praise and be proud.

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Dr Stringel has presented and published on many topics in the areas of Laparoscopy and Thoracoscopy in children. He has been a member of the Society of Laparoendoscopic Surgeons for six years and currently serves on the Editorial Board of JLS.

Suggested Reading:
The Tripolar® Ultra™ Cutting Forceps by ACMI combine surgical efficiency, bipolar safety in a single, multifunctional instrument. One instrument enables atraumatic grasping, dissection, coagulation, transection, and retraction, eliminating the need to exchange instruments multiple times in one procedure. Tripolar Cutting Forceps are simple, effective, and suitable for a variety of procedures. Contact ACMI Corporation, www.ACMICorp.com

The Ultrafin™ Stirrup, by Allen Medical Systems, is the latest in bariatric lithotomy positioning. This stirrup features a roomier boot for larger calves and accommodates up to an 800 pound patient. Piston technology helps you easily position heavy legs. For more information, please call customer service, 800 433 5774, www.AllenMedical.com

The new disposable Allez Medical Surgical Fascia 4Closure™ System is developed for fast and safe fascia closure in laparoscopic procedures that use large operating ports or trocars. The kit is intended to prevent postoperative hernia defects and is also used to help control acute bleeding from the abdominal wall. Available in sizes from 10-23 mm. www.AllezMedical.com

With Monarc™ subfascial hammock, physicians introduce a supportive mesh subfascially during an outpatient procedure that takes just minutes to complete. This unique approach helps avoid critical anatomical structures and may eliminate the need for cystoscopy. For physicians who perform continence-restoration surgery, Monarc provides a safe, minimally invasive and comfortable outcome. Contact American Medical Systems, www.AmericanMedicalSystems.com

The BioArc SPR™ Sling System for treating female stress urinary incontinence is a hybrid sling system composed of synthetic and biologic material, and is formed with the surgeon’s choice of type, size, and thickness of biologic tissue for urethral support that is customized to meet the needs of the patient. Contact American Medical Systems, www.AmericanMedicalSystems.com

The LAP DISC, a ring-like device used in hand-assisted laparoscopic surgery, allows a surgeon to insert his hand inside the body through an incision no larger than his glove size leaving the other hand to help guide laparoscopic instruments. Results in smaller incisions, reduced pain, and less scarring than open surgery. Contact Ethicon Endo-Surgery, Inc., www.EthiconEndo.com

The ELEVEST laparoscopic procedure kit facilitates uterine prolapse repair by shortening and strengthening both the uterosacral and round ligaments to restore the uterus to its normal position. The ELEVEST procedure does not require the use of meshes or other implantable devices and provides a simple and straightforward option for women with uterine prolapse. Contact Inlet Medical, Inc., www.InletMedical.com

By integrating robotic technology with surgeon skill, the da Vinci® Surgical System enables surgeons to perform surgery in a manner never before experienced, providing two independent monitors for true three-dimensional vision. For additional information please contact Intuitive Surgical, Inc., 888 868 4647 or visit www.IntuitiveSurgical.com

The Multiple Instrument Guide is a flexible, J-shaped device that can be used for the majority of choledocholithiasis patients. It has lumens of 3.4 mm, 2.0 mm, and 2.0 mm, allowing several tools and irrigation to be used simultaneously. The choledoscope and other tools are deployed though a standard 10 mm laparoscopic port site. Contact LapSurgical Systems, LLC, www.LapSurgical.com

Microline’s integrated modular laparoscopic instrument system consists of a selection of reusable hand pieces that accommodate a broad assortment of disposable scissors, limited use grasper and dissector tips. Surgical efficiency and cost effectiveness are preserved by reusing the instruments durable components and replacing the critical components which can wear and fail. Contact Microline, 978 922 9810, www.microlineinc.com

NovaSure™ Impedance Controlled Endometrial Ablation System is a new and effective endometrial ablation technology that’s an alternative to hysterectomy and hormone therapy that’s Quick, Simple, Safe and Complete. The NovaSure™ System features a 90 second average treatment time, doesn’t need any pre-treatment and can be used with local anesthesia. Contact Novacept, www.Novacept.com

