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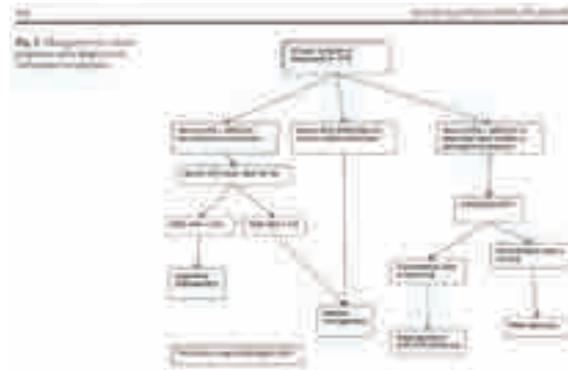
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Revisit the minimally invasive therapy of (tubal) ectopic pregnancy



Salpingo(s)tomy or salpingectomy may result in similar fertility outcomes in subsequent pregnancies. Traditionally, salpingectomy has been the standard procedure, but salpingo(s)tomy provides a conservative option. The choice relies upon many factors and includes shared decision-making between the surgeon and patient.

Conservative surgery: salpingo(s)tomy

The advantage of salpingo(s)tomy is preservation of the tube for potential future fertility. Salpingostomy is preferred for patients who desire future childbearing and in whom the contralateral tube is absent or damaged. The availability IVF has decreased the need to preserve diseased fallopian tubes. However, many patients do not have access to IVF for financial, geographic, or religious reasons. The success rate depends on the skill of the surgeon and thus reported rates of persistent trophoblast vary from 4% to 15%. This failure rate can be reduced with a post-operative dose of methotrexate. Although this has been shown to be cost effective, the risk of side effects has led the recommendations against its routine use. After salpingo(s)tomy, strict protocols must be in place to monitor for persistent trophoblastic tissue and to avoid tubal rupture. Persistent trophoblastic disease does not seem to have impact on future fertility.

Radical surgery: salpingectomy

Salpingectomy is the standard procedure if the contralateral tube “appears” normal, the condition of the tube with the ectopic gestation is damaged (ruptured or otherwise disrupted) and normal anatomy cannot be restored, haemostasis fails to achieve during salpingotomy, future fertility is not an issue, or the gestation appears too large to remove with salpingostomy. Total salpingectomy is preferable as the success rate should be 100%. For patients who have completed childbearing, bilateral salpingectomy may be performed as permanent sterilization and appear to be associated with a reduced risk of ovarian cancer.

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Non-invasive surgery for uterine myoma and adenomyosis

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Uterine fibroids are women's most common benign pelvic tumor, reaching a lifetime incidence of up to 77%. Meanwhile, adenomyosis is also a common disease with a prevalence ranging from 8% to 27%. Symptomatic patients often complain of dysmenorrhea, heavy menstrual bleeding (HMB), chronic pelvic pain, dyspareunia, and infertility, which highly impact the quality of daily life. The management options at present include medical, nonsurgical, and surgical treatment. Medical management can be effective but often transient, leaving surgical management the gold standard for adenomyosis and uterine myomas treatment such as hysterectomy and myomectomy. Unfortunately, it is unsuitable for women who strongly desire to preserve the uterus and fertility. Therefore, some less invasive treatments have sprung up, such as high-intensity focused ultrasound ablation (HIFU), image-guided radiofrequency ablation (RFA), and microwave ablation (MWA).

HIFU utilizes ultrasound imaging guidance and the principle of magnification to focus low-energy ultrasound. It creates a high-energy focal point on tumors or targeted tissues, generating heat up to 60 degrees Celsius or higher. It induces localized coagulative necrosis, effectively shrinking and dissolving tissues due to the lack of blood flow. The average treatment time for HIFU uterine fibroid ablation is about 1-2 hours or longer. Patients might feel mild heat in the abdomen during the treatment, and mild analgesics are provided to alleviate discomfort. This non-invasive treatment is effective and non-invasive but quite time-consuming compared to other procedures. The lesions' location and vascularity may limit their indication and effectiveness.

