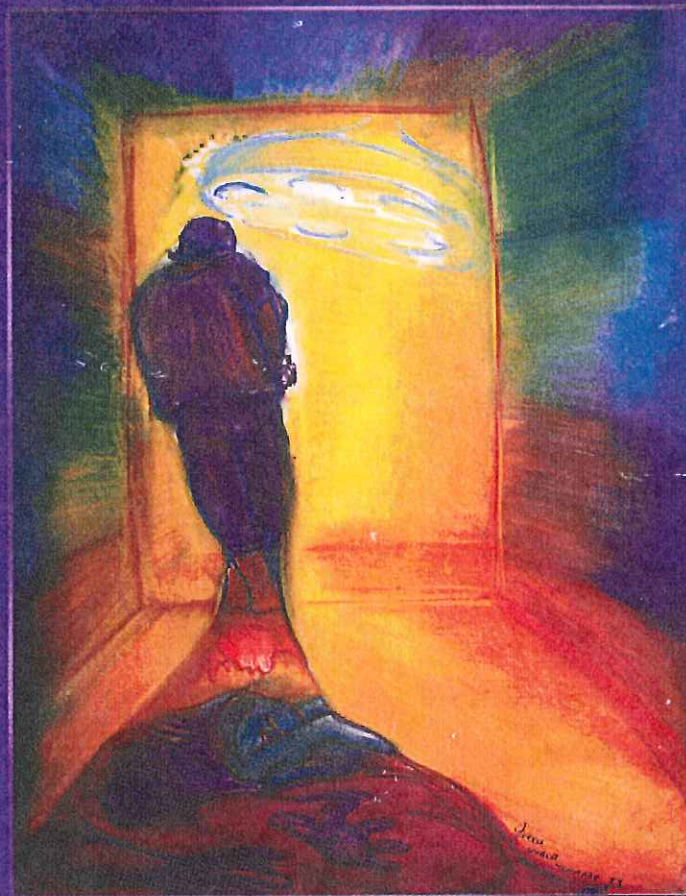


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The organization that aims to bring laparoscopic surgery to a wider audience by teaching the safe application of techniques with emphasis on the avoidance and management of complications.

Final Program

the place of open surgery. More importantly I will also discuss the potential risks of laparoscopic surgery pertaining to myomectomies, as well as the decreased risks pertaining to correctly performed open microsurgical myomectomy. I will also discuss the likely benefits of a well performed open microsurgical myomectomy.

We all accept that the laparoscopic approach is better for some procedures as it reduces hospital stay time, and improves the patient return to work time. This though is not always necessarily the case as I will discuss more fully in the debate. More importantly I will also discuss the reasons why patients in this group have the myomectomies performed, and why the most commonly found complication with laparoscopic myomectomy, namely adhesions, can cause further problems which indeed may be actually greater than the presence of the fibroid in the first place. This is particularly in the case of patients desirous of fertility and in particular patients who would like to try to become pregnant spontaneously after a myomectomy. I would argue that the likely adhesion rate is significantly lower but a well performed microsurgical open myomectomy versus as laparoscopic myomectomy.

Finally here is no point in performing a laparoscopic procedure just because you can do it, when the morbidity associated with it is greater than that found at an open procedure. I will finally discuss that there is absolutely no place for a badly performed laparoscopic or open myomectomy as this is the worse of all worlds!

LAPAROSCOMPLICATIONS OF POST-SURGICAL ADHESIONS

Togas Tulandi MD, MHCM, Professor of Obstetrics and Gynecology and Milton Leong Chair in Reproductive Medicine, McGill University

The estimated prevalence of intrabdominal adhesions after a laparotomy is 95%. Uterine artery embolization for uterine myomas is also associated with intraabdominal adhesions supporting the role of ischemia and inflammatory process. These adhesions can cause infertility, chronic pelvic pain and bowel obstructions. Untreated bowel obstruction has a high incidence of mortality. We previously reported that the most common cause of bowel obstruction is adhesions; and in gynecology, adhesion-related bowel obstruction is commonly found after an abdominal hysterectomy. The fact that 75% of the cases were complete small bowel obstruction suggests the severity of the condition. Of interest, we did not encounter any bowel obstruction after laparoscopic hysterectomy.

Cesarean delivery is also associated with adhesion formation. In fact, the development of dense adhesions is one of the complications to be more common among women who had undergone multiple-cesarean deliveries com-

pared with women who had 2 cesarean deliveries. The presence of dense adhesions can create technical difficulties for the surgeons during repeat cesarean deliveries including increased duration of operation, and increased the risk of injury to adjacent organs including the bladder. Dense adhesions covering the low uterine segment creates a difficulty to expose the surgical field delaying surgery and more importantly delivery of the baby. These examples illustrate how adhesions have a special importance not only in gynecology but also in obstetrics, beyond what is generally recognized in other specialties. When considering adhesions as an obstetric problem, it is important to note that the way a gravid uterus heals following a cesarean section is different than that following a myomectomy or other type of gynecologic surgery in the non-gravid uterus. The physiology and anatomy of the gravid uterus, with the extra-inflammatory response and supplementary blood supply, increases the capacity to develop adhesions. We recently evaluated the incidence of intra-abdominal adhesions after caesarean deliveries. If no adhesions were found in primary cesarean, the incidences after 2, 3, and 4 cesareans were 24.4%, 42.8%, and 47.9% respectively. More importantly, the delivery time was significantly longer at subsequent caesareans. Although the difference was only a few minutes, these differences were significantly higher in each repeated caesarean. This delay is important especially in the presence of fetal distress. There is a need for well-designed, prospective, randomized studies or at least from large retrospective case-matched series to evaluate adhesion after cesarean delivery with and without adhesion-reducing substance and its repercussion on subsequent deliveries in particular and on health in general.

