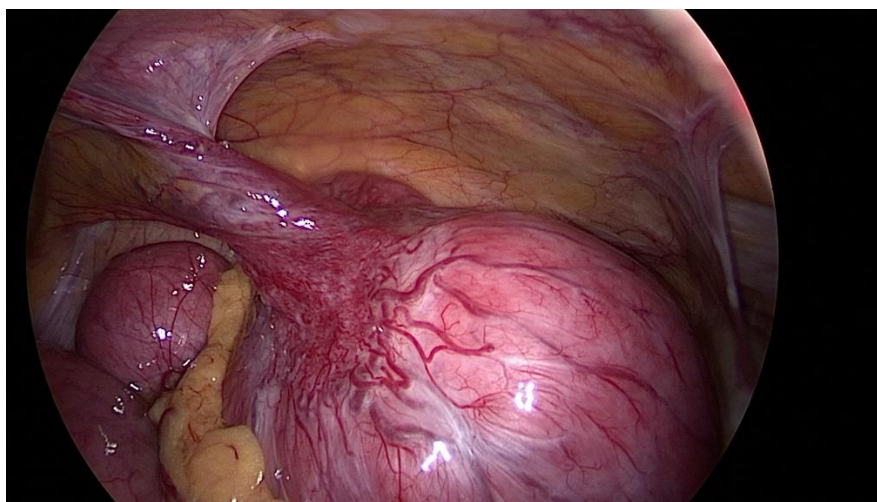
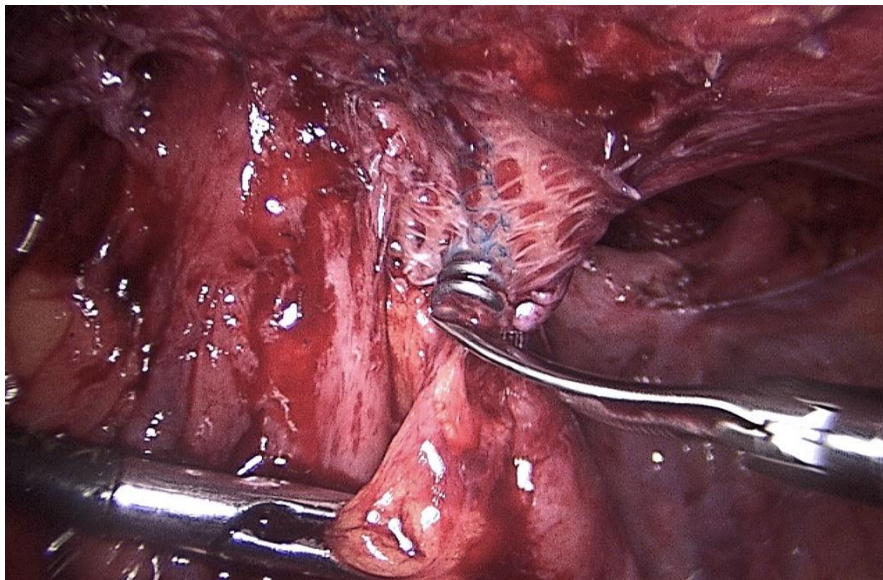




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The frontpage shows a parasitic fibroid and adhesions due to abdominal hernia surgery with mesh and tacker.

The way through the pandemic

by Guenter Noé

We are now approaching the third year of the pandemic and it is questionable how long it will last. With Omicron there is currently a new variant that is at least more contagious than Delta. Sufficient data are not yet available on the course and effectiveness of the vaccinations. For a specialist society like ISGE, this is and will remain a difficult challenge. It is important to keep the members on board and to ensure survivability. Medical societies finance themselves very differently. We are grateful that we continue to be supported by sponsors. However, in order to be able to remain independent, especially in the scientific discourse, ISGE needs alternative financing options. The membership fees are an important component, but can only cover the costs to a lesser extent. Accreditation and courses were an essential part of this. Corona essentially took these options away from us in 2020 and 2021. We have created a new curriculum for 2022 and hope to be able to offer a wide range of offers to our members and those who want to become one again.

This means a lot of voluntary work by our members. Through our membership around the globe, we always receive new input, new ideas and new perspectives. The latter is very important not to be trapped in your own information bubble. ISGE is a real global society that enables an exchange as unreservedly as possible. We want to be in contact with the world and therefore offer various exchange options on social media. In addition, we offer weekly live surgery on the Instagram channel "ISGE-members", as well as exchange in forums on the Facebook page "laparoscopy" or the Telegram channel "ISGE's FANS Minimally invasive surgeries group".

The whole world is held in suspense by the pandemic. It is therefore important that we stand together for the weakest. ISGE has set itself the task of making medical knowledge and training available all over the world. This was also a motivation to start this journal. Especially in order to enable a scientific excursus for as many as possible. With the manuscript manager you can easily upload your work and case reports or video articles and we have a tool to control the peer review process quickly. Since the reception has been positive so far, we can start volume 3 in the new year, which brings us close to the Pubmed registration. So, stay loyal to us and send us your articles, the best thing is to become a member of our community and take advantage of our offers.

We'll make it through the pandemic together!

A big thank you to all active members of the ISGE!

Günter Noé

President ISGE

Minimally Invasive Hysterectomies: A Survey of Current Practices amongst members of the International Society for Gynaecologic Endoscopy

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Abstract

This study aimed to explore the current opinion on hysterectomy choices amongst the members of International Society for Gynecologic Endoscopy (ISGE), as well as the perceptions and potential barriers that may inhibit gynaecologists from offering a minimally invasive hysterectomy to their patients. Additionally, it aimed to evaluate the attitudes towards the modes of access of hysterectomy. Finally, it assesses the perceived contraindications to performing vaginal hysterectomy (VH) or laparoscopic hysterectomy (LH)

Key words: minimally Invasive, hysterectomies, survey, current practices, ISGE members

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Introduction:

Hysterectomies are the most common operative procedures for benign gynaecological diseases (1). At present, abdominal hysterectomy (AH) constitutes the most common approach, despite the fact that vaginal hysterectomy (VH) or laparoscopic hysterectomy (LH) should be the preferred route. It is estimated that approximately 20% of women living in England and Wales will have undergone a hysterectomy before the age of 55. Most surgeons perform up to 80% of procedures via the abdominal route (2,3,4). The reason for this can be explained, in part, by personal preference, but is mainly due to a lack of training and experience, thus resulting in the surgeon's reluctance to perform VH. This is the case particularly in nulliparous woman in the presence of uterine enlargement, in women with previous surgery or women who have undergone a previous caesarean section. The above factors should not be considered as contra-indications to performing VH and there are numerous

publications which support this (5,6) The rationale for LH is to convert an TAH into a laparoscopic/vaginal procedure and to thereby reduce trauma and morbidity. In the USA, one in three women is deprived of their uterus by the age of 60 years. Out of these women, 22% have undergone a vaginal hysterectomy. The introduction of LH increased the number of VH to 33% (7) however, the additional 11% were LAVH. Despite the introduction of LH, 66.1% of the hysterectomies performed in USA are abdominal. The benefits of LH are similar to those of a VH, with minimal post-operative discomfort, less need for analgesics, shorter hospital stay, and quicker return to normal daily activity. There are also fewer post-operative complications, as well as reduced hospital costs compared with (8,9,10,11) Due to the increase in the number of abdominal hysterectomies performed, the authors are interested in exploring the potential provider-related obstacles to offering a minimally invasive hysterectomy to their patients. The

authors would also like to evaluate provider attitudes towards mode of access and to inquire about provider perceived contraindications to perform a VH or LH.

