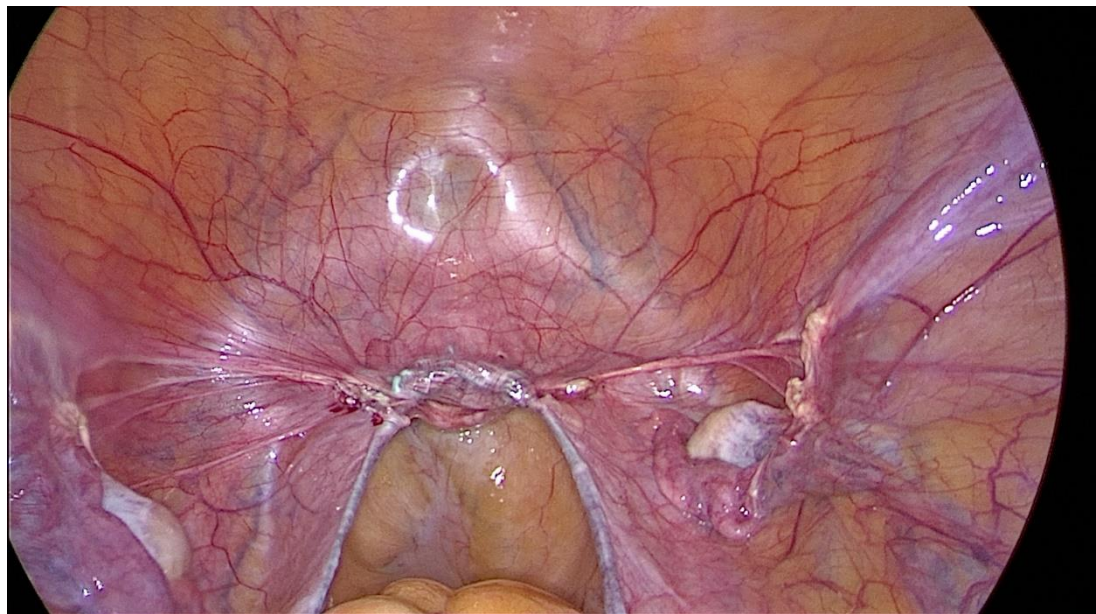
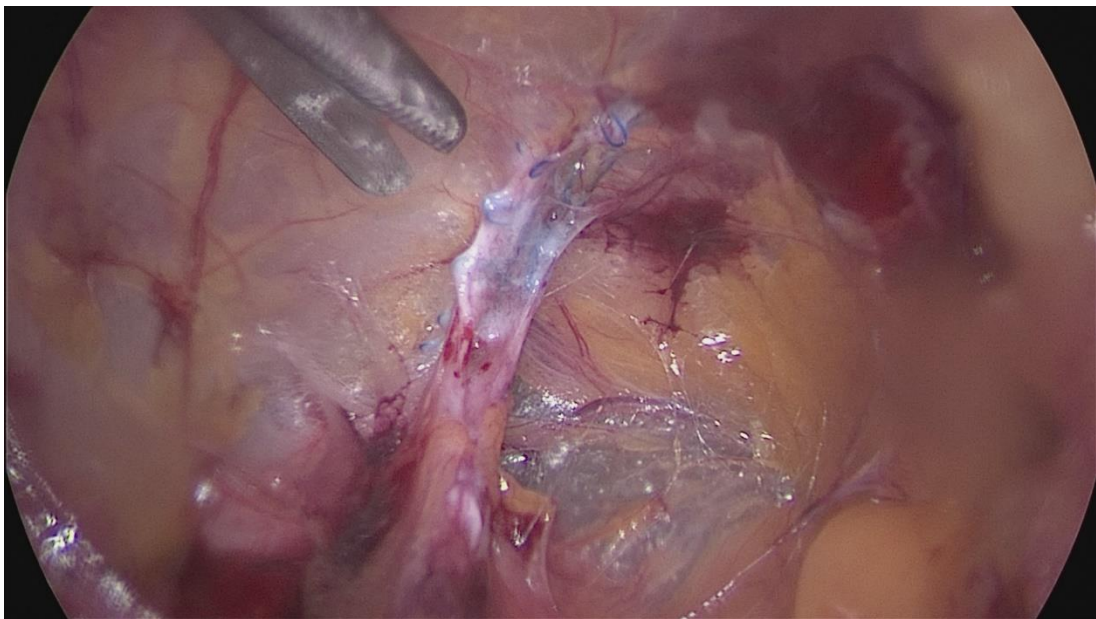




 **the Trocar**
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ISGE discussed LACC Trial in China

The LACC Trial was published for the first time in November 2018 and had already been discussed in contributions to congresses. The background was a randomized prospective study comparing laparoscopic with open radical hysterectomy. To the astonishment of the professional world, the study showed a significantly worse outcome for the patients if they had been operated laparoscopically or robotically. Since it was a prospective, randomized study, the holy grail of science, it had a huge impact on the way surgeons worldwide performed from then on. In order to avoid legal problems, many professional societies have recommended laparotomy, some advised surgeons to advise patients intensively on the basis of their own data. To discuss the current status PKU & ISGE Cervical Cancer and Endoscopy Workshop was held virtually June 19th in a hybrid session with Chinese colleagues. Dr Jianming Song from Oregon and Washington State Hospitals had arranged the meeting.

Dr Samar Nahas from Riverside Community Hospital (California) spoke about the current situation in the USA and their way of dealing with the situation. Four experts from Europe and two from the USA discussed the different approaches with the Chinese panel. It was agreed that a single RCT should not have such a strong influence on medical procedures.

Especially since the LACC trial has pronounced weaknesses that are obvious. The supposedly high number of patients was generated with an inappropriately high number of participating clinics. Numerous participants brought significantly below average patient numbers into the study. The reason to be assumed is inexperience in the procedure or an overall low rate of procedures carried out annually. Numerous studies have determined the number of operations a surgeon should perform to achieve good status. For laparoscopic hysterectomy (TLH), an average case number of around 30 cases has been determined before the operation time drops to a reasonable period of time the uterus weight can exceed 240 grams (BelcoHyst 1995; prospective observational multicenter study in Belgium published in *Zentralblatt für Gynaekologie*).

These are hysterectomies with benign indications. For the implementation of a radical TLH in oncology, the competence of the surgeon should therefore be discussed rather than generally questioning MIGS in oncology.

The biological examination of the tumor risks showed a high degree of heterogeneity and overall poor processing. A really good standard was not ensured between the clinics. In addition, the poor results were only seen in a limited number of the participating clinics. Evidence-based medicine is very important and RCT is an important pillar. However, the patient's wishes and opinions should play a decisive role. The RCTs, if performed correctly and well-planned, can provide very valuable information. But you can prove almost anything with a bad concept. This does not mean that the authors of LACC are to be blamed for trying to prove something one way or another. Trying to recruit a large number of patients unfortunately misled the well-intentioned trial.

There was disagreement as to how the LACC trial can best be countered. On the one hand, one could oppose a well-organized multicenter study, but some were convinced that good single-center studies are sufficient, since cancer surgery should only be reserved for specialized centers. There was agreement to dispense with manipulators that affect the

cervical canal. In addition, most of them agreed not to have an operation for high risk and large tumors. On the one hand, because an improvement in the outcome is doubtful and, on the other hand, the patients need radio-chemotherapy anyway. The majority of those taking part in the discussion assumed that laparoscopic radical hysterectomy has a future, unless new knowledge completely advised against the operation.

What remains in any case is that the strong focus on RCTs must be viewed very critically. Personally, however, I consider multicenter prospective studies to be mandatory for many surgical techniques in order to be able to assess to what extent an operative procedure can also function outside of the specialized centers. The LACC trial has at least essentially confirmed that this surgery belongs exclusively in the hands of specialists.

Best regards

Günter Noé

ISGE discussed LACC Trial in China
Guenter Noé

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Summary of the International Society for Gynecologic Endoscopy guidelines for patient selection and performance of vaginal hysterectomy

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Abstract

Previous published guidelines for patient selection and performance of vaginal hysterectomy of the International Society for Gynecologic Endoscopy are summarized and discussed in this Publication. The ISGE task has worked out these recommendations and this article highlights a brief overview for daily practice.

Key words: guidelines, minimally invasive gynaecological surgery, summary, vaginal hysterectomy

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Introduction:

The recommendations of the International Society for Gynecologic Endoscopy (ISGE) for the selection of women with non-prolapsed uterus for vaginal hysterectomy (VH) and the recommendation on the VH technique were published in the European Journal of Obstetrics & Gynecology and Reproductive Biology, in 2018 and 2020, respectively (1, 2). This article aims to summarize these guidelines authored by Andreas Chrysostomou, Dusan Djokovic, William Edridge and Bruno J. van Herendael, and provide information on more recent publications on the same topic.

Material Method:

The ISGE Task force conducted a large literature search from Medline, PubMed, Cochrane Database as well as international and national guidelines and established evidence-based recommendations graded by the level of evidence, using the GRADE approach (**Table 1**), proposed by the Grading of Recommendations, Assessment, Development and Evaluation Working Group (<https://www.gradeworkinggroup.org>). In preparing this paper, the same method was repeated to find newer relevant literature and guidelines related to the VH.

ISGE recommendations for the selection of women for vaginal hysterectomy:

The vaginal route should be considered the preferred choice in women undergoing hysterectomy for benign indications (Grade 1B), as it is the safest and most cost-effective one (reviewed in (1)). The laparoscopic approach should be performed when VH is contraindicated or not technically feasible (Grade 2B). Abdominal hysterectomy (AH) should be performed in cases where the uterine pathology rules out minimally invasive approaches (**Figure 1**).

Regarding the conditions that are traditionally considered contraindications, the evidence shows that VH can be safely performed in nulliparous women, women without uterine prolapse, with an enlarged uterus up to the size corresponding to a 12-week gestation, with one or more previous caesarean sections, previous laparotomy or premalignant cervical or endometrial disease (Grade 2B). The surgeon must keep in mind the prerequisites for a successful VH: surgeon personal experience/VH training, vaginal accessibility, size and mobility of the uterus and the pathology confined to the uterus (Grade 1B) (**Figure 1**).