In our experience, over 1000 cases have been served in Kaohsiung Medical University Hospital. Thirty patients, keep counting, had successfully conceived and delivered babies after undergoing HIFU treatment for uterine fibroids or adenomyosis. In a time-saving way, as soon as three months after the HIFU treatment, patients who desire pregnancy can start conception.

RFA and MWA are similar in process, in which the electrode or antenna is directly inserted into the lesions under ultrasound (US) guidance, and the generated heat acts straight on the target tissues, but different kinds of energy are used. However, there will be incision wounds compared to HIFU, which does not need incisions ultimately. RFA is a high-frequency alternating electrical current that creates ionic agitation, producing frictional heat to achieve tissue necrosis. Microwave ablation is one of the most recent and exciting

technological advances in the thermo-ablative field, which uses electromagnetic energy to rotate adjacent polar water molecules and produce heat rapidly. According to previous studies, RFA and MWA are both effective in treating uterine tumors such as leiomyoma or adenomyosis. Since no cutting of the uterus and no sutures are required, such as in traditional surgery, little adhesion and blood loss will be created. Still, thermal injury to nearby tissue and organs is a potential risk. Hence, ultrasound and laparoscopy-guided are often used in these procedures, and a safe distance from the serosa of the uterus should be carefully monitored. Last but not least, when under laparoscopy-guided, adnexa tumors can also be treated at the same time since patients with adenomyosis are often affected by endometrioma simultaneously. From this point of view, RFA and MWA have their strength that HIFU cannot replace.

Our center has served MWA under laparoscopy- and ultrasound-guided since November 2021. In our analysis, patients who underwent this promising technique to treat uterine fibroids and adenomyosis had significant improvement in UFS-QOL, PBAC, and VAS questionnaires at a short-term follow-up. A thorough pre-operative survey and plan are absolutely needed. Additionally, the learning curve should be managed. With more knowledge and skill in controlling the ablation field design, the extent of tumor regression and patient satisfaction will be more excellent. Longer follow-ups are still under our surveying.

To summarize, each has advantages and disadvantages among all traditional and novel operation techniques. Therefore, it is crucial to tailor the plans for the patients according to their clinical conditions and actual needs. For less invasive or non-invasive surgery, the length of hospital stays and sick days from work can be significantly decreased from the traditional surgery, which provides a cost-saving and pain-decreasing solution for women nowadays.

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Enhancing ERAS in Gynecologic Laparoscopy

黃寬仁

Despite updated evidence supporting, many Enhanced Recovery After Surgery (ERAS) recommendations remain poorly adhered to and barriers to ERAS implementation persist. Laparoscopic approach has overcome major part of peri-operative care in gynecological surgery.

2023 update Enhanced recovery after surgery ERAS® society guidelines for gynecologic oncology. (Gynecologic Oncology 173 (2023) 58–67)

Question: Is perioperative oral intake safe and how can I convince my anesthesiologist?

Recommendation: In alignment with anesthesiology society guidelines, patients should be encouraged to consume clear liquids until 2 h prior to surgery. Preoperative carbohydrate loading prior to surgery improves patient satisfaction and comfort.

Question: Preoperative medications - which are the most important?

Recommendation: Medications including NSAIDs, acetaminophen and gabapentinoids can be administered preoperatively, especially in the context of a multimodal opioid sparing protocol. Gabapentinoid use should be extremely limited in elderly patients.

Question: How do I manage patients with penicillin allergies?

Recommendation: Patients with a reported penicillin allergy should receive the standard surgical antibiotic prophylaxis including cefazolin or ertapenem when indicated.

Question: What is the best approach to intraoperative analgesia?

Recommendation: Techniques such as wound infiltration with local anesthetic and TAP (transversus abdominis plane) block are preferred over TEA (thoracic epidural analgesia) given the potential for complications and side effects.

Question: How should I manage urinary drainage?

Recommendation: Indwelling bladder catheters should be removed as early as possible in the postoperative period (on the day of surgery for MIS, and no later than POD1 for laparotomy) unless contraindications exist.

Question: What is appropriate venous thromboembolism (VTE) prophylaxis?