Material Method:

A two-page, anonymous, electronic survey was designed in order to explore practicing gynecologist's preferences regarding the optimal hysterectomy procedure for benign uterine conditions and the perceived barriers towards minimally invasive hysterectomy. The survey included questions on demographic characteristics, preferred approach to hysterectomy, the approximate number of surgical cases per year and potential barriers or contraindications for performing vaginal hysterectomy or laparoscopic hysterectomy. A question enquiring if surgeons have any intention of changing their approach to hysterectomy in the future was also included.

The survey was created on Survey Monkey (<https://www.surveymonkey.com/r/PFKML>

RL) through an account paid for by the author. The questionnaire was designed to be brief and easy to read, so that practicing gynaecologists need not spend an excessive amount of time completing the survey. The questionnaire was validated by 12 local practicing gynaecologists who assessed the clarity and confirmed the relevance of the questions. Thereafter, the survey was amended to its present form.

The electronic survey was disseminated in the following way: a link to the survey was emailed to all practicing gynaecologists who are members of ISGE. To complete the survey, participants were asked to click on the link and thereby be directed to the survey via the Survey Monkey website. Since the completion of the survey was done online and the results were stored in bulk on the Survey Monkey server, anonymity was preserved. Moreover, no personal information was requested by the survey itself, so the identity of the participants was not revealed.

A second e-mail was sent out two weeks after the initial email to those that failed to complete the questionnaire

Results:

We received a response from 32 members of ISGE. Twentynine (96.6%) were between 30-70 years of age (fig 1) with more than five years in practice since completion of their registrar training (fig 2). Twenty-eight (87%) of the responders were male and four (13%) were female. The most commonly performed hysterectomy procedure that had been undertaken by the responders in the last year was TAH, 69.5%, followed by VH, 54.5% and TLH, 46.1% (fig 3). When asked about the preferred route of hysterectomy for themselves or their spouse, 38.4% chose TLH, 11.5% LAVH, 34.6% VH and 3.8% TAH as their first choice. Almost all the responders were more likely to choose a minimally invasive approach to hysterectomy as opposed to TAH (fig 4).

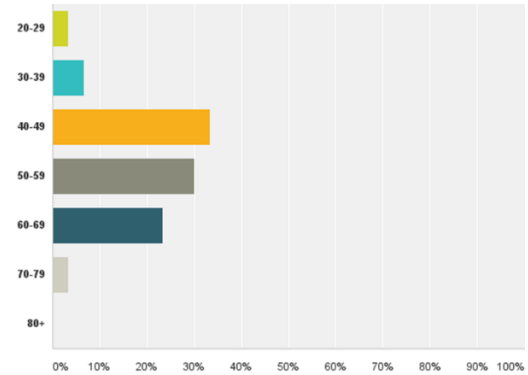


Fig. 1 Age distribution amongst the responders

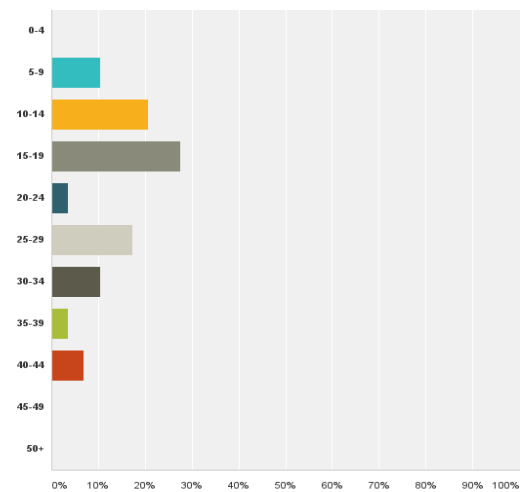


Fig. 2. Years in practice since completion of registrar training

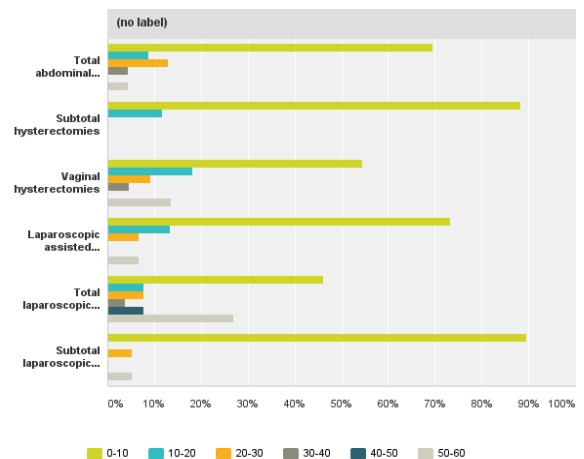


Fig. 3. Hysterectomies performed via various routes of access by the responders in one year

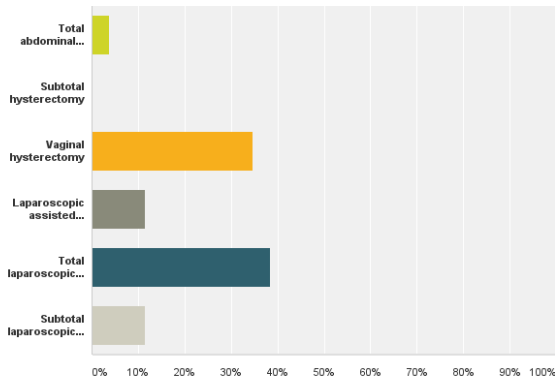


Fig. 4. Method of hysterectomy preferred to be performed for themselves or their spouse.

The main barriers to performing VH are listed in Table 1. Gynaecologists were asked to rank each factor on the scale of 1 to 5, with one 1 being the “least significant barrier” and 5 being the “most significant barrier”. The most significant reported barrier to performing VH was lack of surgical experience (40%), followed by lack of training during registrar time (28.5%) and then by malpractice concerns and length of operating time.