A good vaginal accessibility requires a wide pubic arch, favourable vaginal shape and uterine descent. The uterus must be mobile, with an estimated size < 12 weeks of gestational on the clinical evaluation or with an estimated weight ≤ 280g on the ultrasound exam. If there is known or suspected extra-uterine pathology (*e.g.*,

adnexal disease, endometriosis, adhesions), the evidence shows that it is best to perform laparoscopically-assisted vaginal hysterectomy (LAVH) to restore the anatomy before the performance of the VH.

Prophylactic bilateral salpingectomy with ovarian conservation should be undertaken routinely during hysterectomy, as it has shown to prevent ovarian cancer. The removal of the ovaries is only recommended if there is ovarian disease or in women who have high risk of developing ovarian cancer (*e.g.*, carriers of the BRCA1 and BRCA2 genes' mutation), as its removal is associated with higher risk of osteoporosis and cardiovascular diseases (Grade 2B). LAVH should be employed if the salpingo-oophorectomy is needed (Grade 2B).

ISGE recommendations on the surgical technique of vaginal hysterectomy:

The ISGE Task Force established six recommendations for vaginal hysterectomy for the non-prolapsed uterus (**Table 2**).

The patient should be placed in dorsal lithotomy position. Before starting the surgery, the skin and vaginal area should be prepared in the usual fashion and the urinary bladder emptied. The cervix should be exposed, by positioning anterior and posterior retractors, and then pulled into the vaginal introitus. To help the descent of the

uterus, the surgeon can massage the uterosacral (USL) and cardinal ligaments (CL).

A circular incision around the cervico-vaginal junction is recommended (Grade 1C), deep enough to reach the pubo-cervical fascia. Then, the vaginal mucosa is pushed up, and a retractor should be placed anteriorly to the uterus. The posterior peritoneum should be opened first (Grade 1C), and then, the anterior peritoneum. The exposure of the utero-vesical pouch is the most critical step of the VH, as it ensures urinary bladder protection.

Thereafter, the USL and the CL are clamped together (perpendicular to the uterine long axis) (Grade 1C), cut and ligated with 0 or 2.0 delayed absorbable suture. The procedure is then repeated on the contralateral side. At this point, the uterine vessel pedicle is identified, clamped, cut, and ligated with 0 or 2.0 delayed absorbable suture. After this step, the routine opening of the anterior peritoneum should be avoided.

Finally, the upper part of the uterine support: round ligament, ovarian ligaments, and fallopian tubes, are clamped, cut, and ligated bilaterally. The adnexa can be removed with the uterus or after the removal of the uterus. The proposal of this group is to remove the uterus first.

Routine closure of the peritoneum during VH is not recommended (Grade 1B). The advantage of leaving the peritoneum opened is allowing free

drainage of blood and, therefore, preventing haematoma formation. After the removal of the uterus, the vaginal vault can be closed in a vertical or horizontal manner (Grade 1C) since the evidence showed no benefit from one over the other. In a horizontal way, each angle of the vagina is closed separately, holding the USL / CL complex on each side, followed by a continuous interlocking suture, bilaterally, such that both sutures meet in the middle.

After the procedure, it is not routinely recommended to insert a vaginal plug (Grade 1B), as its risks outweigh the benefits. In the cases where it is decided to be performed, a urinary catheter must be inserted. The removal of both the packing and the catheter should be done 24h postoperative.

Discussion and Conclusions:

Hysterectomy is the most common surgical procedure worldwide in gynecology (3). Surgeons can perform hysterectomy through different methods and these include VH, AH, laparoscopic hysterectomy (LH), LAVH. Among all, VH is associated with less postoperative pain, less intra and postoperative complications, shorter hospital stay and faster return to daily activities (reviewed in (1) and (2)). Despite these advantages, all large-scale surveys show that AH remains the most frequently chosen route (4). A lack of experience among gynecologists in performing VH and inadequate VH training

during residency, due in part to a lack of standardized surgical technique, are major causes of low VH rate among qualified specialists.

The ISGE guidelines aim to promote the vaginal route for hysterectomy, as it is an appropriate first choice for benign uterine diseases in many patients, being safer, more economical, and having fewer complications compared to other approaches. There have been no recent guidelines and updates in the international literature on this topic since the publication of the ISGE articles or relevant studies that could result in significant changes in the recommendations.

By standardizing the patient selection process, clarifying the contra-indications for VH and detailing the surgical technique, the evidence-based recommendations and their implementation on a wide scale are expected to increase the VH rates in gynecology departments, primarily as a consequence of the implementation of appropriate surgeon/resident training programs. A publication in press demonstrates that the formal institutional guidelines promote the vaginal approach to hysterectomy in patients with benign disease and non-prolapsed uterus, and shows that such measure, when adopted by a University Unit in South Africa, led to an increase in the VH/AH ratios from 1/10 to 1/1 over 13 years (5). The

ISGE guidelines served as the basis for the elaboration of the institutional protocols in the departments of the authors of this communication.

To summarize, the ISGE evidence-based recommendations permit that VH is offered to a large group of appropriately selected women, while promoting the teaching VH technique during residency. Future studies will indicate the effects of these clinical and education strategies.

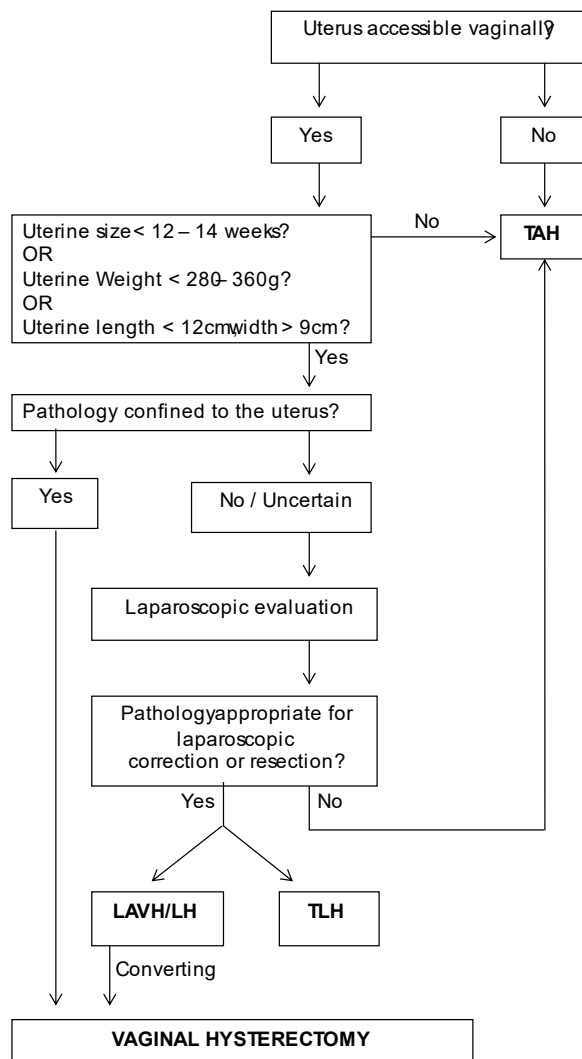


FIGURE 1.

Determining the route of hysterectomy for benign disease (clinical examination and pelvic ultrasonography-based approach). *Abbreviations:* LAVH, laparoscopic-assisted vaginal hysterectomy; LH, laparoscopic hysterectomy; TAH, total abdominal hysterectomy; TLH, total laparoscopic hysterectomy.

Figure 1. Determining the route of hysterectomy for benign disease – clinical examination and pelvic ultrasonography-based approach (reproduced by permission from Chrysostomou *et al* (1)). *Abbreviations:* LAVH, laparoscopic-assisted vaginal hysterectomy; LH, laparoscopic hysterectomy

Tables:

Table 1. GRADE approach – grading of recommendations, risk/benefit and quality of supporting evidence (reproduced by permission from Chrysostomou *et al.* (1)).

Grade of recommendation	Risk/benefit	Quality of supporting evidence
1A. Strong recommendation, high quality evidence	Benefits clearly outweigh risk and burdens, or vice versa.	Consistent evidence from well performed randomized, controlled trials or overwhelming evidence of some other form. Further research is unlikely to change our confidence in the estimate of benefit and risk.
1B. Strong recommendation, moderate quality evidence	Benefits clearly outweigh risk and burdens, or vice versa.	Evidence from randomized, controlled trials with important limitations (inconsistent results, methodologic flaws, indirect or imprecise), or very strong evidence of some other research design. Further research (if performed) is likely to have an impact on our confidence in the estimate of benefit and risk and may change the estimate.
1C. Strong recommendation, low quality evidence	Benefits appear to outweigh risk and burdens, or vice versa.	Evidence from observational studies, unsystematic clinical experience, or from randomized, controlled trials with serious flaws. Any estimate of effect is uncertain.
2A. Weak recommendation, high quality evidence	Benefits closely balanced with risks and burdens.	Consistent evidence from well performed randomized, controlled trials or overwhelming evidence of some other form. Further research is unlikely to change our confidence in the estimate of benefit and risk.

<p>2B.Weak recommendation, moderate quality evidence</p>	<p>Benefits closely balanced with risks and burdens, some uncertainty in the estimates of benefits, risks and burdens.</p>	<p>Evidence from randomized, controlled trials with important limitations (inconsistent results, methodologic flaws, indirect or imprecise), or very strong evidence of some other research design. Further research (if performed) is likely to have an impact on our confidence in the estimate of benefit and risk and may change the estimate.</p>
<p>2C. Weak recommendation, low quality evidence</p>	<p>Uncertainty in the estimates of benefits, risks, and burdens; benefits may be closely balanced with risks and burdens.</p>	<p>Evidence from observational studies, unsystematic clinical experience, or from randomized, controlled trials with serious flaws. Any estimate of effect is uncertain.</p>

Table 2. The ISGE recommendations for vaginal hysterectomy technique (reproduced by permission from Chrysostomou *et al* (2)).