Olympus introduces ALPHA OR™ fully integrated, build-on-demand OR system for minimally invasive surgery. Featuring EndoEYE™ surgical videoscopes utilizing revolutionary “eye inside” technology, VISERA™ multi-specialty digital imaging platform, EndoALPHA™ centralized OR control system, SonoSurge™ reusable ultrasonic cutting and coagulation system, and Olympus Integration Services—to customize to your specific needs. www.AlphaOR.com
The disposable 5 mm Quik-Stitch® Endoscopic Suturing System provides surgeons intracorporeal knot security. The pre-tied Roeder knot will reduce procedure time and allow the surgeon to set and adjust the knot forward. An alternative to clips and surgical loops, Quik-Stitch eliminates the need to employ larger cannulas to access the surgical site. Contact Paré Surgical, Inc., www.PareSurgical.com

The Promethean Fluid Control Island is a proactive device designed to capture and contain fluids lost from the patient and instrumentation during laparoscopic procedures. It is a combination drape and a collection vessel that rests on the floor and immediately evacuates fluids for measurement. Contact Promethean Medical, www.PrometheanMedical.com

Starion’s TLS2 is a new two speed, hand controlled device that has incorporated a new jaw design to reduce tissue adherence. The TLS2 utilizes our unique thermal welding technology, which provides a simple means of simultaneously sealing and dividing tissue, while minimizing thermal spread and reducing injury to collateral tissue. Contact Starion Instruments, www.StarionInstruments.com

LapSim Basic Skills is designed to accommodate training basics of laparoscopy. The next obvious step has been to aim at providing tools that go beyond basic training and into more advanced and procedure-specific tasks. Thus, this year Surgical Science has launched two new products: LapSim Dissection and LapSim Gyn both software add-ons for LapSim Basic Skills. Contact Surgical Science, www.Surgical-Science.com

The Standard Via-Guard Suction Set is interchangeable, clog free, immediate tip to pool. With many patented features, the Vascular Via-Guard Suction Set is also clog free and has a gentle, high flow. The LaproDrain Laparoscopic Drainage System is preloaded and ready to use and stops bile/intestinal leaks. To view suction sets go to www.Surgimark.com

The reusable Vitalitec GuideTrocar™ was developed as a cost effective non-bladed dilating trocar. It is easy to use and offers many benefits over existing trocar systems, including guidewire entry with a blunt tipped trocar. Contact Vitalitec to learn more about the GuideTrocar™, 508 747 6033.

The Salute Q-ring Fixation System provides absolute security for prosthetic and tissue fixation without the postoperative compromise associated with other fixation approaches. Based upon principles used in hand suturing, the Salute Q-ring provides effective fixation while maintaining safety for laparoscopic and open surgical procedures. Contact ONUX Medical, 888 466 7766, www.OnuxMedical.com

T-Sling with Centrasorb, a tension-free device designed to prevent urinary retention and urethral erosion, features two polypropylene sections connected by a completely absorbable polydioxanone central portion. The procedure can be performed in less than 30 minutes under a regional anesthetic. T-Sling accommodates a wide variety of surgical techniques, and offers true cost savings. Contact Caldera Medical, 886 4 Caldera.

Eliminating the need for a blade or sharp edges, the innovative Applied Separator™ Access System offers surgeons true bladeless access. The tip has a unique sequential helix™ that separates tissue along its natural fiber lines enabling atraumatic advancement of the separator tip and cannula through the natural muscle planes. Contact Applied Medical, 800 282 2212, www.AppliedMed.com

The HUMI-FLOW™ system for warming and humidifying CO₂, reduces hypothermia and patient shivering; minimizes postoperative pain, reduces adhesion formation; reduces OR and recovery room time; maintains HIGH insufflation flow rates; minimizes lens, fogging; and is economically priced. Contact NORTECH in Elgin, IL for a product demonstration, 800 348 0424 or 847 608 8900, www.Northgate-Tech.com

To have product information considered for publication in Laparoscopy and SLS Report, please send a 50-word product description or a press release and a high-resolution image (TIFF, JPEG, or EPS with at least 300 dpi) to publications@sls.org.
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Delegates of leading laparoscopists
will create a unique exchange of cultural information and
education in minimally invasive surgical
approaches and techniques