Although 38.5% of the responders did not report having any incentive to perform TLH as opposed to TAH, 50% of the responders stated that surgical experience was the main obstacle to performing TLH (fig 5). The main

barriers to performing a LH are listed in Table 2. Gynaecologists were asked to rank each factor on the scale of 1 to 5, with one 1 being the “least significant barrier” and 5 being the “most significant barrier”. The most significant reported barriers were surgical experience and potential for complications with 23% respectively, inadequate training during registrar time with 20%, followed by operating time and malpractice concerns.

When asked about their ideal mode of access when performing hysterectomy 47% responders answered TLH, 35% VH, 13.3% LAVH and only 5% chose TAH as the ideal method of removing the uterus (fig 6). The most significant contraindication for performing VH was a history of endometriosis followed by previous pelvic inflammatory disease, narrow introitus, uterus larger than 12 weeks, adnexal mass and minimal uterine descent (fig 7). The most significant contraindication to performing a LH was uterine size, 27.7%, followed by previous laparotomy or endometriosis with

16.6% respectively (fig 8). The majority of the responders (66%) said they would like to decrease their TAH rates, 68.1% said they would like to increase their VH rates and 69.5% would like to increase their TLH rates while keeping the same number of LAVH (table 3).

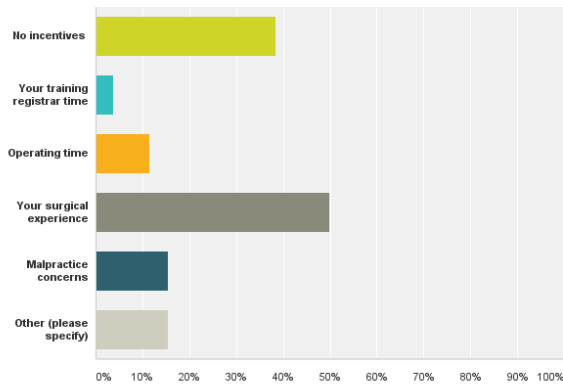


Fig. 5. Incentives and reasons not to performed TLH

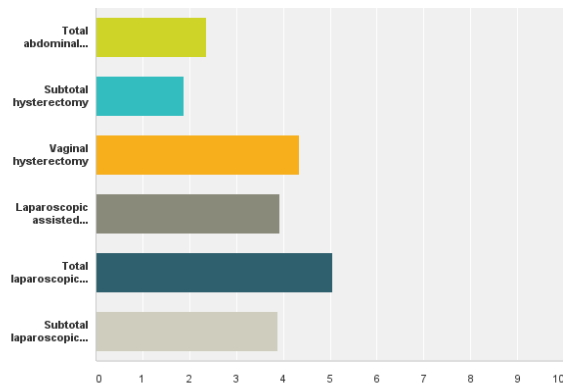


Fig. 6. The ideal mode of access when performing a hysterectomy

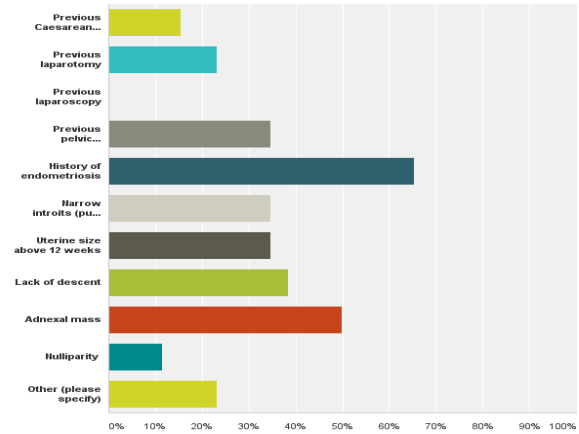


Fig. 7. The frequency of contraindication to performing VH, as perceived by the responders

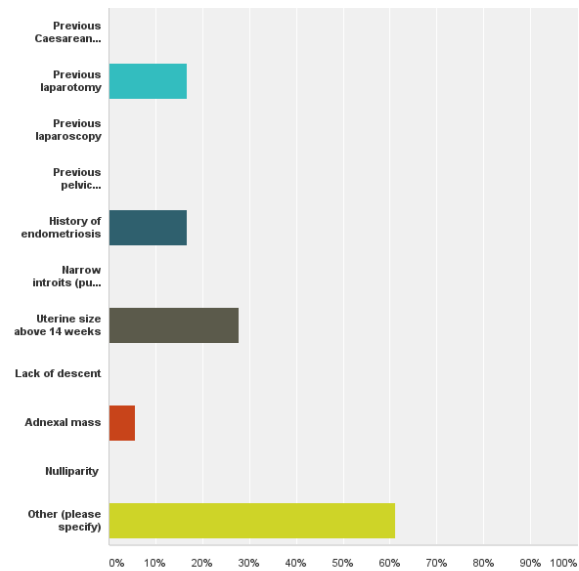


Fig. 8. The frequency of contraindications to performing laparoscopic hysterectomy

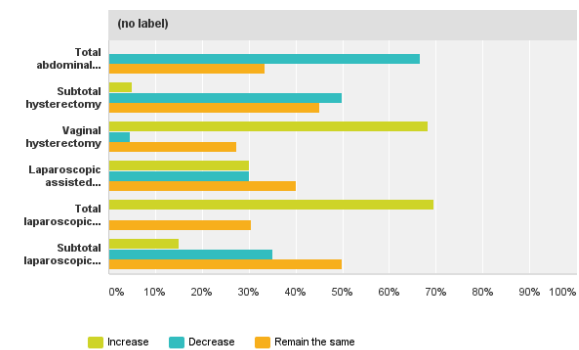


Fig. 9. The expressed desire to change the mode of access when performing a hysterectomy

Discussion:

Although the number of responds from society members was disappointing, The authors found some discrepancies between practice patterns and physician preference. When laparoscopic gynaecologists were asked to rank which hysterectomy approach they would prefer for themselves or their spouse, 38.4% answered TLH with only 3.8% preferring TAH. However, the reality in their practice is different, as TAH still makes up a large majority of hysterectomies performed over one year period. TAH accounts for 69.5% of the hysterectomies performed by the responders over a period of one year. Our results are in agreement with Einarsson et al (12) in a survey performed in the United States of America (USA) among practicing gynaecologists. The results of the survey showed that only 8% of the gynaecologists would choose TAH as the preferred hysterectomy approach for themselves or their spouse. In spite of their preferences,

TAH continues to be the most common hysterectomy method in the USA.

This difference between preferences and practice could present an ethical dilemma for the gynaecologists if they are not able to offer potentially appropriate candidates the hysterectomy they would recommend for themselves or their spouse. This seems consistent with the findings of this study as the participants expressed a strong desire to increase minimally invasive hysterectomies in their practice. They expressed almost similar desires to increase their rates in TLH as well in VH.