<p>Recommendation</p>	<p>Grade of recommendation</p>
<p>Circular incision at the level of cervico-vagina junction is recommended</p>	<p>Grade IC</p>
<p>Posterior peritoneum should be opened first</p>	<p>Grade IC</p>

Clamping and cutting the uterosacral and cardinal ligaments before or after getting access into anterior peritoneum is recommended	Grade IC
Routine closure of the peritoneum during VH is not recommended	Grade IB
Vertical or horizontal closure of the vaginal vault following VH is recommended	Grade IC
To insert vaginal plug following VH is not recommended	Grade IB

Abbreviations: TLH, total laparoscopic hysterectomy; VH, vaginal hysterectomy.

y; TAH, total abdominal hysterectomy;

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Principles of safe laparoscopic entry: a summary of the International Society for Gynecologic Endoscopy (ISGE) guidelines and the search for updates

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Abstract

This article provides a Summary of ISGE Guidelines for the safety of trocar entry, one of the most dangerous steps in laparoscopic surgery.

Key words: guidelines, laparoscopic entry, minimally invasive gynaecological surgery, summary, updates

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Introduction:

The recommendations from the International Society for Gynaecology Endoscopy (ISGE) for safe laparoscopy entry were published in the European Journal of Obstetrics & Gynecology and Reproductive Biology in 2016 (1). This article aims to summarize these guidelines authored by the ISGE Task Force for Abdominal Entry (Dusan Djokovic, Janesh Gupta, Viju Thomas, Peter Maher, Artin Ternamian, George Vilos, Alessandro Loddo, Harry Reich, Ellis Downes, Ichnandy Arief Rachman, Lotte Clewin, Mauricio S. Abrao, Georg Keckstein, Michael Stark and Bruno J. van Herendael) and provide updates arising from posterior publications.

Material Method:

The ISGE Task Force for Abdominal Entry performed a broad literature search from Medline, PubMed, Cochrane Database as well as international and national guidelines and established evidence-based recommendations graded by the level of evidence, using the approach proposed by U.S. Preventive Services Task Force (Table 1). The same methodology was repeated in this paper preparation, in order to find the latest literature and guidelines on laparoscopic entry.

The ISGE recommendations on safe laparoscopic entry:

Several methods are used to access the peritoneal cavity during laparoscopic surgery. The most commonly engaged are **the closed (classic or Veress needle) technique, the open (Hasson) technique** and **the direct trocar insertion method**. Based on available evidence, none of these approaches appears superior over another and can be recommended as the gold standard technique (1, 2).

Regarding **the closed technique**, the most common sites of entry are the umbilical base or the left upper quadrant (LUQ)/Palmer's point which is recommended if trans-umbilical entry fails after three attempts or there are umbilical abnormalities such as a hernia or suspected/known adhesions that contra-indicate trans-umbilical entry (Grade II-2/A); alternative sites (*e.g.* Lee-Huang point, trans-uterine and posterior vaginal fornix; Figure 1.) should be considered if both umbilical and LUQ insertion fail (Grade I/A) or in obese women (1). The elevation of the lower anterior abdominal wall during the Veress needle trans-umbilical insertion is not recommended as a routine practice since it does not reduce the risk of iatrogenic injuries and increases failed entry rate, particularly in obese patients (Grade II-2/B). When inserting the Veress needle, the angle should be adjusted to the patient's body mass index (BMI), from 45° in women with normal weight to 90° in obese patients (Grade II-2/B). To confirm the correct placement of the Veress

needle, the only reliable indicator is Veress Intra-peritoneal Pressure (VIP) below ≤ 8 mmHg. Other Veress placement tests (*e.g.* double-click or saline hanging-drop) are not required while swinging the needle is hazardous and must be avoided (Grade II-1/A). To ensure adequate pneumoperitoneum, transient high intra-peritoneal pressure entry of 25 mmHg in healthy women with immediate intra-peritoneal pressure, reduction to 12-16 mmHg upon completion of all trocar insertions, is suggested (Grade II-1/A). Primary trocar should be inserted in a controlled, two-handed manner, in the same direction as the Veress needle while secondary trocars should be placed under direct vision, at a 90° angle (perpendicular) to the abdominal wall, in a controlled, screwing manner.

The open technique is a mini-laparotomy performed at the umbilical level that permits the insertion of a cannula, CO₂ insufflation and a laparoscope placement in a direct manner. It may be considered as an alternative to the closed technique, especially in patients with a history of previous surgeries or after other entry techniques fail. It is associated with a reduced rate of failed abdominal entry without a significant difference in visceral or vascular injury rates (Grade II-2/C). Factors that may limit the use of this technique include its relative complexity, patient obesity and struggle to maintain pneumoperitoneum.

An alternative method is the **direct abdominal trocar entry**, which provides a quick abdominal access and results in fewer extra-peritoneal insufflations and failed entries in comparison with the Veress needle entry (Grade I/A). Its general use cannot be recommended until more reliable evidence is available (2).

Concerning **the optical trocar (direct vision) entry**, which approaches the peritoneal cavity under direct monitor view, it presents risk of iatrogenic injuries similar to the conventional open (Veress needle) or closed (Hasson) entry techniques (Grade II-2/B). Based on available evidence, published data, expert opinion and FDA assertion, the threaded visual cannula entry systems appears to be a safe alternative for laparoscopic entry (Grade II-2/B).

In the particular case of a **pregnant patient**, laparoscopic interventions can be safely performed in any trimester of pregnancy, but the entry point should be adapted to the height of the uterine fundus and previous incisions, particularly in second or third trimester pregnancy (Grade III/C). Any entry technique may be performed, but if the closed entry is chosen primary entry via the Palmer's point is recommended. The open technique and the closed entry via Palmer's point are preferred in the patients with **BMI <18 kg/m²** while the closed technique and visual entry via the

umbilicus or Palmer's point are preferred in the obese patients with **BMI >40 kg/m²** (Grade III/D).

Discussion and Conclusion:

Laparoscopy is currently the preferred approach for diagnostic or therapeutic interventions in gynaecology when compared to open abdominal surgery as it reduces hospital stay, is less disabling, presents lower risk of minor complications and is more cost effective (3). Approximately half of the laparoscopic complications occur during the abdominal entry (1). It is essential to engage a methodical approach when entering the abdomen, choosing an appropriate location for the initial entry as well as the preferred entry technique. There are no gold-standard methods for the entry, though the most commonly used entry site and method are, respectively, the umbilical base and the Veress needle/classic entry (4).

Last decade's clinical practice and research provided evidence for the ISGE to establish safety-promoting criteria that allow the conducting of common alternatives for

laparoscopic abdominal entry. Nevertheless, the majority of trials present low quality evidence, being inadequately powered (small sample sizes and very low event rates) to detect statistically significant differences between the available techniques (1, 2). Publications posterior to the ISGE guidelines, including the last (2019) Cochrane systematic review, have not added any new updates that should redirect the recommendations established by the ISGE Task Force. The ISGE document published in 2016 remains valid and is one of the most comprehensive sets of guidelines on this topic. Considering that current evidence is insufficient to praise one entry method over the others, the choice of one technique, entry position and type of instrumentation with which the gynaecological surgeon feels comfortable for most procedures represents a safe and effective practice. Nonetheless, the surgeon should be well versed to use an alternative technique if the prior approach presents major risk of complications or fails (1). Future well-designed studies, with larger samples and less bias, might provide new insights in this issue.

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Table:

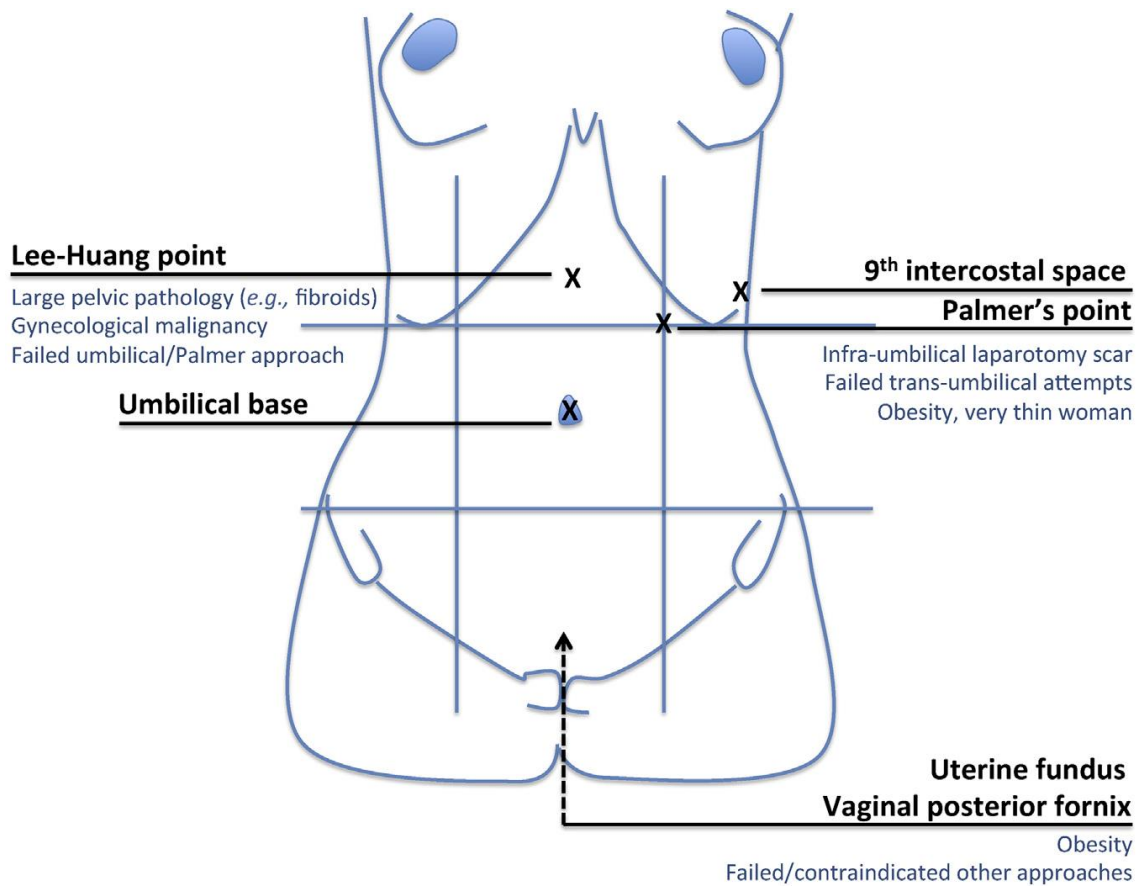
Table 1: Evidence quality grading and classification of recommendations (in accordance with the system adopted by the U.S. Preventive Services Task Force) (reproduced with permission from Djokovic *et al.* (1))