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Register at www.sls.org
GANIZATIONS

Australian Gynaecological Endoscopy Society
All India Institute of Medical Sciences, New Delhi
Indian Academy of Human Reproduction
Japan Society of Gynecologic and Obstetric Endoscopy
Minimally Invasive Surgery Center of the National University of Singapore
Philippine Society of Gynecologic Endoscopy
Society of the Endoscopic and Laparoscopic Surgeons of Asia
Society of Laparoendoscopic Surgeons
Taiwan Endoscopic Surgery Society
Visnagar Surgeons Forum, Gujarat, India

ASONS TO ATTEND

Experience a unique conference offering a multispecialty approach to minimally invasive surgical techniques and procedures.

Expand your knowledge of the use of laparoscopic diagnostic and treatment techniques taught by acknowledged leaders in their respective specialties and countries.

Learn in a multidisciplinary environment as topics specific to general surgeons, gynecologists, and urologists are presented in general sessions providing a multispecialty approach to minimally invasive surgery.

Understand how different countries have met the challenges of training and practicing minimally invasive surgery.

Find out about cultural differences and similarities between neighboring Pacific Rim countries.

INFERENCES

- A clearer concept of new and standard laparoscopic and endoscopic instrumentation.
- An improved comprehension of laparoscopic and endoscopic techniques.
- An exchange of information between surgeons representing their country or a professional organization on the challenges they face practicing and teaching minimally invasive surgery.

CONFERENCE HOTEL/ACCOMMODATIONS

Hilton Hawaiian Village® Beach Resort and Spa
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RATES

Special daily rates for conference attendees:
$195.00 – Garden View • $215.00 – Partial Ocean View
$235.00 – Ocean View • $255.00 – Deluxe Ocean View

All rates are European Plan. No meals are included and applicable taxes will be added.

Make your reservations no later than January 4, 2004. After January 4, 2004, reservations will be confirmed on a space availability basis only. For those attending the congress who require special assistance (accessibility, dietary, etc.), please notify the hotel of special requests upon making your reservations or before January 4, 2004.

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 Category 1 credits toward the AMA Physician’s Recognition Award. Each physician should claim only those credits that he/she actually spent in the activity.

CONFERENCE FEES

<table>
<thead>
<tr>
<th>Category</th>
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<tr>
<td>Physician Members</td>
<td>$595</td>
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<tr>
<td>Physician Non-Members</td>
<td>$595</td>
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<tr>
<td>Delegates and</td>
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<td>Organizing Committee</td>
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<td>Members</td>
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<td>Resident/Nurse/Fellow</td>
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Updated Program and Registration Online at www.sls.org
PROGRAM AGENDA

WEDNESDAY, FEBRUARY 4, 2004
3:00-6:00 pm  Conference Registration Opens
6:00-7:00 pm  Opening Ceremony; Delegation Introductions; Cultural Presentations.
7:00-8:00 pm  Welcome Reception

THURSDAY, FEBRUARY 5, 2004
7:00-7:30 am  Continental Breakfast and Visit Exhibits
7:30-7:45 am  Opening Remarks
7:45-9:00 am  LAPAROSCOPY IN CANCER: The Role of Operative Lap in Gynecological Cancer; Lap Colon and Rectal Cancer Resection in Japan; Issues Concerning Laparoscopic Restorative Low Rectal Cancer Excision; Hand-Assisted Lap Surgery Should Be Standard Procedure for Colorectal Cancer; Lap Surgery for Stomach Cancer
9:00-9:45 am  GYNECOLOGY: Laparoscopic Hysterectomy: A Safe Surgical Procedure; Laparoscopically Assisted Vaginal Hysterectomy (LAVH); Lap Hysterectomy: Personal Series of More Than 1000 Cases
9:45-10:15 am  ENDOMETRIOSIS: Laparoscopic Management of Extra-Genital Endometriosis; What is Deep Endometriosis?
10:15-10:30 am  Cultural Presentation
10:30-11:00 am  Break and Visit Exhibits
12:15-12:30 pm  Cultural Presentation
12:30-1:30 pm  UROGYNECOLOGY: Role of Laparoscopic Surgery in Pelvic Reconstructive Surgery—Experience From 700 Consecutive Cases; Cystoscopy for Gynecologic Laparoscopic Vaginoplasty in Rokitansky-Kuster-Hauser Syndrome—Merit and Dementia; Application of Laparoscopy in Pelvic Floor Reconstruction