Recommendation: Patients at increased risk of VTE should receive dual prophylaxis with mechanical compression and chemoprophylaxis, initiated preoperatively. Extended chemoprophylaxis should be prescribed to patients who meet high-risk criteria or undergo laparotomy for gynecologic malignancy. Extended prophylaxis with LMWH (low molecular weight heparin) or DOAC (direct oral anticoagulant) are equally effective and safe. Extended prophylaxis is of limited value in MIS patients.

Question: What constitutes appropriate postoperative opioid prescribing?

Recommendation: Multimodal opioid-reduction strategies for postoperative pain control are critical to employ in the inpatient and outpatient settings. Decreased post-

discharge opioid prescribing is feasible with a team approach and does not affect pain control or patient satisfaction. PCA (patient-controlled analgesia) is rarely required and should be used as a last resort for patients requiring repeated treatment with IV opioids.

Question: How do I create a successful same day discharge (SDD) program?

Recommendation: Multidisciplinary SDD programs should be considered for minimally invasive gynecologic oncology procedures. Implementation requires multidisciplinary collaboration, education, patient and case selection, and ERAS perioperative principles.

Question: How can I overcome barriers to ERAS implementation?

Recommendation: Barriers to successful implementation can be overcome with adherence to change management principles and education. Communication of the economic benefits of ERAS to healthcare administrators may be a strong incentive to garner support for implementation.

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Are we ready for the reimbursement requirements of gynecologic robotic surgery

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Today, laparoscopic surgery refers to a minimally invasive procedure of the abdomen that gains access to a very focal area without a large incision and renders a minimal formation of scar tissue. The intraoperative benefits of the laparoscopic technique include minimal blood loss, less adhesion formation and better visual perspective. It is clear that gynecologists can manage gynecologic diseases after more than thirty years of experience with laparoscopic procedures. Many patients with both benign or malignant diseases may benefit from laparoscopic myomectomy, laparoscopic radical hysterectomy, laparoscopic staging, evaluation, or a combination of them. More and more gynecologic surgeons in Taiwan perform laparoscopic assisted surgeries for complicated myomectomy and radical hysterectomy for the management of uterine fibroids and early-stage cervical cancer, respectively. However, these techniques have not seen widespread adoption in Taiwan because of technical difficulties, long surgeons' learning curve and long operative time. In addition, counterintuitive hand movements, two-dimension visualization, and limited degrees of instrument motion within the body as well as ergonomic difficulty and tremor amplification constitute other obstacles for acceptance and wide application of minimally invasive surgery.

Ever since the approval of DaVinci robotic surgical system for gynecologic surgery by FDA in 2005, the rapid adoption of robotic assisted surgery among gynecologists is attributed to the advantages of 3D vision, wristed instruments and improved ergonomics. More and more gynecological surgeons employed robotic-assisted procedure for the management of gynecological diseases. While robotic-assisted surgery has become a popular and widespread technique accepted by gynecologists as an appropriate alternative to laparoscopic surgery in the management of patients with gynecologic diseases, the Taiwan' s National Health Insurance (NHI) program currently only provides for the laparoscopic surgery. The NHI program in Taiwan is a universal single-payer health insurance program that has been providing comprehensive coverage for all civilian residents in Taiwan since 1995. Robotic-assisted surgery is currently not covered under the NHI program, and it is an out-of-pocket cost for patients receiving the operation. However, starting on March 1, 2023, Taiwan' s NHI has covered some different surgical

procedures performed by the robotic assisted surgery. Past research has shown that health insurance status is an important nonclinical predictor influencing women' s decisions on the use of robotic-assisted surgery for gynecologic diseases. The long-term impact of the coverage of robotic-assisted surgery under the Taiwan' s NHI program deserves considerable attention. An important question is how do we maintain the quality of care among women who undergo robotic-assisted surgery for both gynecologic benign and precancerous indications? I suggest that the gynecologist who is being credentialed must include satisfactory completion of an accredited gynecologic residency program to perform robotic-assisted surgery or proctored for a minimum of three cases by a certified gynecologist with such experience. In my experience, when compared to laparoscopic surgery, robotic surgery can perform more complex surgeries such as anastomosis, lysis of adhesions, and are particularly suitable for obese patients or those with large uteri. Under the coverage of Taiwan' s NHI program, I believe, in the future, robotic-assisted surgery will become a popular and widespread alternative to laparoscopic surgery in the management of patients with gynecologic diseases by gynecologists in Taiwan.