Quality of evidence	Strength of recommendations
I. Evidence obtained from at least one properly randomized controlled trial	A. There is good evidence to recommend the clinical action
II-1. Evidence obtained from well-designed controlled trials without randomization	B. There is fair evidence to recommend the clinical action
II-2. Evidence obtained from well-designed cohort or case-control studies, preferably from more than one centre or research group	C. The existing evidence is conflicting and does not allow to make a recommendation for or against the clinical action; other factors may influence decision-making
II-3. Evidence obtained from multiple time or place series, with or without the intervention. Dramatic results in uncontrolled trial could also be included in this category	D. There is fair evidence to recommend against the clinical action E. There is good evidence to recommend against the clinical action
III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees	I. There is insufficient evidence, in quantity or quality, to make a recommendation; other factors may influence decision-making

Abbreviations: ISGE - International Society for Gynaecology Endoscopy; LUQ - left upper quadrant; VIP - Veress
Intraperitoneal Pressure

Figure:

Figure 2: Umbilical and alternative Veress needle insertion sites with respective indications (reproduced with permission from Djokovic *et al.* (1)).



Endometriosis in the young Patient a lecture by Abri de Bruin

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Abstract

Endometriosis is highly prevalent but poorly understood especially in the young patient hence it remains a challenge to manage. The main issue is that there is no correlation between the symptoms and the severity of the disease this leads to the constatation that it becomes very difficult to define who to operate and who not.

Surgery however has shown to significantly improve endometriosis related symptoms. All the above considerations lead to the fact that management of endometriosis in the young patient is often dictated by personal convictions of physicians – patients – and the local diagnostic, therapeutic path and expertise (or lack of), rather than by robust evidence from adequately designed and conducted pragmatic, randomized control trials (RCT). The last are not always possible from an ethical point of view.

The main aspects of the symptoms in the young patient are pain and infertility with pain coming in the first place. However, we have to consider that infertility is often a consequence of progressive deep endometriosis that has not been radically treated.

Therefore, it is better that when in doubt to have a look. Surgery has its risks and these are directly correlated to the experience of the surgeon. When to do surgery? Surgery is never the first option. Can we afford not to do surgery?

Regardless of the type of hormonal treatment used, many women remain symptomatic during and after the treatment or have high symptom recurrence after therapy cessation. Patients do stop because of significant side effects.

Preoperative imaging?

In young patients TVUS is less appropriated unless the patients are sexually active therefore it is still recommended that adolescents who do have failed hormonal and pain therapy are offered surgery to establish a diagnosis as more than two third will likely have endometriosis. The main drawback for preoperative imaging is that the result depends on the person performing the technique and interpreting the images. Therefore, a multidisciplinary approach is highly recommended in the young patient.

What do we know?

The number of patients with endometriosis is increasing. The severity of the disease is increasing. Affected patients are getting younger. The effects of the disease on the QOL of young patients are getting more and more pronounced. There is no discrimination between ethnic groups.

What do we do?

An initial expectant management is safer but if there is no improvement in a set timeframe laparoscopy should be performed. If at laparoscopy endometriosis is diagnosed it should be treated aggressively by excision. Always be aggressive to the disease but conservative to the function.

Key words: Endometriosis; young patient; surgery, medical treatment

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Surgical Management of Intravenous Leiomyomatosis: A case Report

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Abstract

A 49-year-old woman, P2L2, presented with abnormal uterine bleeding due to uterine leiomyomas. She had no other associated symptoms. During total laparoscopic hysterectomy, the left uterine vein was exceptionally dilated with a fleshy lumpy fluctuating mass within suspected of intravenous leiomyoma (IVL). IVL is extremely rare, with no more than 300 cases reported worldwide. A stepwise surgical management of a case of IVL is presented.

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Key words: Disseminated; Fibroids; Laparoscopy; Intravenous leiomyoma; hysterectomy

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Introduction:

It is a known fact that benign and malignant uterine smooth muscle tumors occur throughout the female genital tract, from the vulva to the broad ligament including the adnexa.

Benign masses of the myometrium are inconsistently known as fibroids, myomas, leiomyomata, fibromas, or fibromyomas. Globally leiomyomas are detected in nearly 3/4th of all hysterectomy specimens, irrespective of the indications, and the average number of independent tumors per uterus has been estimated to be more than six.[1] As a result, these are the most common tumors. Although only one in four women of reproductive age is symptomatic; it adds a significant onus to healthcare worldwide.

Intravenous Leiomyoma (IVL) is a peculiar condition in which a fibroid growth extends in a tubular pattern involving the venous lumen. Dreadfully, it may extend up to the vena-cava, heart and lungs triggering lethal complications. Fortunately, it is a rare condition with not more than 300 cases reported worldwide.[2] It is difficult to diagnose as these patients are clinically asymptomatic and may only present with symptoms related to leiomyoma or intra-cardiac extension. Primarily they concur with leiomyomas and are coincidentally encountered at the time of surgery for leiomyomas. Thus,

catching the surgeon unaware in a situational stress of unknown extent and likely exertions.

Herein, one such case of IVL diagnosed incidentally at the time of total laparoscopic hysterectomy and its stepwise surgical management is presented. 0

Case Summary:

A 49-year-old multiparous (P2L2) female was suffering from abnormal uterine bleeding with dysmenorrhea due to uterine leiomyoma for 6 months. Her bleeding was not controlled with medical therapy. On Clinical examination she had a uterus up to 14 weeks of gestation with irregular contour affirming multiple leiomyomas. Pelvic ultrasound confirmed multiple uterine leiomyomas of variable sizes and locations. She was advocated surgical management, and subsequently, opted for total laparoscopic hysterectomy which was carried out in standardized stepwise manner as follows.

Primary an intra-umbilical 11 mm trocar was inserted after three liters of CO₂ pneumo-insufflation using Veress' needle. Subsequently, three 5 mm secondary pelvic trocars were placed. One each in the left and right iliac fossa and one in the midline four cms sub-umbilically. Intra-operatively the uterus was found to be enlarged, irregularly distorted due to multiple leiomyomas, both adnexa were normal. There

were no leiomyomas noted except in the uterus.(fig 1)

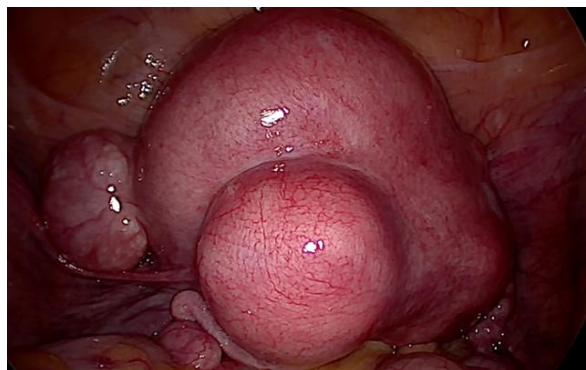


Figure 1: The bulky uterus distorted with multiple leiomyomas

Upon opening the left side posterior peritoneum, left uterine vein appeared exceptionally dilated with a fleshy lump fluctuating within. The contralateral uterine vein was examined and found to be normal. (fig 4) A left intravenous leiomyoma was suspected. (fig 2,3)

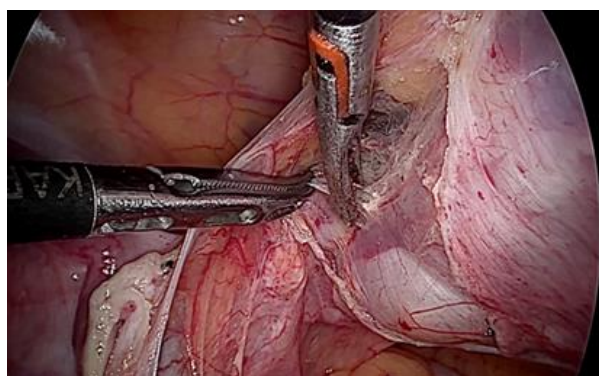


Figure 2: The unusually dilated left uterine vein with fleshy tumor (marked with green arrow) revealed up on dissection of broad ligament

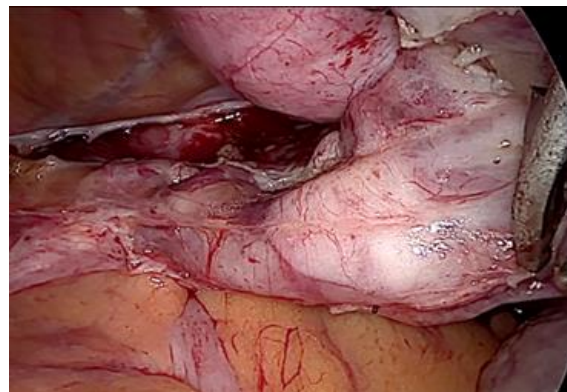


Figure 3: Following the fleshy tumor inside, the entire length of left uterine vein dissected (marked by green arrow at each end).