Despite the best surgical techniques, adhesions form in most patients who undergo pelvic surgery. These adhesions can cause abdominal pain, infertility, or bowel obstruction. In addition, the patients may need repeat surgery, and they have increased surgery-related complications.

WHY BAD THINGS HAPPEN TO GOOD PEOPLE DURING LAPAROSCOPY SURGERY

George Vilos, Professor of Obstetrics and Gynecology, University of Western Ontario (UWO), London, Canada

Laparoscopic misadventures may occur at any step of creation of: pneumoperitoneum; insertion of secondary ports/instruments; use of instruments to dissect/cut/secure hemostasis; and removal of tissue when indicated. Complications at any of these steps occur due to one or a combination of three things: bad technique; bad technology; or an act of God! More than 50% of

major injuries (visceral, major vessels) occur during creation of pneumoperitoneum (by any method of entry) requiring cutting with, or inserting sharp instruments blindly. 80% of these injuries are attributable to the primary trocar/cannula, especially in the presence of abnormal or variable patient anatomy and/or suboptimal conditions. Primary access complications may be minimized by strict adherence to familiar and proven techniques and technologies in accordance with clinical practice guidelines. As a rule, complications from secondary ports are avoidable since direct visualization and adequate pneumoperitoneum allow for their safe insertion and removal.

Intra-operative complications may occur due to bad technique (poor judgment, inappropriate knowledge and use of equipment, etc), bad technology (use of equipment with inherent risks and complications) or an act of God (abnormal/variable anatomy, taking calculated surgical risks, etc). Surveys indicate that up to 90% of surgeons, including gynecologists, use monopolar radiofrequency (RF) during laparoscopy and 18% have experienced visceral burns. Moreover, 13% of surgeons admitted to one or more ongoing malpractice litigations due to such burns. The reported frequency (0.3%) of bowel burns experienced during tubal coagulation with monopolar RF was virtually eliminated after the introduction of bipolar RF in 1973. However, with the increased popularity of laparoscopy amongst all surgical specialties, the use of monopolar RF has re-emerged as an integral part of most, if not all, endoscopic procedures. Monopolar electro-surgery is associated with some unique properties with inherent risks and complications. During monopolar electro-surgery, visceral burns may occur by inadvertent direct coupling, capacitive coupling or insulation failure of instruments. These dangers become particularly important with the use of monopolar electro-surgery during procedures using the da Vinci robotic technology, single-port laparoscopy, as well as, NOTES technologies all of which result in close proximity and crossing of multiple instruments within the abdomen. Under these conditions the risks of monopolar RF may be exaggerated. Indeed, during single-port laparoscopic surgery in pigs, we reproduced visceral burns from capacitive coupling currents in instruments with intact insulation, and exaggerated burns from capacitive coupling currents rapidly leading to insulation burns and failure of instruments.

The inherent risks of monopolar electro-surgery may be eliminated by understanding and respecting electro-surgery, the use of alternative sources of energy such as bipolar RF, harmonics, lasers, etc or the application of technologies that safely divert/eliminate stray energy such as the active electrode monitoring (AEM®) system.

LAPAROSCOPIC TRAINING - THE U.K. EXPERIENCE.

Neil Warren, The Welsh Institute for Minimal Access Therapy (WIMAT)

Laparoscopic surgical training formally began in the UK in the early 1990's with the establishment of four centrally funded training units. This was in response to a number of fatalities and complications caused by surgeons attempting more advanced procedures using this relatively new technique. It was driven by the then Prime Minister Margaret Thatcher and the relevant Royal Colleges. Simulated laparoscopic training at this point was in its infancy and was delivered on a very ad hoc basis. There was also a gradual realisation that the old surgical adage "See one, do one, teach one." was no longer acceptable and was arguably unethical. Since then there has been a dramatic increase in the number of laparoscopic training courses run in the UK, the training has been standardised on a national basis with the introduction of the mandatory RCS Basic Surgical Skills Course in 1995, and the RCOG Basic Practical Skills in Obstetrics and Gynaecology in 2002. The meteoric development of virtual reality laparoscopic simulators, which can not only train a variety of practical skills in a safe and controlled environment, but also aid with assessment, measure economy of movement, and number of errors made, has been a great leap forward. Unfortunately, their cost has made their universal uptake prohibitive in the majority of UK training institutions. **A number of other driving factors have also pushed simulated laparoscopic training forward.**

With the dissolution of the old surgical apprenticeship training model, combined with the introduction of the European Working Time Directive in 1998, the majority of trainees and consultants believe this will have a detrimental effect on training, patient care and doctors' lives outside of medicine.

Financial and time constraints have made teaching outside of the operating theatre an attractive proposition. Coupled with the growing body of validation, new procedures can now be practised and proficiency can be acquired on a multitude of simulation platforms.

Modern medical training and patient pressure for treatment by more experienced clinicians have contributed to a reduction in the training opportunities available to junior doctors. There is a growing body of evidence which shows that trainees taught on laparoscopic surgery simulators showed improvement in procedural performance in the operating theatre.

Advances in information technology have led to the successful introduction of simulator-based training in many safety-critical industries such as aviation and nuclear power. Their proven track record and results have slowly filtered through to medicine.