In table 3, we present the desired mode of access for hysterectomy. Identifying ways to promote the least invasive approach to hysterectomy could decrease health care costs and improve patient quality of life. The fall in VH may well reflect a switch to laparoscopic procedures but mainly, as indicated by the results of this survey, seems to be due to a lack of training during registrar time. For the last twenty five years, driven by industry and

fascination of new technology, laparoscopic societies have tried to promote TLH without any obvious impact on TAH numbers. It is time to realize that laparoscopic societies need to find ways to promote not only TLH but also VH if they really want to decrease TAH numbers.

In table 1 the main barriers to performing VH are presented. When laparoscopic gynaecologists were asked to rank the contraindications to performing VH they mentioned amongst others, patients with fibroid uteri, patients with previous caesarean sections, nulliparous patients and patient with previous laparotomies. Considering the contraindications to performing VH mentioned by the responders, one can draw the conclusion that in the absence of uterine descent or prolapse, all hysterectomies are done either laparoscopically or abdominally. The obvious lack of training during registrar time may lead to a newer generation of specialists reluctant to perform VH in the absence of uterine prolapse, or performing

TLH in patients who may have otherwise undergone an uncomplicated VH. The contraindications to VH, mentioned above, should not be an obstacle to remove the uterus vaginally, provided the uterine size does not exceed 14 weeks, the pathology is confined to the uterus and there is adequate vaginal access. Many studies have shown that challenging these contraindications can lead to an increase in numbers of VH. (4,5,6)

Half of the responders stated that surgical experience is the main obstacle to performing TLH, although it is an accepted and widely preferred method. The most significant reported barriers to performing TLH were mainly lack of surgical experience and inadequate training, followed by the risk of complications resulting in malpractice claims. The operating time was also of concern. Regarding TLH, the results of this survey are in agreement with a survey by Einarsson et al (13) among senior obstetrics and gynaecology residents, which shows that residents are unable to attain proficiency in

most advanced laparoscopic procedures during their residency. 67% of senior residents thought emphasis on laparoscopic surgery should be greatly increased and 87% of them considered that training received in laparoscopy was important for building a successful practice.

Chen et al (14) in a survey performed in Canada found that 93% of the responders selected the endoscopic approach as their preferred approach, however, 38.7% of these responders did not feel that they had adequate training during residency to perform endoscopy in general.

The fact that the majority of the responders in this survey would like to increase their ability to offer VH or TLH approaches to their patients suggest that, if more opportunities for VH and TLH exposure and training were

available, interested gynaecologist could potentially become comfortable offering these options to their patients.

This study has strengths and limitations. Firstly, it was a survey that took place amongst gynaecologist with experience in minimally invasive surgery and not general gynaecologists as in the majority of surveys published in the literature (12,13,14). Secondly, it is the first international survey, amongst members of an Endoscopic society, to evaluate barriers to performing minimally invasive hysterectomies. The study was limited by the very low response rate. This is something common to professional surveys. It is possible that the responders may not be representative of the overall population of minimally invasive gynaecologic surgeons in practice, which will affect our results.

Conclusion:

For the members of the ISGE, their preferences for access to hysterectomy compared to their actual practice appear inconsistent. This suggests that strategies should be initiated to increase training opportunities in minimally invasive hysterectomies, especially VH. Guidelines for performing minimally invasive hysterectomies should be put in place to help our colleagues to perform more minimally invasive hysterectomies.

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Tables:

	1	2	3	4	5	Total	Score
Your training registrar time	7.14% 1	28.57% 4	21.43% 3	14.29% 2	28.57% 4	14	2.71
Operating time	25.00% 4	31.25% 5	25.00% 4	18.75% 3	0.00% 0	16	3.63
Your surgical experience	15.00% 3	10.00% 2	10.00% 2	25.00% 5	40.00% 8	20	2.35
Malpractice concerns	23.53% 4	17.65% 3	17.65% 3	41.18% 7	0.00% 0	17	3.24
Other	62.50% 10	6.25% 1	6.25% 1	0.00% 0	25.00% 4	16	3.81

Table 1. The most significant Barriers of performing VH

	1	2	3	4	5	6	7	8	9	Total	Score
Your training during registrar time	20.00% 2	0.00% 0	10.00% 1	0.00% 0	20.00% 2	0.00% 0	10.00% 1	30.00% 3	10.00% 1	10	4.50
Operating time	0.00% 0	30.77% 4	30.77% 4	23.08% 3	7.69% 1	0.00% 0	7.69% 1	0.00% 0	0.00% 0	13	6.62
Your surgical experience	15.38% 2	15.38% 2	15.38% 2	7.69% 1	23.08% 3	0.00% 0	15.38% 2	7.69% 1	0.00% 0	13	5.92
Technical difficulty	7.69% 1	15.38% 2	15.38% 2	38.46% 5	7.69% 1	0.00% 0	7.69% 1	0.00% 0	7.69% 1	13	6.00
Hospital/patient costs	28.57% 4	7.14% 1	14.29% 2	7.14% 1	21.43% 3	14.29% 2	0.00% 0	0.00% 0	7.14% 1	14	6.29
Potential for complications	7.69% 1	15.38% 2	15.38% 2	7.69% 1	23.08% 3	30.77% 4	0.00% 0	0.00% 0	0.00% 0	13	5.85
Availability of equipment	0.00% 0	8.33% 1	8.33% 1	16.67% 2	8.33% 1	8.33% 1	16.67% 2	16.67% 2	16.67% 2	12	4.00
Malpractice concerns	27.27% 3	18.18% 2	9.09% 1	0.00% 0	9.09% 1	9.09% 1	9.09% 1	18.18% 2	0.00% 0	11	6.00
Other	54.55% 6	9.09% 1	0.00% 0	9.09% 1	9.09% 1	9.09% 1	0.00% 0	0.00% 0	9.09% 1	11	7.09

Table 2. The most significant barriers to performing LH

(no label)				
	Increase	Decrease	Remain the same	Total
Total abdominal hysterectomy	0.00% 0	66.67% 14	33.33% 7	21
Subtotal hysterectomy	5.00% 1	50.00% 10	45.00% 9	20
Vaginal hysterectomy	68.18% 15	4.55% 1	27.27% 6	22
Laparoscopic assisted vaginal hysterectomy	30.00% 6	30.00% 6	40.00% 8	20
Total laparoscopic hysterectomy	69.57% 16	0.00% 0	30.43% 7	23
Subtotal laparoscopic hysterectomy	15.00% 3	35.00% 7	50.00% 10	20

Table 3. Desired change of the route of hysterectomy

Introduction of the new procedure in UK- Laparoscopic Pectopexy.