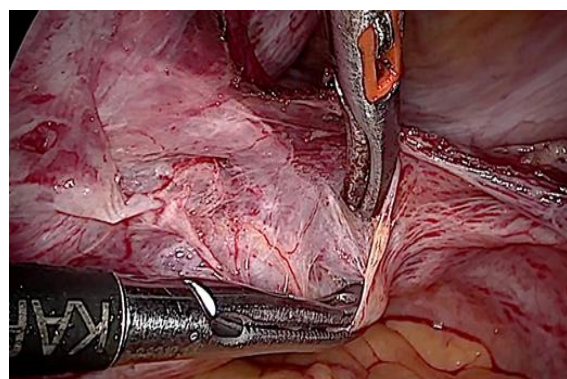


Figure 4: The contralateral (right) uterine vein of normal caliber.

The plan to trace the extent was laid down. Therefore, before the tackling the uterine pedicle, retroperitoneal dissection was carried out and the ureter was moved out of harm's way. The left uterine artery origin and the uterine vein with IVL reaching up to internal iliac vein were exposed and isolated with careful dissection. The extent of IVL was traced by gentle palpation using a pair of atraumatic graspers and its tail end was found extending up to the left internal iliac vein (fig 5).

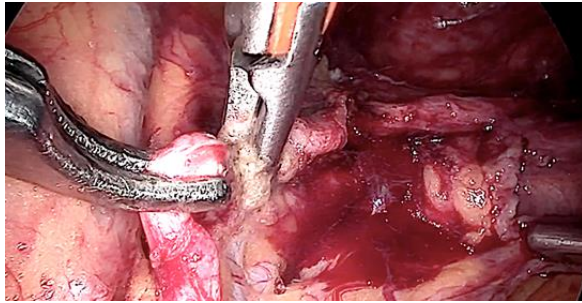


Figure 5: The left uterine artery ligation at origin, after ureterolysis

Prophylactic ligation of uterine artery done at its origin. The ligation of the vein beyond the tumor limits is the most essential step to reduce the blood loss or probable failure to seal it by using electrical energy due to unusually larger and flaccid lumen (fig 6,7).

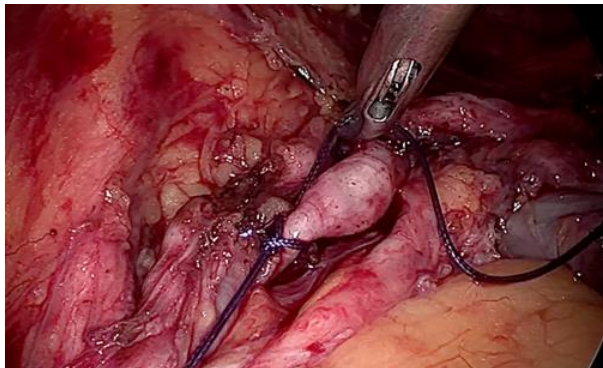


Figure 6: The deep uterine vein being secured with double ligature beyond the tumor limits to prevent complications like bleeding, slipping of the ligature or embolisation.

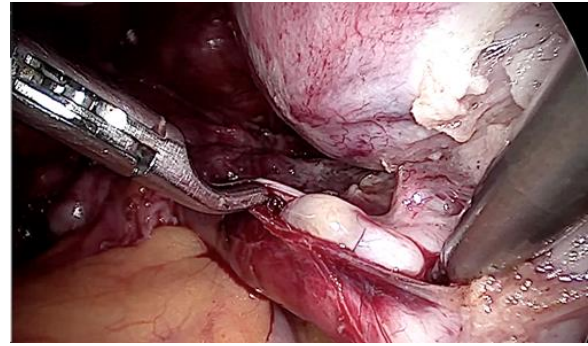


Figure 7: Venotomy after ligation to extract complete IVL

The tubular tumor was extracted by venotomy. (fig 8,9,10) Subsequently, a hysterectomy with bilateral salpingectomy was completed.

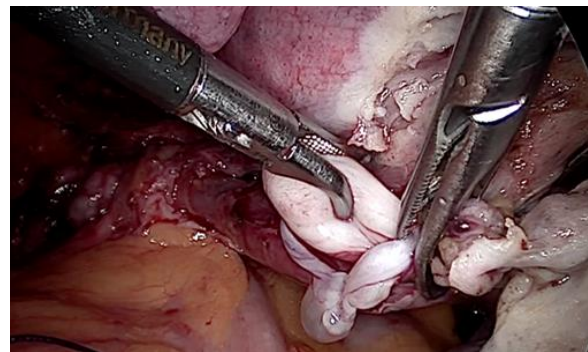


Figure 8: The tubular IVL extracted by gentle pull

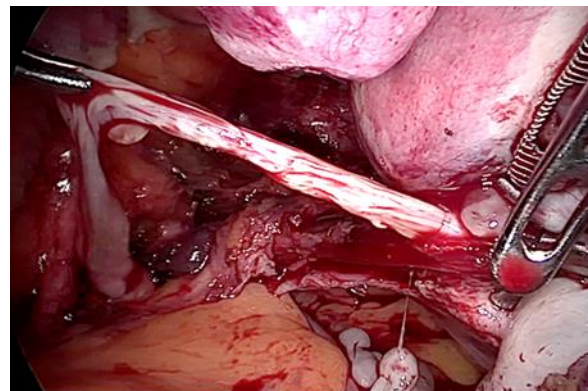


Figure 9: IVL Tumor visible in its full length

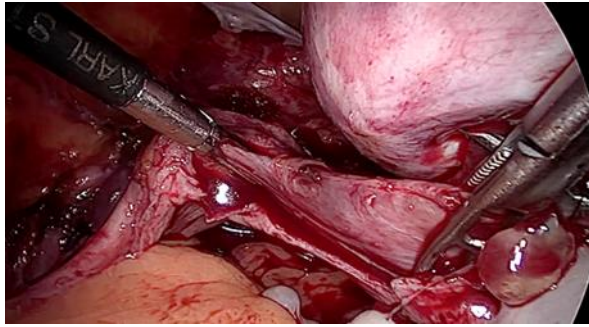


Figure 10: Empty flaccid left vein after tumor was extracted completely.

On gross examination of the specimen, the intravenous tumor revealed to be a smooth tubular non-luminal tumor with similar consistency as a leiomyoma (fig 11,12). Histopathological examination confirmed the diagnosis of IVL



Figure 11 Gross examination of specimen showing tumor arising from uterine vein attached to the main specimen & partly avulsed portion.

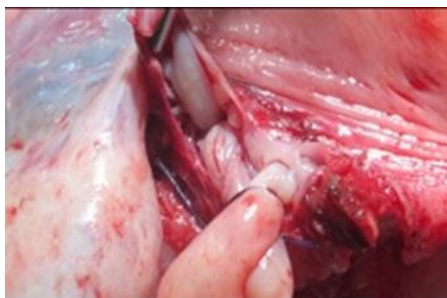


Figure 12 The closer view of the smooth tubular non-luminal tumor attached to the uterus & within the vein lumen.

Discussion:

Fibroids are extremely heterogeneous in their pathophysiology, size, location and clinical symptomatology. New information is rapidly accumulating about the genetic subgroups that lead to fibroid formation, which might aid further understanding of the clinical heterogeneity of this disease and lead to individualized treatments. Uterine smooth muscle tumors are largely benign, but may exhibit features of malignancy in few cases. The clinical prediction and diagnosis of such intermediate tumor is challenging. This spectrum of smooth muscle neoplasia covers numerous morphologically benign smooth muscle proliferations with the features of malignancy namely, local infiltration, intra-vascular extension or invasion, dissemination and distant extension or metastasis. In most cases, histopathologic features as there are the presence or absence of atypia, proliferative activity, and a particular pattern of necrosis are easy to identify as to determine if a smooth muscle neoplasm is benign or malignant.

The first case of IVL was described by Birch-Hirschfeld in 1896. In 1907, Durck described the first case of IVL with intra-cardiac extension.^[3]

IVL belongs to a class of smooth muscle tumors with a malignant potential. This means for the most part, that these tumours are benign yet have some growth pattern that mimicks malignancy. Specifically, these features include vascular invasion and growth, disseminated growth within the uterus or abdominal cavity, and possible spread to the lung. There have been no long-term studies of intra-tumoral vascular invasion, but it may be a forerunner of IVL in some cases and may be the origin of the enigmatic disorder called benign metastasizing leiomyoma in other cases. With further growth, this smooth muscle proliferation may extend into the uterine wall, and a tumorous source may not always be evident. This pattern of intravascular growth also may be seen in renal cell carcinoma & endometrial stromal sarcoma.

Pathogenesis:

The origin of this unusual smooth muscle proliferation is unclear. Knaeur et al stated, the tumor is comprised of smooth muscle cell arising directly from venous walls of uterine or pelvic vein.^[4] Clement et al have reported a series of cases in which the histologic features of IVL were similar to that of benign uterine leiomyomas.^[5]

Kir et al studied the immunoprofile of IVL and found it to be matching the myometrium and benign leiomyomas, and not the vascular endothelium^[6] Sitzenfry et al stated, the intima of venous channels is invaded by leiomyomatosis cells originating from the uterine myometrium.^[7] Cytogenetic studies have also specified IVL of uterine origin. Karyotypes of both the lesions have shown a derivative chromosome viz (?), $der(14)t(12;14)(q15;q24)$ which was commonly observed in uterine leiomyomas The ability to grow within venous spaces reflects some additional genetic variations. Intra-venous extension might be considered an aggressive biologic property. Despite this malignant character, the IV growth is usually slow.^[8]

The extension is usually unilateral and occurs more commonly through the lumen of uterine vein, towards the internal iliac to progress towards the common iliac and finally the inferior vena cava(IVC). Less common is the extension via the ovarian vein towards the renal vein and the IVC. Adhesion to the vessel wall and atypical histology may be associated with an aggressive clinical course. A relationship to benign metastasizing leiomyoma in the lung also has been suggested.^[9]

Early diagnosis is difficult because patients maybe asymptomatic despite an extensive intravenous extension. Patient present with pelvic pain and bleeding when the IVL is associated with uterine leiomyomas. When the tumors grow into the larger vessels and intracardiac extension is present the patient presents with dyspnoea, syncope or abnormal ECG or even sudden cardiac death.

