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Methods of Extracting Myoma During Laparoscopic Myomectomy

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Extraction of large myoma after laparoscopic myomectomy has been a great challenge to many minimally invasive surgeons. Uterine tissue power morcellator was introduced in 1993 to extract myomas and uterus during laparoscopic surgery. We previously reported the use of in-situ morcellation during laparoscopic myomectomy that allows more effective and time saving in large myomas and uterus. However, due to the concerns of tissue dissemination and upstaging in cases of occult uterine malignancy, power morcellation was discouraged by Food and Drug Administration (FDA) in Aprol 2014. The safty concerns of power morcellation have been raised since its start of use. Direct tissue injury from the morcellation process is a major issue. Parasitic myomas (52%) and disseminated peritoneal leiomyomatosis (32%) are two major issues reported in the benign sequala from morcellation. In-bag morcellation accompanied with checking for uterine cells in pelvic washings after contained morcellation was reported to reduce benign tissue dissemination incidences to less than 2%. Unfortunately, in bag morcellation was not commonly used by surgeons in Taiwan. Some surgeons preferred culdotomy to extract uterine myoma after laparoscopic surgery. But most surgeons preferred myoma extraction by hand morcellation from umbilical wound after laparoscopic myomectomy. In this talk, I will show my technique of hand morcellation that is time saving and no tissue dropped out duing myoma extraction after laparoscopic myomectomy.

Keywords: myoma extraction, laparoscopic myomectomy

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Fibroids and Fertility: When to operate: MIS or Laparotomy

Fibroids are the most common benign tumours of the female genital tract and are associated with numerous clinical problems including a possible negative impact on fertility. In women requesting preservation of fertility, fibroids can be surgically removed (myomectomy) by laparotomy, laparoscopically or hysteroscopically depending on the size, site and type of fibroid. Myomectomy is however a procedure that is not without risk and can result in serious complications. It is therefore essential to determine whether such a procedure can result in an improvement in fertility and, if so, to then determine the ideal surgical approach.

One study examined the effect of myomectomy compared to no treatment. Results found insufficient evidence to determine a difference between treatment options for clinical pregnancy rate or miscarriage rate. This study did not report on live birth, preterm delivery, ongoing pregnancy or caesarean section rate. Regarding the best surgical approach, three studies were identified. Two studies compared myomectomy by mini-laparotomy or laparotomy to laparoscopic myomectomy and found insufficient evidence to determine a difference for live birth, preterm delivery, clinical pregnancy, miscarriage, caesarean section and ongoing pregnancy rate. The third study compared use of different surgical equipment during hysteroscopic myomectomy and found insufficient evidence to determine a difference for live birth/ongoing pregnancy rate, clinical pregnancy rate and miscarriage rate. This study did not report on caesarean section or preterm delivery rate.

In short, in asymptomatic women with cavity-distorting myomas (intramural with a submucosal component or submucosal), myomectomy (open or laparoscopic or hysteroscopic) may be considered to improve pregnancy rates.

Myomectomy is generally not advised to improve pregnancy outcomes in asymptomatic infertile women with non-cavity－distorting myomas. However, myomectomy may be reasonable in some circumstances, including but not limited to severe distortion of the pelvic architecture complicating access to the ovaries for oocyte retrieval.

In determining the effect of myomectomy on fertility outcomes is regarding the use of laparoscopy versus laparotomy. However, the difficulty with comparing the two abdominal approaches remains the fact that there is a large variation in surgical practice, for example level of skill, surgical technique and use of anti-adhesion agent, all of which may influence fertility outcomes.

It is clear that more studies are needed before a consensus can be reached on the role of myomectomy for infertility.

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Ovarian Reserve in Endometrioma Surgery

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Endometriosis (EM’ sis), a disease defined by the ectopic growth of endometrium, is an estrogen-dependent and chronically inflammatory disease, and that typically manifests debilitating pain, ovarian mass, or subfertility. Endometriotic ovarian cyst or endometrioma (Em’ ma) is the most pathognomonic feature of EM’ sis, always brings the affected women presenting to gynecologic (endoscopic) surgeons or reproductive medicine specialists. However, the detrimental effects of Em’ ma stripping cystectomy on ovarian reserve as well as its surgical indications in infertile patients has been a long-time debated issue.

EM’ ma *per se* could affect ovarian reserve, which was implied when histological studies reported a significant reduction in the primordial follicle cohort in affected ovaries. Recent systematic and meta-analysis review found that Endometriotic cystectomies are associated with a significant reduction in the serum anti-Mullerian hormone (AMH) levels but not in the antral follicle counts (AFCs), with the detrimental effects on the AMH levels consistently detectable at the early (1 week to 1 month), intermediate (6 weeks to 6 months) and late (9– 12months) time points. The effect is more profound following bilateral as compared to unilateral endometrioma excision. Maximum post-operative AMH drop, during the analysis, was 39.5% and 57.0% in the unilateral and bilateral Em’ ma cystectomy groups, respectively, far exceeding any natural decline in AMH. Since low AMH implies a shorter reproductive lifespan, excision of endometrioma should be cautiously considered, especially in bilateral cases.