FRIDAY, FEBRUARY 6, 2004
7:00-7:30 am  Continental Breakfast and Visit Exhibits
7:30-8:15 am  COLORECTAL: Important Anatomy for Lap Colorectal Surgery; laparoscopic Appendectomy, Stapled Hemorrhoidotomy
8:15-8:30 am  Cultural Presentation
8:30-9:15 am  ENDOCRINE: Tailored Approach to Endoscopic Sympathetic Clamping for Autonomic Dystrophy; Lap Adrenalectomy: Gasless Endoscopic Thyroidectomy—Hidden Access Surgery via a Single Infraclavicular Route
9:15-10:15 am  PATENT CARE, EDUCATION, TRAINING AND RESEARCH: Analysis of Laparoscopic Intracorporeal Square Knot Tying; Laparoscopic Physics and its Educational Implications; A Total Team Approach to Gynaecological Care in Australia
10:15-10:30 am  Cultural Presentation
10:30-11:00 am  Break and Visit Exhibits
11:00-11:45 am  GYNECOLOGY: Evil Twins of Chronic Pelvic Pain Syndrome: Endometriosis and Intersitial Cysts/Painful Overactive Bladder; Multi-Centre Australian Experience in Laparoscopic Management of Severe Colorectal and Recto-Vaginal Endometriosis; Lap Tubal Anastomosis
11:45-12:00 pm  Cultural Presentation
12:00-12:15 pm  THORACIC: Minimally Invasive Percutaneous Tracheostomy
12:15-12:45 pm  GYNECOLOGY II: Hybrid Myomectomy: Minimally Invasive Advanced Laparoscopic Assisted Myomectomy; Laparoscopic Management of Pelvic Floor De
2:00-4:00 pm  OPTIONAL LAPAROSCOPIC SKILLS PRACTICE LAB SESSION: The Practice Lab will offer participants 1.5 minutes on openview laparoscopic simulation tray. Five of the trainers will be raffled off to practice lab session participants at the end of the congress.

SATURDAY, FEBRUARY 7, 2004
7:00-7:30 am  Continental Breakfast and Visit Exhibits
7:30-8:15 am  SPECIAL PRESENTATIONS: Laparoscopic Management of Large, Non Parasitic Liver Cysts; Scope and Limitation of Laparoscopic Surgery: Experience of an Indian Practice; Minimal Access Surgery in the Diagnosis and Treatment of Abdominal Tuberculosis, A Common Medical Problem in India and Asia
8:15-8:30 am  BARIATRICS: Update on Laparoscopic Vertical Banded Gastroplasty
8:30-8:45 am  UROLOGY: To Be Announced
8:45-9:30 am  GYNECOLOGY: Minimally Invasive Surgery for Uterine Leiomyomas; Laparoscopic Myomectomy, Personal Series of 800 Cases; Laparoscopic Management of Ovarian Tumors
9:30-9:45 am  PEDIATRIC: Fetal and Pediatric Surgery: What is on the Horizon?
9:45-10:00 am  Cultural Presentation
10:30-11:45 am  HERNA: Inguinal Hernia Anatomy; Endoscopic Totally Extra-peritoneal Inguinal Hernioplasty; TEP Hernia Repair; Laparoscopic Ventral Hernia Repair
11:45-12:15 pm  TECHNOLOGY: Needleless Surgery; Robotic Surgery
12:15-12:30 pm  To Be Announced

Updated Program and Registration
Online at www.sls.org

Speakers and Program Subject to Change
WWW.MASC.CC, the minimal access surgery center website provides information on minimal access general, gynecological, colorectal, thoracic, urological, pediatric, pediatric urological, neurological, and orthopedic surgery. Here you can see interviews with surgeons from each specialty and read brief descriptions of 50 procedures—from bariatric surgery to endoscopic third ventriculostomy.