Imaging studies are essential for the diagnosis of IVL. CT scan and MRI are useful for diagnosing intra-luminal tumors. In most cases the diagnosis may be intra-operative or post-operative.

In most cases, excision to prevent hemodynamic consequences and hysterectomy to remove leiomyomas are sufficient to cure the condition. With complete resection the recurrence is rare. Still the recurrence rate of IVL is around 30%[10],

High degree of suspicion may lead the surgeon to intra-operative diagnosis of IVL whenever the uterine veins are unusually large, non-collapsible and manifest pink instead of the usual blue color,

hence follow-up is mandatory. Bilateral oophorectomy should be carried out in all cases as 75% of the recurrences were found in patients in whom the ovary was preserved.

In case of a completely resected tumor, follow-up with CT scan on 6 monthly to yearly basis is appropriate. In case of incompletely resected tumor, frequent radiological follow up is required for several years.

In this case, the diagnosis of IVL was made intra-operatively and managed without any complications. Patient has been counselled about the rarity of the condition, need of follow up and to report in case of cardio-respiratory symptoms.

Conclusion:

in the patients undergoing surgery for leiomyomas. Knowledge of retroperitoneal dissection steps and the existence of the IVL will result in a favorable surgical outcome.

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Hysteroscopic Myomectomy without Myoma Extraction in Postmenopausal Woman: A Case Report

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Abstract

Uterine leiomyoma (myoma; fibroids) are benign monoclonal tumors arising from smooth muscle tissue. By 50 years of age, 70% of women will develop a uterine leiomyoma (Te Linde operative gynecology). Depending on their location in the uterus, they may be subserous, intramural, or submucous. Submucous myoma often lead to abnormal uterine bleeding, which may be accompanied by anemia. Hysteroscopic removal is the standard surgical approach for fibroids within the uterine cavity and currently represents the standard minimally invasive surgical procedure for treating submucous fibroids with abnormal uterine bleeding in perimenopause and postmenopausal woman (comprehensive). Lately the experts are still discussing whether or not removal of submucous myomas from the uterine cavity after hysteroscopic myomectomy is necessary. In this case report presented no extraction myoma after Hysteroscopic Myomectomy in post-menopausal woman and the myoma expelled s through vagina in 21 days with uterotonic medication

Key words: myomectomy; hysteroscopic, postmenopausal, no extraction

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Case Report:

A 76-year-old woman with Para 3 Abortus 0, had menopause at 56-year-old, presented in with vaginal bleeding in the last 1 month. She had no hormonal replacement therapy given and no history of post coital bleeding in history. Preoperatively, a transvaginal ultrasound was performed, reporting a mix-echoic mass with smooth surface size 3x2 cm intracavity with the appearance of a sub-mucous leiomyoma. Patient had a Pap smear examination resulting negative for intraepithelial lesion. The Patient was considered to have submucosal leiomyoma and a hysteroscopic myomectomy was considered to reduce the complication of major surgery since she had hypertension and type 2 diabetes.

On arrival her blood pressure was 160/110 mmHg under anti-hypertensive drug therapy routinely for the past 12 years, other vitals were normal and rapid blood glucose was 246 mg/dL. No vaginal bleeding was detected on arrival. The night before the procedure, patient was administered 200 mcg intravaginal misoprostol.

Patient was brought under general anesthesia. Hysteroscopy was performed and two submucosal myomas were identified in the lateral and posterior surface of the uterine cavity with a protruding dome with regular surface hysteroscopic grading type G1 for both of myomata. The myometrial free margin was

identified, a bipolar loop and hysteroscopic scissors were used to enucleate the myomas.



Figure 1. Submucosal Myoma on the lateral wall of the uterine cavity

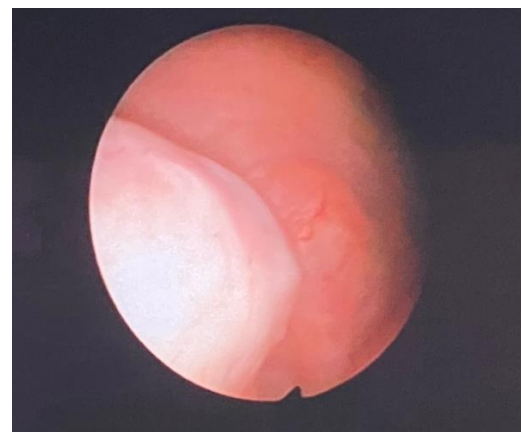


Figure 2. Submucosal Myoma size >40mm on the lateral wall and size >20mm in the posterior part of the uterine cavity

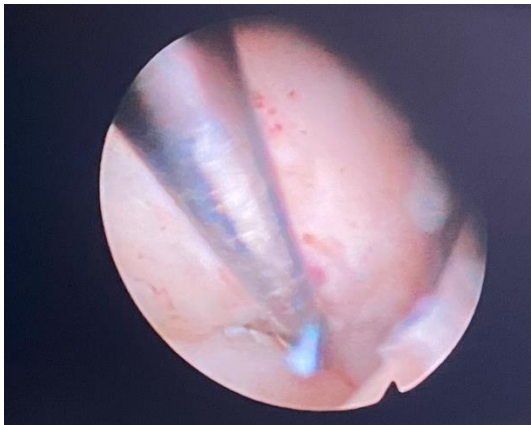


Figure 3. Myoma separation process from its bed

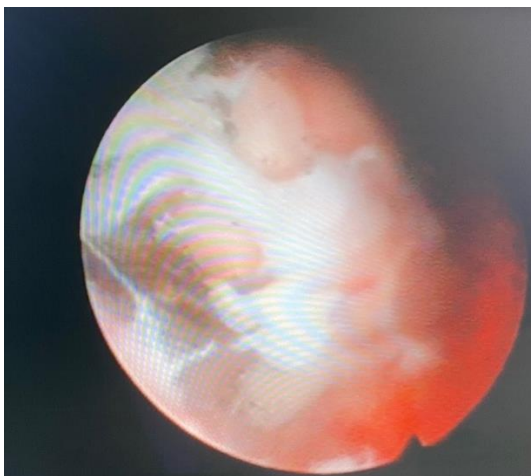


Figure 4. Both of submucosal myoma were successfully separated

After successfully enucleation, the myomas were left in the uterine cavity because the volume found intra operative was larger than the ultrasound interpretation. Tissue samplings for histological diagnosis were taken and the characteristics of uterine cavity were evaluated.

At the end of the procedure, the patient was observed for 30 minutes before leaving to ward and no reported pelvic pain or vaginal discharges/bleeding during follow-up within 24 hours did occur. The patient used one misoprostol tablet of 200 mcg twice a day for seven days and had a follow up for 21 days after the surgery to identify any complications, such as pain or vaginal discharges. The histological diagnosis was leiomyoma uteri and the mass was expelled through vagina. The patient had no complaints and was satisfied with the result.

Uterine myomas or fibroids are the most common benign tumors of the female genital tract and are estimated to occur in about 40% at age 35 and almost 70% by age 50 in Caucasian women.¹ The incidence of leiomyoma by the age of 50 is more than 80% in pre-menopausal women. Myoma often shrink after menopause, in the absence of post-menopausal estrogen replacement therapy, as they are estrogen dependent tumours². The post-menopausal incidence of leiomyoma is not lower than the premenopausal incidence, although post-menopausal leiomyomas are smaller and fewer. At least one-fourth of these patients have symptoms, accounting for 5% of all gynecologic consultations. Leiomyomas are benign, well circumscribed, smooth muscle cell neoplasms and they are sharply demarcated from the surrounding myometrium or endometrium,

depending upon their locations. Leiomyomas can be submucosal, intramural, subserosal or cervical in location.³

Submucous myomas (SMs) account for approximately 15 % of all uterine myomas and may cause irregular bleeding, pelvic pain, and infertility.⁴ Submucous myoma are defined and classified according to the European Society for Gynecological Endoscopy (ESGE) and International Federation of Gynecology and Obstetrics (FIGO) classifications. Depending on the proportion of the myoma protruding into the uterine cavity, SMs are classified in G0/Type-0 when the submucous is almost intracavitary, G1 or Type-1 > 50 % is intracavitary, and G2 or Type-2 50 % or more is intramural.⁵

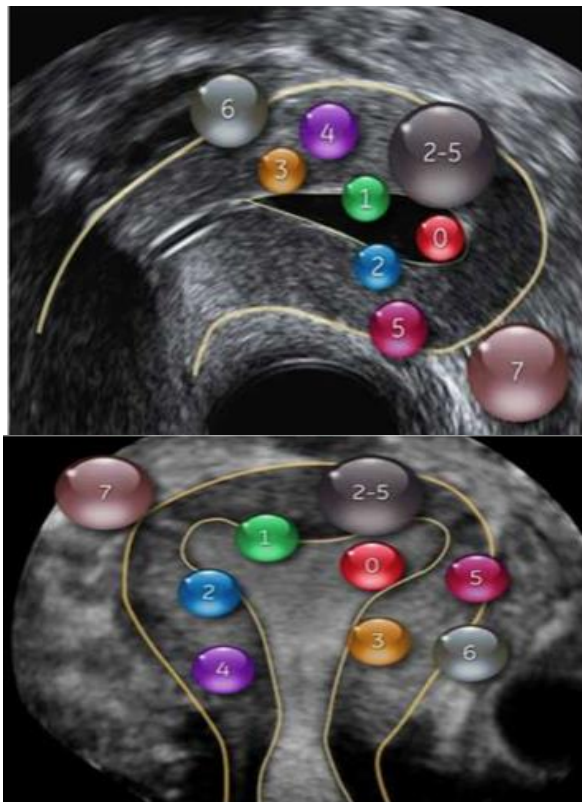


Figure 5. Fédération Internationale de Gynécologie et d'Obstétrique (FIGO) fibroid classification system

The ability to remove these fibroids depends on the degree that fibroids are embedded in the myometrium. Hysteroscopic myomectomy is a minimally invasive transcervical procedure performed under direct visualization and constant visual control for removal of intracavitary and submucosal leiomyomas⁶. Besides giving us the certainty of the presence of the submucous fibroid, hysteroscopy also enables the assessment of the intracavity component of the mass, its localization, its relationship with the uterine structures, the characteristics of the endometrium as well as the presence of possible associated intracavitary pathologies. Furthermore, it provides subjective assessment of fibroid size and indirect information regarding the depth of myometrial extension. Type 0 fibroids are usually easy to remove. Type 1 lesions can often be completely removed, as the uterus contracts and tends to expel the intramural component into the uterine cavity during surgery. However, removal of type 2 fibroids can be problematic, as fluid overload or fear of perforation may lead to incomplete resection. Wamsteker et al. found that the likelihood of achieving complete removal of type 2 fibroids was only 50%. Therefore, the

hysteroscopic removal of type 2 fibroids is questioned by several authors⁷. In the present case, the conclusion was that this patient had a type 1 lesion as found intraoperative, the myoma bed could be identified clearly and the myoma completely resected.