The ovarian reserve damage was most likely caused by the excessive manipulation of the cortex with subsequent tearing, bleeding, and the need for hemostasis. Studies from histologic analysis of specimens from laparoscopic EM’ ma excision performed by different surgeons has revealed the level of expertise in EM’ sis surgery is inversely correlated with inadvertent removal of healthy ovarian tissue along with the EM’ ma capsule. Specimens obtained via surgery performed by residents have statistically significantly more ovarian tissue when compared with those obtained by experienced surgeons with years of practice in the field of reproductive and EM’ sis surgery. In experienced hands, laparoscopic stripping of EM’ mas appears to be a technique that does not significantly damage the ovarian tissue.

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The Approach Method in Difficult Staging Surgery for Endometrial Cancer

Since the first documentations of laparoscopic lymphadenectomy by Dargent in 1987 to the comparison of laparoscopically assisted radical vaginal hysterectomy (LARVH) with radical abdominal hysterectomy (ARH) by Steed et al. in 2004, long-term follow-up and comparative studies highlight the use of modern laparoscopy in the field of gynecological oncology. It is clear that we can manage several gynecologic malignancies after more than twenty years of experience with laparoscopic procedures. Laparoscopy has emerged as the new surgical approach that can potentially replace the conventional role of surgery by laparotomy for the treatment of patients with endometrial cancer. This type of surgery is associated with significantly more benefits than the conventional laparotomy. It renders the patients little blood loss, short hospital stay, quick recovery time, less need for analgesia, rapid return to normal daily activity, and a better cosmetic appearance. Moreover, laparoscopy not only possesses an outstanding feature of minimal postoperative peritoneal adhesion, but it also does not compromise the survival and recurrence rates of the patients with early endometrial cancer. Laparoscopic tools do have their limitations, however, particularly in very obese women.

In 2005 the DaVince robotic surgical system received FDA approval for gynecologic surgery. Since then, many institutions have published several series documenting feasibility and benefit over laparoscopy in endometrial cancer treatment. The rapid adoption of robotic assisted surgery in endometrial cancer treatment is attributed to the advantages of 3D vision, wristed instruments and improved ergonomics.

Para-aortic Lymphadenectomy, either a partial lymphadenectomy (lymph node sampling) or complete lymphadenectomy provides the most accurate information on lymph node status in patients with endometrial carcinoma. The lymphatic dissemination of tumor cells is one of the main metastatic routes of early-stage endometrial cancer. Nodal metastases have important prognostic and therapeutic implications on the survival of these patients. Improvements in laparoscopic or robotic surgical techniques and instrumentation have made it feasible to perform surgical staging of endometrial cancer. In this conference, I would like to discuss the approach method of laparoscopic and robotic staging surgery in endometrial cancer.

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The New Advances in Treating Tubo-ovarian Abscess

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Tubo-ovarian abscess is a serious and potentially life-threatening condition requiring aggressive therapies. TOAs occur in 15% of women with pelvic inflammatory disease (PID) with 100,000 admissions per year in the United States. Approximately 25– 30% of all patients require surgical intervention.

Treatment of PID complicated by tubo-ovarian abscess includes broad-spectrum antibiotics, minimally invasive drainage procedures, laparotomic or laparoscopic surgery. There are no specific criteria or recommendations for surgical intervention. However, laparoscopy may help with early resolution of the disease by dividing adhesions and draining pelvic abscesses. Moreover, minimally invasive surgery may have clinical advantages over laparotomy in patients with moderate to severe PID requiring surgical intervention including fewer blood transfusions, decreased postoperative length of hospital stay and decreased surgical complications. Surgeries for tubo-ovarian abscess can be very complicated because of extensive intrapelvic adhesions and surrounding necrotic and inflamed tissues. The most propriate treatment should be depended on the skill and experience of the surgeon.

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How to Explain the Benefits in Laparoscopy Ovarian Cancer Surgery

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According to the published statistics in 2020, ovarian cancer is the 10th causes of mortality in Taiwan. In general, ovarian cancer is managed by comprehensive surgical staging through laparotomic bilateral salpingo-oophorectomy, total abdominal hysterectomy, omentectomy, aortic and pelvic lymphadenectomy, peritoneal biopsies, and peritoneal washing and followed by chemotherapy or chemotherapy with or without target treatment. With the advancement of laparoscopic instruments, laparoscopic surgery in early-stage ovarian cancer starts since -1990s. There was some merits of laparoscopic staging surgery for early stage of ovarian cancer which includes the better cosmetic, postoperative pain, less blood loss, and shorter hospital day. However, there are some disadvantages such as difficult manipulation of large or adhesive tumor, rupture of the ovarian capsule, and the risk of trocar site metastasis. In addition, some studies have controversies about the accuracy of complete surgical staging and transperitoneal tumor dissemination. Today, we will explore the effectiveness of minimal invasive surgery for the treatment of early-stage ovarian cancer.