Two years follow up study

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Abstract

In 2016 we introduced a new laparoscopic method for the treatment of the descensus of the uterus and vagina at our clinic. As an alternative to sacropexy, pectopexy was implemented. With this retrospective single-center follow-up analysis of all patients operated on for prolapse from September 2016 to October 2017, we evaluated the results. All had a laparoscopic pectopexy using a mesh (PRP 3x15 Dynamesh). The retrospective cohort study included 27 patients who presented to our clinic with uterovaginal prolapse POP-Q stages III and IV. 23 patients completed a two-year observation period. The laparoscopic pectopexies were all performed by the senior surgeon. There was one serious complication (3.7%). It was a bladder injury that occurred intraoperatively. There were no postoperative complications. Unexpected findings were a benign adnexal cyst, grade 1 endometrial carcinoma in a morcellated uterus, and complex hyperplasia in a morcellated uterus. As a concomitant operation, 3 patients required simultaneous posterior colporrhaphy, 1 patient had simultaneous laparoscopic paravaginal repair.

Results:

In 3 cases (13%) there was a relapse of the apical descent - due to elongation of the cervix. De novo urgency occurred in 2 cases (8.6%). In 3 cases (13%) we registered a de novo rectocele or exacerbation of an already existing rectocele. In 2 cases (8.6%) we found a de novo central cystocele or progress of an existing cystocele. In one case (4.3%) the patient reported de novo stress urinary incontinence.

Conclusions:

Laparoscopic pectopexy is a good and safe alternative to laparoscopic sacrocolpo or sacrohysteropexy. It is effective and shows no bowel movement disorders or mesh problems with a low recurrence rate during the two-year follow-up. Even with a small volume, similarly good results as in comparable large studies could be achieved. With the pectopexy we were able to expand our portfolio for our patients with another safe method.

Key words:

Laparoscopic Pectopexy, PVDF mesh; DynaMesh, Pelvic Organ Prolapse

Introduction

Pelvic Organ Prolapse (POP) is a health problem for half of postmenopausal women who have given birth. It affects millions of women worldwide (1).

Apical prolapse refers to the descending of the vaginal apex, uterus, or cervix and can be associated with a variety of symptoms, including tissue bulging (bulge), pelvic pain, dyspareunia, and impaired sexual intercourse.

Further clinical symptoms are residuals after urination, irritable bowel syndrome, urinary incontinence, obstructive defecation and urge to defecate [2].

Sacral colpopexy is an established method for correcting apical prolapse. Although it is able to approximate the physiological axis of the vagina, this method also carries some serious operative risks [3].

Laparoscopic pectopexy is a technique, which was first described in 2010 as an alternative to sacrocolpopexy. It is based on a bilateral attachment to the Pectineal Ligament (Cooper), an extension of the lacunar ligament which runs along the pectineal line of the pubic bone [2]. The material used for suspension is a non-absorbable polyvinylidene fluoride (PVDF) monofilament mesh

(DynaMesh® PVDF, 3 × 15 cm). This is attached to Cooper's ligament on both sides with a non-absorbable Ethibond 0 stitch and centrally to the vagina, cervix or uterus with an absorbable monofilament stitch (e.g. PDS 2/0), [Video 1].

The technique of Laparoscopic Pectopexy was first published by G. K. Noé in Dormagen, Germany [4]. Our introductory approach consisted of an initial clinical attachment in May 2016 with Professor Noe. Approval was gained by both the Clinical Governance Committee and Medical Director of Ninewells University Hospital, Dundee, as well as Health Improvement Scotland. We then invited Professor Noe to Dundee where three cases of laparoscopic pectopexy were performed under direct supervision in September 2016.

Follow - up audits were conducted at six months and two years after completion of the twelve-month period after surgery. Laparoscopic Pectopexy was submitted to the National Institute for Health and Care Evidence (NICE) as a new interventional procedure, but the procedure was stopped by NICE on the 14th of March 2018 due to a lack of supporting evidence [6].

A randomized control trial was set up comparing laparoscopic sacrohysteropexy to laparoscopic pectopexy under a research umbrella as per the NICE recommendation.

Method

A single-center retrospective cohort study of the outcomes of all patients who underwent Laparoscopic Pectopexy using DynaMesh PRP 3x15 tailored implants made of PVDF between September 2016 and October 2017. Medical records were identified via the OPERA electronic database. Data was extracted from medical notes regarding symptoms, operative morbidity and therapeutic outcomes. The POP-Q scoring system was employed to objectively assess pre- and postoperative pelvic organ prolapse. Complications were categorized as either early or late (Clavien - Dindo classification). Quality of life was assessed using the ICIQ-VS questionnaire. Information was collated in an Excel spreadsheet for further analysis. The following inclusion criteria were used [Table1] to select patients where we felt laparoscopic pectopexy offered an advantage over laparoscopic sacrohysteropexy.

CRITERIA FOR PECTOPEXY

PROLAPSE OF THE UTERUS TO STAGE POPQ- III OR MORE

PREVIOUS BOWEL SURGERY (INCLUDING MESH RECTOPEXY)

PREEXISTING BACK PAIN/ SPINAL SURGERY

PREEXISTING BOWEL URGENCY, INCOMPLETE EMPTYING

BMI OF ABOVE 35

PREVIOUS FAILED VAGINAL SURGEY FOR PROLAPSE

PREVIOUS FAILED LAPAROSCOPIC SACROHYSTEROPEXY

ANATOMICAL ABNORMALITIES IN THE AREA OF THE PROMONTORY

Table 1

Preferred inclusion criteria for Laparoscopic Pectopexy

Results

All patients who underwent Laparoscopic Pectopexy were evaluated but only 23 completed the two-year observation period. The total cohort of 27 patients was

included in the assessment of perioperative complications. Baseline characteristics of the patients were assessed which demonstrated a median age of 58 and a median BMI of 30 [Table 2].

Baseline characteristics	Median	Range
Age (years)	58	38-75
BMI	30	20-40
Parity	2.1	1-4
Previous surgery for prolapse PFR - sacrospinous colpo/cevicofixation (SSCF), Vaginal Mesh surgery(only previous vaginal approach)	2.0 3 patients- no previous surgery 5 patients- one vaginal surgery 12 patients – two previous vaginal surgery 4 patients-three previous vaginal surgery 3 patient- four previous vaginal surgery	0-4

Table 2

Retrospective cohort study includes 27 patients with utero-vaginal prolapse POP-Q stages III and IV who underwent Laparoscopic Pectopexy between September 2016 and October 2017 by the same surgeon.

3 patients required a concomitant posterior colporrhaphy, and 1 patient a laparoscopic paravaginal repair. The only intraoperative complication was a bladder injury fortunately there were no post-operative complications. Unexpected findings included a benign adnexal cyst, a Grade 1 endometrial carcinoma and endometrial hyperplasia in pathology specimens [Table 3].