Studies do show that ambulatory hysteroscopic removal of submucous myomas carried out whilst leaving free the mass in the uterine cavity after enucleation is a feasible and safe procedure⁸. The enucleated fibroid doesn't have vascularization and by reaching the stage of a smooth mass it can be pushed out without causing major discomfort. Most patients do not observe the myoma expulsion, as it is expelled during menstruation as a necrotic tissue. Only a minority of women reported the expulsion of a small fibroid. This observation is consistent with a satisfaction level that did not change based on the size and grade of the myoma, which without blood supply undergoes necrosis. These observations strengthen the feasibility and safety of omitting the mass extraction after SM enucleation⁸. However, in our case, the patient was menopausal for almost 20 years.

Menopause is characterized by a loss of regular menstruation and eventually permanent cessation of menses. One might assume that following the menopause, uterine activity ceases. However, rhythmical myometrial contractions have been seen by ultrasound

examination in postmenopausal women and one previous study has reported low levels of spontaneous activity in strips from human postmenopausal myometrium in vitro⁹. Based on this, a misoprostol tablet 200mcg twice daily for 7 days was administered to our postmenopausal patient expecting the smooth muscle of uterus to contract properly and expulse the mass through vagina.

The risk of sarcomatous change is higher in menopausal women and increases with age (mainly >45 years)¹⁰. For this reason, a biopsy of the myoma was performed to exclude the possibility of malignancy and the biopsy result showed the mass is leiomyoma of uterus.

Conclusion

Hysteroscopic myomectomy without extraction of myomas in post-menopausal women aims to reduce discomfort, avoiding multiple insertions of the hysteroscope, shortening the surgery length and can be considered a safe option when the myoma extraction is difficult. However, low levels of spontaneous activity from the human post-menopausal myometrium to expulse the mass are present. Therefore, uterotonic medication might be needed but further research studies are required to confirm effectiveness and safety of this procedure.

Acknowledgement

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Disclosure:The author declares that there is no conflict of interest that related to the case study.

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Bilateral and Multiple Mature Teratomas of the Ovary; A Case Report and Brief Review of Literature

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Abstract

Multiple and bilateral mature teratomas of the ovary are a rare occurrence. Mainstay of treatment remains surgical excision. We report a rare case of a 27-year-old female with a total of 12 ovarian dermoid cysts, 9 on the left and 3 on the right. She underwent laparoscopic bilateral cystectomy. She presented with a 3 weeks history of severe acute onset right iliac fossa abdominal pain. Her abdominal examination was unremarkable. A transvaginal ultrasound done revealed cystic masses on the right ovary measuring 4.71cm in diameter with features suggestive of partial torsion and a multi-cystic left ovary. On laparoscopy a right enlarged ovary was found with partial torsion. Detorsion was done and 3 large dermoid cysts enucleated. The left ovary was enlarged and a total of 9 dermoid cysts which were enucleated. The remaining ovarian tissue was reconstructed. Post-operative period was uneventful. The case demonstrated the rare occurrence of multiple bilateral ovarian cystic teratomas and need for complete enucleation to prevent recurrence. It further showed use of laparoscopic ovarian sparing surgery as a viable option in cases of desired future fertility.

Key words: Dermoid cysts; laparoscopy; cystectomy

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Introduction:

Mature cystic teratomas of the ovary are classified under germ cell tumors which are derived from primordial germ cells. Teratomas arise from totipotential cells and mature cystic teratomas account for 10-20% of all ovarian neoplasms. They are the most common ovarian germ cell tumor, occur bilaterally in 8-14% of cases 1 and have a 1-3% chance of malignant transformation 2

Torsion is the most common serious complication, occurring in 3-16% of cases and a significant cause of mortality 3. Torsion is more common in intermediate size tumors and may lead to venous congestion, formation of adhesions and even parasitic teratomas.

Although the occurrence of ovarian dermoid cysts is common, it is rare to find multiple dermoid cysts separated with normal ovarian tissue within the same ovary 4. Recurrence of dermoid cysts has been associated with occurrence of bilateral and multiple dermoid cysts 5. We report an unusual case of a 27-year-old nulliparous female with a total of 12 bilateral ovarian mature cystic teratomas and partial torsion of the right ovary.

Case

A 27-year-old nulliparous female, presented to us on April 2019 with right iliac fossa pain for 3 weeks. The pain was dull in character, constant, acute in onset, severe and non-radiating with no report of per vaginal bleeding, abnormal vaginal discharge, fever, nausea or vomiting. She reported associated right sided dyspareunia. Her menses were regular, every 28 days lasting for 1 to 3 days with associated dysmenorrhea. She had no prior surgical or medical history and had a smoking history of 2 pack years and occasional alcohol consumption. On examination the

abdomen was not distended, non-tender and had no obvious organomegaly. Transvaginal ultrasound done on admission found cystic masses on the right ovary measuring 4.71cm in diameter with features suggestive of partial torsion and a multicystic left ovary. The uterus was anteverted and normal in size. An abdominal-pelvic CT scan done revealed bilateral well circumscribed large ovarian masses consistent with dermoid cysts. Other investigations included Antimullerian hormone level of 0.98ng/ml and Ca-125 at 11.5. A diagnosis of bilateral mature ovarian teratoma with partial torsion was made and laparoscopic cystectomy scheduled.

Operative procedure

Patient was put under general anesthesia in semi lithotomy position. On laparoscopy the right ovary was noted to be enlarged and twisted 3 half times around its support structures and lying anterior to the uterus. Detorsion was done successfully and 3 large dermoid cysts enucleated. The left ovary was enlarged occupying the entire pouch of Douglas. A total of 9 dermoid cysts were enucleated from the left ovary and removed in toto. The remaining ovarian tissue was reconstructed bilaterally using vicryl suture. The cysts were then removed via an endobag with careful attention to avoid spillage of cysts content. Extensive peritoneal lavage was done with suction of any debris. Estimated blood loss was less than 100mls. Post-operative period was uneventful. Pathology examination confirmed the diagnosis of bilateral multiple ovarian cystic teratomas. On follow up, over 1 year, our patient has had regular menses and serial ultrasounds have demonstrated normal ovaries bilaterally with no evidence of cysts. Repeat Anti-Mullerian hormone levels 3 months post operatively was reduced at 0.40 ng/ml. She

currently does not desire fertility but has been informed of the need for assisted reproductive technology if she does.

Discussion:

Mature cystic teratomas of the ovary are classified as germ cell tumors which are derived from primordial germ cells. Germ cell tumors may be benign or malignant and occur in various sites from gonadal to extragonadal sites. Teratomas contain cells from the various germ layers, histologically referred to as ectoderm, mesoderm and endoderm. Teratomas are further classified as mature or immature depending on the degree of differentiation and components of the tumor. Immature tumors have more malignant potential 6.

Mature ovarian teratomas account for 10-12% of all ovarian neoplasms occurring most commonly between the ages 20 to 30 years. Our patient was a 27-year-old female at presentation. They occur bilaterally and are multiple in 10 to 15% of cases. Immature teratomas occur more rarely accounting for 5% of all ovarian neoplasms 6. In our case we found enlarged ovaries bilaterally. The right ovarian mass measured 4.2cm in diameter.

Most patients with mature ovarian teratomas are asymptomatic unless complicated by torsion 6. Seratini et-al 7 reported abdominal pain, abdominal swelling and per vaginal bleeding in symptomatic patients. Our patient presented with severe right iliac fossa pain leading to a diagnosis of partial torsion which was confirmed intraoperatively.

Imaging remains the mainstay in diagnosis of mature teratomas of the ovary. Mature teratomas are detected as cystic or solid masses

with fat or calcific differentiation in 90% and 50% of cases respectively 2. We carried out transvaginal sonography on our patient and found an enlarged cystic mass on the right ovary with features suggestive of partial torsion and an enlarged multifollicular left ovary. Detection of multiple teratomas in one ovary may be more difficult on ultrasonography 4 necessitating use of other modalities such as MRI or CT scan. An abdominal-pelvic CT scan on our patient confirmed a diagnosis of dermoid cysts based on findings of bilateral well circumscribed large ovarian masses. Imaging modalities are however not sufficient to differentiate mature teratomas from immature ones 6.