Recently launched, WWW.ENDOTALK.COM by Knowledge Pursuit, LLC provides one central location for comprehensive information regarding the specialty of gastrointestinal and surgical endoscopy. An ENDO directory, links to on-line education, a calendar of events, and job listings are provided. Members also receive the ENDOtalk newsletter and have access to ENDO Compare, a detailed accessory products cross reference with list pricing. Tel: 336 883 6267, Fax: 336 883 9076, E-mail: myc@endotalk.com

WWW.OBGYN.NET has 26 featured sections for medical professions including hysterectomy and alternatives, laparoscopy and hysteroscopy, technology, and urogynecology. Here, you can gain access to online CME, Ob-Gyn PowerPoint presentations, and articles from Ob-Gyn related journals, review job postings, and visit the image library.

WWW.ASCCP.ORG, the website of the American Society for Colposcopy and Cervical Pathology provides information about the society's meetings and courses, has new online CME courses, contains the current table of contents for the society's Journal of Lower Genital Tract Disease, and has consensus guidelines for cytological and histological abnormalities. There is also a section for patient education.

WWW.ASRM.ORG contains the table of contents and abstracts for articles in Fertility and Sterility and Sexuality, Reproduction & Menopause. The American Society for Reproductive Medicine website also provides PDFs of Menopause Medicine, ASRM News, practice guidelines, and ethics reports. The site also provides information on the ASRM/Ortho-McNeil Pharmaceutical Research Grant in Reproductive Medicine and the ASRM/Organon USA, Inc., Research Grants in Reproductive Medicine, FAQ and fact pages for patients, and a coding Q&A.

WWW.ENDOUROLOGY.ORG provides online access to abstracts from the Journal of Endourology, a list of fellowships recognized by the Endourological Society, and a job positions page.

WWW.IPEG.COM, website of the International Pediatric Endosurgery Group, contains guidelines on empyema and related pleural diseases, pediatric gastroesophageal reflux disease, and infantile hypertrophic pyloric stenosis. Abstracts from IPEG 2001 through 2003 are available as PDFs.

On WWW.ISMICS.ORG you can link to abstracts from the Heart Surgery Forum—a cardiothoracic multimedia journal and official publication of the International Society for Minimally Invasive Cardiac Surgery; read discussions from the discussion forum, visit the surgical video library, and access resources such as heart news and job listings.

WWW.WEBSURG.COM has added a virtual university presentation on "Minimally Invasive Video-assisted Thyroidectomy" authored by P. Miccoli (Italy). A second presentation out of a series on laparoscopic equipment, "Video monitor," authored by D. Mutter (France) and A. Garcia (Switzerland) has also been released. This series will comprise chapters on 3D vision, video camera, endoscopes, and insufflators.

WWW.THETROCARM.COM, an online videojournal of gynecological and surgical endoscopy, now has an open forum, where suggestions, ideas, comments, criticisms, and experiences can be exchanged directly on-line amongst laparoscopists from around the world.

WWW.LAPAROSCOPY.ORG will soon provide a comprehensive listing of laparoscopic surgery fellowships. Look for patient information page updates, including new pages on bariatrics and robotics, in the coming months.
JANUARY 2004

19-20  Hysteroscopy/Cystoscopy. National Procedures Institute. Midland, Michigan, USA
23-25  11th International Symposium on Pancreatic and Biliary Endoscopy. Cedars-Sinai Medical Center. Los Angeles, California, USA

FEBRUARY 2004

4-7  Asian American MultiSpecialty Congress of Laparoscopy and Minimally Invasive Surgery. Society of Laparoendoscopic Surgeons. Honolulu, Hawaii, USA
7  A Hands-On Workshop on Taking Your Laparoscopic Skills to the Next Level. AAGL. Phoenix, Arizona, USA
12-14  15th Annual International Colorectal Disease Symposium: An International Exchange of Medical and Surgical Concepts. Cleveland Clinic Florida. Ft. Lauderdale, Florida, USA
23-27  Mayo Clinic in Scottsdale Winter Gastroenterology Meeting: Gastroenterology Linked to Endoscopy and Hepatology. Scottsdale, Arizona, USA