Overview Complication and unexpected findings

- Intraoperative: 1 bladder injury
- Postoperative: nil
- Unexpected findings:
 1. Adnexal cyst – benign
 2. Grade 1 endometrial ca in morcellated uterus
 3. Complex hyperplasia in morcellated uterus

Table 3: Results for 27 patients included in the study

In 3 cases (13%) of the patients who completed 2 years of follow-up there was recurrence of the apical prolapse due to elongation of the cervix. De novo bladder urgency was reported in 2 cases (8.6%), a De novo rectocele or deterioration of a pre-existing rectocele was reported in 3 cases (13%). A De novo central defect cystocele or exacerbation of a pre-existent cystocele was reported in 2 cases (8.6%) and De novo stress urinary incontinence in 1 case (4.3%). 95% of patients were satisfied with the results of the surgery

based on their ICIQ-VS score [Table 4, 5].

2 years follow-up results	Pectopexy
Number of patients	23 (completed 2 years' observation period)
Average observation time (months)	27.8 (range 24–38)
Satisfied with the surgery (number of patients; percentage of all patients) ICIQ-VS	22; 95.6%
Cases of the cervical stump prolapse	0
Relapse of apical descend – elongation of the cervix (number of patients; percentage of all patients)	3; 13%
<i>De novo</i> urgency (number of patients; percentage of all patients)	2; 8.6%
<i>De novo</i> constipation (number of patients; percentage of all patients)	0

Table 4: Results for 23 patients completed the two-year observation period.

2 years follow-up results	Pectopexy
<i>De novo</i> rectocele or exacerbation of already existent rectocele (number of patients; percentage of all patients)	3; 13%
<i>De novo</i> lateral-defect cystocele (number of patients; percentage of all patients)	0

<i>De novo</i> central-defect cystocele or exacerbation of already existent central-defect cystocele (number of patients; percentage of all patients)	2; 8.6%
<i>De novo</i> stress urinary incontinence (number of patients; percentage of all patients)	1; 4.3%

Table 5: Results for 23 patients completed the two-year observation period.

Mean operating time was 132 minutes and mean blood loss was 57mls [Fig 1].

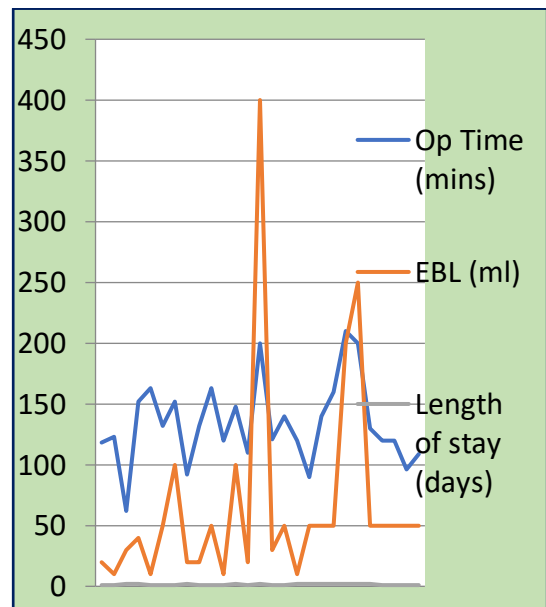


Fig.1: Results for 27 patients included in the study

Discussion

Laparoscopic Pectopexy has been evaluated in randomized trials as well in multicenter trials so far and appears to be safe and effective with minimal risk of complications [10-14]. The development of a cystocele, central defect or deterioration in an existing anterior wall prolapse seen in 8.6% of our patients was comparable to 7.1% seen in one randomized controlled trial. The development of a rectocele or exacerbation of an existent rectocele in 9.5% and 13% respectively was also comparable [4, 5]. *De novo* defecation disorders secondary to injury of the hypogastric nerves was rare and *de novo* stress urinary incontinence was seen in 4.3% of our patients compared with 4.8% in the randomized controlled trial [4].

Injury to the urinary bladder occurred in one patient and was minor in character (5 mm defect) and occurred in a patient with an isthmocele and co-existing endometriosis. The Repair required double layer suturing and the patient was discharged home the following day with an indwelling catheter on free flow for six days.

An interesting observation was seen in relation to the 3 laparoscopic hysteropectopexies, two of which were performed using an anterior attachment and one using a posterior attachment to the cervix. In all cases, the patients developed a significant elongation of the cervix which required a subsequent amputation of the cervix. The point of attachment between the mesh and uterus did not alter the position of the uterus in the pelvis. In all cases surgery successfully restored the apical position of the uterus. The Suture material used to attach the mesh to the uterus (or cervix) was non absorbable multifilament-Ethibond 0, and to the vagina was monofilament, absorbable-PDS 2/0. [Video 2, 3].

Complex hyperplasia of the endometrium with an associated normal endocervical biopsy was treated conservatively. The endometrial cancer which was discovered in the morcellated uterus required subsequent removal of the cervix and re-attachment of the DynaMesh to the apex of the vagina. This was done in two separate stages three months apart to avoid mesh erosion [Video 4, 5]. Following this incident a policy was introduced requiring

an endometrial sample to be obtained and reposted prior to morcellation of the uterus during a subtotal hysterectomy.

Second look six month later for laparoscopic ventral mesh rectopexy (VMR) revealed the presence adhesions of the sigmoid colon to the central part of the apex (attachment of the mesh to the cervix) and left flank of the pelvis [Video 6].

This is likely related not to the type of surgery itself but to the material used to close peritoneum- barbed V-Loc 3/0 [7,8]. On the positive note, Laparoscopic pectopexy does not limit the access to the promontory and posterior vaginal wall in the case of the subsequent VMR which is beneficial in comparison with laparoscopic sacrohysteropexy.

Laparoscopic pectopexy does not reduce volume of the pelvic space and does not appear to be complicated by defecation disorders [Table 6].

There are several evidences on the improvement of the quality of life after laparoscopic pectopexy.

Aybike and others quoted improvement of P-QOL score, which is the quality-of-life scale of prolapse, 83.45 ± 8.7 (64–98) in

preoperative patients and 8.61 ± 6.4 (0–23) in postoperative patients [9]. The results were similar to our outcome of 95.6% of satisfaction rate on ICIQ-VS.

Laparoscopic pectopexy appears to be a useful new procedure in the management of apical prolapse supported by studies of the developing center and an increasing number of additional research [10-14]. It offers a more conservative approach in patients wishing to preserve fertility and gives bilateral support at the level of paracervical ring. According to the data it is highly sufficient with a low risk for the patients proven by a huge multi center trial [11].