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Current trends and future perspectives in Gynecologic pelvic reconstructive surgery

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Pelvic Organ (POP) is a worldwide health problem affecting about one third of women, especially on aging, parity and conditions increasing abdominal pressure are risk factors of POP. Apical prolapse of POP is the most troublesome reported in 5 to 15% women needed management.

Apical prolapse of POP can be corrected by abdominal or transvaginal approach. For advanced POP, higher recurrence rates between 6% and 40% in native tissue repair have raised the need of other treatment opinions. Lower recurrence rate was reported with transvaginal mesh(TVM) repair as compared with native tissue repair in cochrane review. However, high complications of mesh erosion, pain, vaginal infection and dyspareunia after TVM procedures. On April 16,2019, The U.S.A. FDA ordered all manufactures of surgical mesh products intended for TVM of anterior compartment prolapse to stop selling and distributing their products immediately.

However, TVM for pelvic organ prolapse is still most common procedure in Taiwan.

This is mainly due to the fact that older patients have lower anesthesia risks during TVM surgery, the operation time is shorter than transabdominal pelvic reconstruction. Our physicians are more familiar with transvaginal surgery. Moreover, papers published from Taiwan have reported that TVM have a higher success rate and lower mesh exposure incidence than that published in Europe and United States. But for the younger prolapse patients, it is more beneficial to perform transabdominal pelvic reconstructive surgery.

Since then, Laparoscopic Abdominal sacrocolpopexy (ASC) became the trends in advanced POP surgical treatment in minimal invasive surgeons. But, there are still some difficulty of ASC procedures in longer learning curve, time-consuming, and procedure-related morbidity needed to be overcome. LSC ASC is a well-known technique in POP management and considered as the gold standard procedure for apical prolapse of POP repair. However, due to the difficulty of LSC ASC and the morbidity of GI tract, let surgical physicians are hesitant to proceed. So, we proposed a different surgical method, which is to approach from anterior of pelvic cavity. Using artificial mesh to fix the apex of pelvis and bilateral mesh is fixed to bilateral iliopectineal ligament. This approach method can prevent surgical complication of GI tract and more easier to perform procedures for obesity patients. This new LSC technique for apical prolapse repair was developed and called "pectopexy" was presented in 2011 by Bannerjee and Noe. LSC pectopexy offered more simple surgical procedure, reduced surgical difficulty, shortened the learning curve and operative time. In recently literature, LSC pectopexy has been used as an alternative method in patients having difficult to perform LSC ASC.

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Techniques to Avoid Intraperitoneal Tumor Cell Spillage in MIS Oncology

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Key successful treatment for cancer surgery consists of appropriate surgical staging and optimal surgery. Since the early 1980s, it has become evident that less invasive methods of interventional treatment have produced far fewer complications with a reduced risk of morbidities such as decreased blood loss, faster recovery, and shorter hospital stay. Minimal invasive surgery (MIS) has become increasingly popular and performed extensively. Minimally invasive approach to endometrial cancer which was associated with reduced surgical morbidity and good oncologic outcome had been an accepted treatment for the past two decades. This held true in early-stage Cervical Cancer until findings from the first prospective, randomized controlled trial comparing survival of cervical cancer patients who underwent open radical hysterectomy and minimally invasive radical hysterectomy (LACC study). It was shown in the trial that minimally invasive surgery (MIS) was associated with poorer disease-free survival and overall survival. They proposed the possible reasons may affect the survival of LRH including uterine manipulator and pneumoperitonem. However, in many other centers have compared their data to those of the LACC trial and findings were inconsistent. After the year 2005, the surgical technique for laparoscopic radical hysterectomy has become standardized with emphasis on tumor free concepts, extent of radicality, parametrium and paracolpium resection, and tumor free specimen retrieval through the vagina in our institute. The 100 percent 5-year disease free survival rate for cervical cancer is achievable. In oncologic surgery, strictly adhering to the "Tumor- Free" concept in operative field is very important concepts especially in tumor retrieval. Here, we demonstrate the techniques in MIS oncology surgery.