MARCH 2004

3  Advanced Colonoscopy. National Procedures Institute. Orlando, Florida, USA
18-20  Female Pelvic Medicine and Reconstructive Surgery. IMET. Half Moon Bay, California, USA
18-21  Therapeutic Endoscopy Course 2004. University of Utah and Brigham and Women's Hospital. Park City, Utah, USA

APRIL 2004

8-11  13th Annual Congress of the International Society for Gynecologic Endoscopy. ISGE. Kuala Lumpur, Malaysia

MAY 2004

5-8  IPEG's 13th Annual Congress for Endosurgery in Children. International Pediatric Endosurgery Group. Maui, Hawaii, USA
9-13  AUA Annual Meeting. American Urological Association. San Francisco, California, USA

JUNE 2004

2-6  6th World Congress of the International Hepato-Pancreato-Biliary Association. Washington, District of Columbia, USA
23-26  ISMICS 7th Annual Scientific Meeting. International Society for Minimally Invasive Cardiac Surgery. London, UK

JULY 2004


SEPTEMBER 2004

6-8  8th Regional Meeting of the International Society of Gynecologic Endoscopy. Cape Town, South Africa
10-12  Radio Frequency Surgery (Advanced). National Procedures Institute. Myrtle Beach, South Carolina, USA

OCTOBER 2004

10-15  ACS Clinical Congress. American College of Surgeons. New Orleans, Louisiana, USA

NOVEMBER 2004

18-21  AANA Fall Course. Arthroscopy Association of North America. Palm Desert, California, USA

For more information about these and other upcoming events, visit www.laparoscopy.org.
NEW YORK
September 29 - October 2, 2004
13th International Congress and Endo Expo
SLS Annual Meeting
Sheraton New York Hotel and Towers
New York, New York, USA

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GENERAL CHAIR
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PRELIMINARY PROGRAM INFORMATION

Wednesday, September 29, 2004
Postgraduate Courses
- Abdominal/Pelvic Acute/Chronic Pain...Who's Going to be Called?
- Simulation and Robotics/Maintenence of Certification...Just Like Training a Pilot
- Bariatriatics...Bigger May Not Be Better
- Prevention and Management of Laparoscopic and Endoscopic Surgical Complications
- Adhesions: Laparoscopic Treatment of Adhesions for the General Surgeon, Gynecologist, and Urologist
- IntraOperative Surprises - Planning for and Resolving IntraOperative Problems and Surprises for All Specialties
- Hysteroscopy and Hysteroscopic Surgery...Updates on Uterine Ablation and Transcervical Sterilization
- Part A: Diagnosis and Treatment of GERD: Surgical Approaches
  Part B: Laparoscopic Cholecystectomy and Common Bile Duct Management: The 21st Century
- Masters Class in Gynecologic Endoscopic Surgery
- Masters Class in Laparoscopic General Surgery
- Opening Ceremony
- Presidential Address
- Honorary Chair Presentations
- Welcome Reception
- Innovations Reception for all

Thursday, September 30, 2004
- General Session: Best of Laparoscopy Updates
- Multi-Disciplinary Plenary Session: Approaches for Reducing Errors in Laparoscopy
- Multi-Disciplinary Plenary Session: Accommodating the New Malpractice Environment
- Poster Presentations
- Scientific Papers/Videos/Open Forum Presentations
- SLS Special Interest Group Committee (SIG): Laparoscopy Updates
- SLS Fun Night/Dinner with Faculty

Friday, October 1, 2004
- Award Winning Scientific Papers and Video Presentations
  Live TeleSurgery:
  Urologic Oncology
  Gynecologic Oncology
- Excel Award Presentation and Lecture
- New Product Presentations by Exhibitors
- Best Poster and Resident Award Winning Paper Presentations
- Scientific Papers/Videos/Open Forum Presentations
- SLS Special Interest Group Committee (SIG): Laparoscopy Updates

Saturday, October 2, 2004
- Breakfast with Keynote Speaker
- Future Technology Session
- Closing Ceremony

Courses, Sessions and Speakers subject to change.
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*SLS conference,
September 2003, Las Vegas
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Designed for Endoscopic Surgery...

Designed for Access in Bariatric Surgery and other advanced laparoscopic procedures...

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