Conclusions

- Laparoscopic pectopexy is a good alternative to laparoscopic sacrocolpo/hysteropexy.
- Laparoscopic pectopexy is an effective, safe technique. No defecation disorders or mesh related problems were demonstrated during the two-year follow-up period.
- There were no cases of recurrence of apical prolapse at the attachment point of the mesh.

- All cases of pectohysteropexy developed significant elongation of the cervix and required subsequent surgical correction which needs to be emphasised during the consenting process.

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Video Nr 1 Overview on Laparoscopic Pectopexy

Video Nr 2 Final view on Hystero- Pectopexy with posterior attachment

Video Nr 3 Final view on Hystero- Pectopexy with anterior attachment

Video Nr 4 Initial view 30 days after Laparoscopic Pectopexy (Endometrial cancer G I)

Video Nr 5 Detachment of the mesh from the cervix (Endometrial cancer G I)

Video Nr 6 Results of Laparoscopic Pectopexy six months after initial surgery

Title: Case report on complications of Laparoscopic Sacrohysteropexy- Non- infectious Discitis and total removal of the DynaMesh a year later

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Abstract:

We present a case report of spondylodiscitis after sacro-hysteropexy: A 47-year-old patient reported severe back pain after laparoscopic sacro-hysteropexy with a PVDF mesh and Ethibond "0" suture as an attachment method to the anterior longitudinal ligament of the spine. Initial treatment with intravenous antibiotics helped, but after symptoms recurred, the mesh was completely removed laparoscopically a year later. Your symptoms gradually improved over the next year. She regained her full mobility but there was still minimal back pain.

Conclusions:

The knowledge of typical symptoms such as lower back pain, radiating pain symptoms after laparoscopic sacro-hysteropexy leads to a timely diagnosis. MRI is a diagnostic gold standard for the final diagnosis of lumbar spondylodiscitis. Careful suturing in the anterior longitudinal ligament only at the level of the promontory / S1-S2 while avoiding the intervertebral disc space is of the greatest importance. Rapid diagnosis and multidisciplinary management are the cornerstones of successful treatment.

Keywords:

Laparoscopic sacro-hysteropexy, PVDF, non-infectious discitis

Introduction:

Laparoscopic sacrohysteropexy (LSH) is an often-used method to correct apical prolapse while preserving the uterus using an alloplastic material (polypropylene, PVDF or other mesh). Lumbar sacral spondylodiscitis is a rare but serious mesh complication after laparoscopic sacrohysteropexy or ventral mesh rectopexy (VMR). A distinction is made between infectious and non-infectious discitis [1]. In most cases, spondylodiscitis is referred to as pyogenic discitis and vertebral osteomyelitis and is restricted to the intervertebral disc (discitis) and the adjacent vertebrae (vertebral osteomyelitis) [2]. So far, only one case using PVDF structures (Dynamesh) and non-absorbable sutures (Ethibond 0) as an attachment method to the anterior longitudinal ligament of the spine has been published. Most case reports relate to polypropylene net and titanium screws or staplers.

Material method:

A 47-year-old patient with a BMI of 31 was referred by the family doctor in May 2017 after a failed physiotherapy with symptoms of uterine prolapse. Her medical history reported four spontaneous births with large babies and one laparoscopic gastrectomy.

The gynecological examination showed a descensus. Essentially an isolated uterine prolapse POP-Q stage III (+3 cm). In addition, a mild cystocele as well as a mild one (up to +1 cm) Since these were compensated for by the reduction of the uterus alone, no additional interventions were planned for the LSH). In the general anamnesis, the patient reported mild stress incontinence as well as severe bipolar disorder.

In January 2018, the laparoscopic sacrohysteropexy was performed using a PVDF (DynaMesh) with fixation on the anterior longitudinal ligament of the spine and on the posterior wall of the uterus. The mesh was fixed in both directions with Ethibond 0. Inpatient care was uncomplicated and the patient was discharged home on the same day.

Video Nr 1 Placement of the Ethibond 0 stitch on the Anterior Longitudinal Spinal Ligament

Video Nr 2 Final results of the Laparoscopic sacrohysteropexy

In the following months the patient gradually developed increasing back pain. The patient had persistent symptoms such as: stiffness of

the lumbosacral portion, low back pain (LBP), persistent swelling, inability to bend over, pain radiating to the right lower extremity, pain radiating to both buttocks and occasionally the front of both thighs and even with temporary paresthesia of the back of both feet, as well as very limited general leg mobility. The patient was admitted to the orthopedic surgeon's office in April 2018. The symptoms could be alleviated using non-steroidal anti-inflammatory drugs and opiates.