Our patient underwent a laparoscopic cystectomy as detailed. A conservative approach with ovarian tissue preservation was important in deciding the mode of intervention considering our patients age and low ovarian reserve as evidenced by her Antimullerian hormone level of 0.98ng/ml. Intraoperatively this was ensured by minimizing use of electro surgery and reconstruction of remaining ovarian tissue by endo-suturing. We performed a laparoscopic cystectomy successfully despite the large number of dermoid cysts showing that minimally invasive surgery is a viable option. It has not showed an increase in complications and has additional benefits of less bleeding, shorter hospital stay and quick recovery⁸. Other complications and risks in laparoscopic ovarian cystectomy such as spillage of cyst contents leading to adhesion formation have been further mitigated by use of an endobag 4 which we used during our operation. We further performed extensive peritoneal lavage and suctioning of any debris and spilled cyst content.

We performed excision of 9 dermoid cysts on the left ovary and 3 dermoid cysts on the right ovary

which were confirmed histopathologically. Pepe et al² recorded a total of 3 mature ovarian cysts, 2 in 1 ovary while Bournas et al⁹ reported 4 dermoid cysts 3 in the right ovary and 1 in the left. Sinha et al⁴ reported a total of 7 dermoid cysts, 5 on the left and 2 on the right. We have not come across any case in published literature with more than 12 mature ovarian cystic teratomas.

Recurrence of mature teratomas of the ovaries has been reported to be higher in cases with bilateral cysts at a rate of 2.5% following conservative treatment over 8 years of follow up. Multiple and bilateral ovarian teratomas present a unique challenge in diagnosis and management. Our case, despite the high number of dermoid cysts, demonstrates that use of minimally invasive surgery is a viable approach as

10. Recurrence, though rare, may be due to incomplete enucleation during surgery and worsened by spillage of cyst contents.² This stresses the need for complete enucleation of all cysts especially in cases of multiple cysts in one ovary. Furthermore, mature teratomas possess a 1-3% risk of malignancy most frequently presenting as squamous cell carcinomas with a poor prognosis.

Conclusion:

well as conservative surgery in order to preserve fertility. Furthermore, complete enucleation during surgery prevents recurrence due to small undiagnosed cysts and eliminates chances of malignant transformation.

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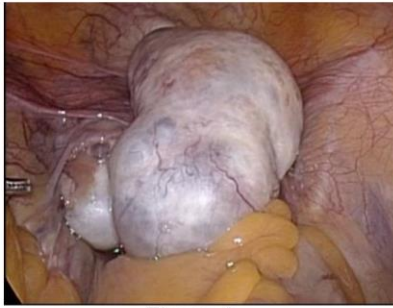


Figure 1



Figure 2

Figure 1 and 2 showing right ovary enlarged mass before and after detorsion.

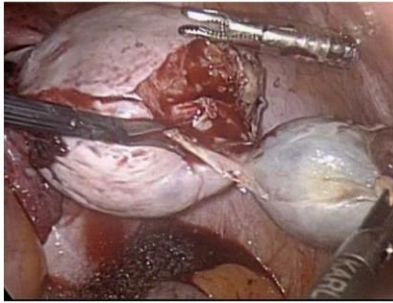


Figure 3



Figure 4



Figure 5

Figure 3,4 and 5 showing three mature cystic teratomas enucleation on the right.



Figure 6



Figure 7

Figure 6 and 7 showing enucleation of the mature cystic teratomas on the left ovary.



Figure 8



Figure 9

Figure 8 showing endobag with cyst contents.
Figure 9 showing extensive peritoneal lavage of debris.

Precis

Case report demonstrating a rare occurrence of multiple bilateral ovarian cystic teratomas, use of laparoscopic ovarian cystectomy due to desired future fertility and need for complete enucleation to prevent recurrence.

Accessory cavitated uterine mass (ACUM). Laparoscopic diagnosis and management of a rare class U6 uterine malformation. (Video Article)

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Abstract

Study Objective: to demonstrate the laparoscopic diagnosis and management of a rare class U6 malformation, namely the accessory cavitated uterine mass (ACUM).

Design: A didactic description of the diagnostic and surgical steps through a case report.

Setting: A private hospital in Rome, Italy.

Patient: 55-year-old, gravida 0 para 0 patient, with a history of conization for a high-grade intraepithelial lesion and a xipho-pubic laparotomy for a recent car accident trauma. Few months after surgery, the patient underwent a control MRI, incidentally revealing a latero-uterine mass, with liquid content, requiring further investigation.

Intervention: Laparoscopy revealed a uterus deformed by a large mass situated at the right wall, under the round ligament, arousing suspicion of a non-communicating rudimentary horn with hematometra. The insertion of the ipsilateral Fallopian tube and utero-ovarian ligament indicated the right horn of a normally shaped uterus, thus orienting towards an ACUM. Incision and dissection of the mass led to the release of a chocolate fluid which was drained. The cavitated mass was completely excised.

Main result: Histological exam confirmed a uterus-like mass composed of a myometrial wall and an endometrium.

Conclusion: ACUM belongs to the rare unclassified uterine malformations, poorly known by practitioners, and often misdiagnosed for a non-communicating rudimentary horn with hematometra or an adenomyotic cyst. The landmarks for a proper laparoscopic diagnosis and management are to be stressed.

Key words: Class U6 malformations; Accessory uterine cavitated mass; non communicating uterine horn

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Using Foley's catheter as a tourniquet during laparoscopic myomectomy (Video Article)

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Abstract

Objective: Devascularization of the uterus is essential in performing laparoscopic myomectomy. The commonest technique to devascularize the uterus is by injecting Vasopressin into the uterus and fibroids. However, in some countries vasopressin is banned. In some patients vasopressin is contraindicated. In these patients devascularisation of the uterus can be difficult. In open surgery, a Foley's catheter is used as a tourniquet to reduce bleeding (1). In this video I will show how a Foley's catheter can be used to temporarily devascularize the uterus during laparoscopic myomectomy.

Design: Presentation of the technique of applying a tourniquet using a Foley's catheter in a case of laparoscopic myomectomy

Setting: Mahkota Medical Centre, Melaka, Malaysia

Intervention: A 27-year-old lady underwent a spontaneous miscarriage at 18 weeks of pregnancy. She had a large fundal fibroid measuring 5.25 x 5.26 cm and another small subserous fibroid. She underwent a laparoscopic myomectomy. Due to irregular heart rate, the anesthetist declines the usage of vasopressin to devascularize the uterus during the laparoscopic myomectomy. A Foley's catheter was used to temporarily devascularize the uterus during laparoscopic myomectomy. Her blood loss during the surgery was only 100mls. Postoperatively the patient is well.

Conclusion: A Foley's catheter can be used in as a tourniquet to temporarily occlude the ascending branch of the uterine artery during laparoscopic myomectomy. Its application can be challenging especially when the fibroids are low such as cervical fibroids. In prolonged laparoscopic myomectomies, when the effect

of vasopressin is wearing off this tourniquet can be applied to control bleeding while laparoscopic suturing is performed. The use of Foley's catheter in this indication is an off-label use in most countries.

Key words: Laparoscopic myomectomy, Foley's catheter, Devascularization before laparoscopic myomectomy

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vNOTES (transvaginal natural orifice transluminal endoscopic surgery) hysterectomy for a large 2.465 Kg uterus (Video Article)

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Abstract

Objective: To demonstrate the technique of vNOTES (transvaginal natural orifice transluminal endoscopic surgery) hysterectomy for a large uterus.

Design: Step by step description of vaginally assisted NOTES hysterectomy for a large uterus.

Intervention: Transvaginal natural orifice transluminal endoscopic surgery (vNOTES) hysterectomy has been shown to have advantage of shorter operating time, shorter hospitalisation, lower pain scores and less complications over the total laparoscopic hysterectomy (1). It provides the advantages of endoscopic surgery such as magnified vision and more operative space over the traditional vaginal surgery (2). For hysterectomy of a large uterus, vNOTES provides more direct and quicker approach to the uterine vessels compared to the laparoscopy (1). vNOTES hysterectomy can be performed for large uteri without making any abdominal incision (3). The surgical case described in this video demonstrates vNOTES hysterectomy for a uterus weighing 2.465 Kg.

A 42-year-old P2 L2 Indian woman presented at our hospital with complaints of menorrhagia for 7 months and mild lower abdominal pain for 1 month. She underwent an ultrasonography that revealed an enlarged uterus with a solitary antero-fundal intramural fibroid measuring 21 x 18.5 x 16.3 cm compressing the uterine cavity. Patient was counselled and decision was taken to do a hysterectomy. After explaining all the options of the routes of hysterectomy, vaginally assisted NOTES hysterectomy was planned. Informed and written consent was obtained for the planned surgery with conversion to laparoscopy or laparotomy if required.

Vaginally assisted NOTES hysterectomy was performed with following key steps which we have described earlier (4) -

1. Initial steps of traditional vaginal hysterectomy: Colpotomy, bladder dissection and opening of posterior pouch.
2. Placement of vNOTES glove port and establishment of pneumoperitoneum. The use of surgical gloves to prevent CO2 escape does not comply with surgical regulations in some countries.
3. Opening of anterior pouch and completion of hysterectomy.
4. vNOTES debulking of uterus using an endo-knife followed by complete transvaginal removal of specimen using vaginal debulking.
5. Closure of the vagina.

Results: The specimen weighed 2.465 Kg. The operative time was 187 minutes from vaginal incision to vaginal closure. There were no intraoperative or postoperative complications. The blood loss was about 120 ml. The patient was discharged on the second day. The follow up at one month and 3 months after surgery was satisfactory.

Conclusion: Transvaginal endoscopic vision can be utilized to overcome the difficulties encountered during hysterectomy of large size uterus. Endoscopic knife can be utilised to debulk the specimen under the vNOTES view. This step ultimately allows easier transvaginal debulking and retrieval of the specimen. vNOTES is a feasible minimally invasive technique of hysterectomy for removal of large uteri. The endoscopic vision allows the surgeon to tackle the difficulties in removing a large specimen. Only surgical teams with significant experience in vNOTES should do such procedures.

Key words: hysterectomy; vNOTES; vaginal morcellation; large uterus

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Institutional review board has given an exemption to this study.

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