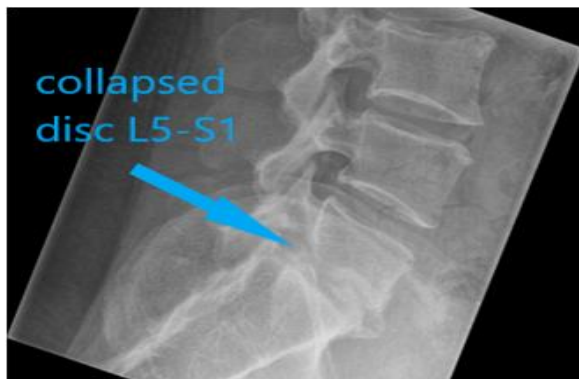


Photo 1 XR on admission 04.2018

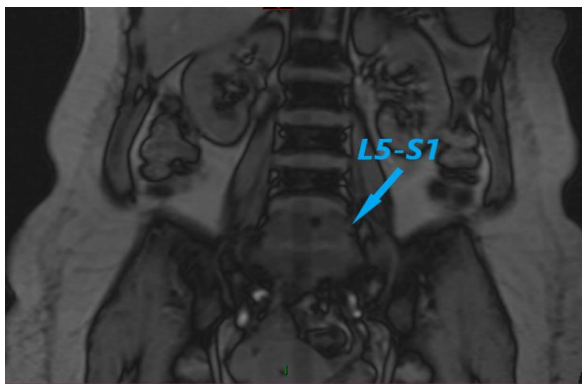


Photo 2 MRI scan on admission 04.2018

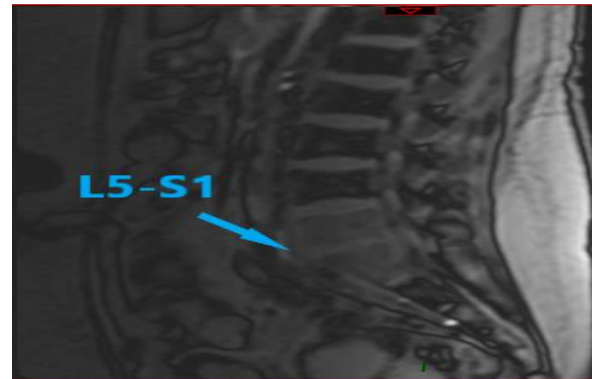


Photo 3 MRI scan on admission 04.2018

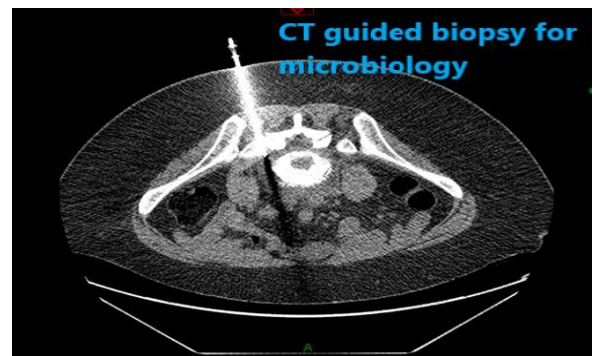


Photo 4 CT guided tissue biopsy has not grown any culture on day 2

Results:

In an interdisciplinary conference (MDT) with the participation of colorectal surgeons, urogynecologists, orthopedic surgeons, neurologists, neurosurgeons and physiotherapists, the patient is treated with a class IV antibiotic (teicoplanin) for a further eight weeks. The symptoms only improve slowly but ultimately significantly.

The symptoms reappeared after the therapy was discontinued, which led to resumption two months later (09.2018) with increased inflammation markers and severe back pain. The CRP had increased significantly from 11 mg / l in the previous week to 131 mg / l. This was addressed with a second antibiotic treatment (flucloxacillin for four weeks), which was again associated with the significant improvement in symptoms.

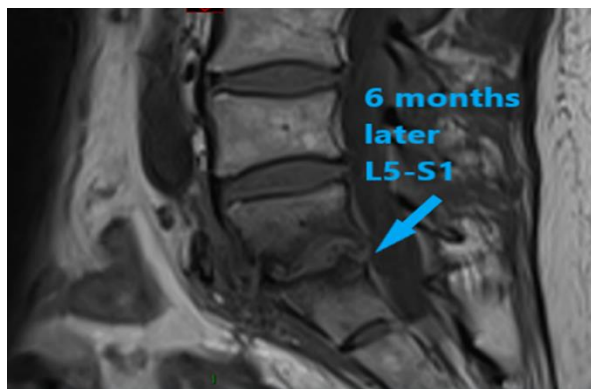


Photo5 - MRI scan 09. 2018- Amalgamation of the vertebrae L5-S1

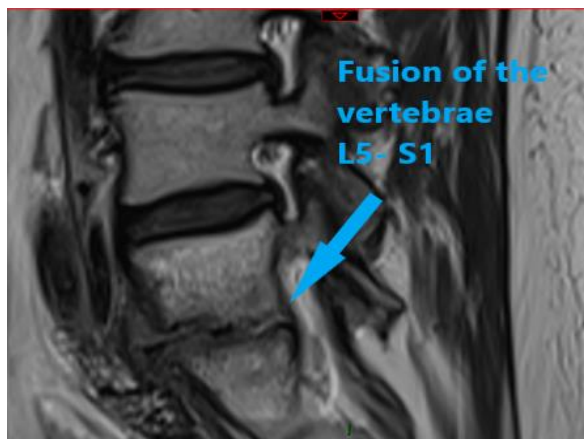


Photo 6- MRI scan 09.2018- Amalgamation of the vertebrae L5-S1

The MDT subsequently decided to remove the mesh in order to reduce the risk of the symptoms recurring or recurring and the inflammatory reaction recurring in the future. In January 2019, a laparoscopic total mesh removal was carried out, a total of one year since the first operation.

Video 3 Removal of the DynaMesh- 01.2019

Three years after the initial surgery, the patient was able to return to normal daily activities and mobility. Occasional intermittent LBP or electrical stabbing pain that radiates to her right leg at rest or when moving is still present. She describes an improvement in stress incontinence but reports of a de novo overactive bladder (OAB).

The current gynecological examination shows the following anatomical results: A medial cystocele stage POP-Q II, a rectocele stage POP-Q II. The cervix descends up to approx. 2 cm from the introitus. She does not indicate any bowel problems. As an alternative, we offered her a laparoscopic pectopexy with PVDF mesh (DynaMesh PRP) for treatment.

Discussion:

Up to December 2019, 33 published cases of lumbar spondylodiscitis after sacral hysteropexy and (or) rectopexy with meshes could be identified in PubMed. [3] The median time to onset of symptoms was 14 months and ranged from 6 days to 8 years. In our case, the symptoms appeared soon after the procedure. Lower back pain occurred in all cases, 38% suffered from fever, 35% from referred leg pain. 71% of the patients developed a local pathogen infection. Antibiotics alone were only effective in 12% of the total cases. Mesh removal and debridement were effective in most cases, while multidisciplinary surgery, mainly orthopedic, was required in 44% of the cases. 88% of the patients were able to return to their normal daily activity and only 6% of the patients had intermittent LBP.

Another review [1] reports on 41 women with an average age of 59 (54–66) years who were diagnosed with spondylodiscitis (SD). The most common symptoms were: 85% (n = 35) back pain, 49% (n = 20) temperature increase, 22% (n = 9) pain radiating to the legs, 15% (n = 6) vaginal discharge. Treatment of SD consisted of conservative treatment with antibiotics alone in 29% of cases, 66% of patients had to undergo additional surgical treatment, and

more than one procedure was performed in 40%.

Neurosurgical intervention was required in 24% (n=10) of patients. In our case, the decision to remove the mesh was delayed by a year due to the initial improvement in symptoms with intravenous antibiotics. Due to the recurrence of symptoms, a multidisciplinary team has usually recommended that the mesh be completely removed.

Conclusions:

Persistent LBD and referred leg pain after promonto fixation or sacropexy (even 18 months later) can be a symptom of lumbar spondylodiscitis. Today, MRI is a diagnostic gold standard for detecting lumbar spondylodiscitis. Knowledge of the typical symptoms, timely diagnosis, and consideration of early network removal should always be taken into account.

The further improvement of surgical practice while observing careful suture or staple placement only in the anterior longitudinal ligament of the spine at the level of the S1-S2 while avoiding the intervertebral disc space is an option to avoid the complication. Rapid diagnosis and multidisciplinary management are the cornerstones of successful treatment.

Unfortunately, it is not possible to differentiate which role the fastening material plays, just as the fastening location has a more

decisive influence than the mesh itself. Since the sutures or staples and screws ultimately penetrate the disc, the mesh does not.

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ENDOMETRIOSIS OF THE RECTUS ABDOMINIS MUSCLE FOLLOWING A CAESAREAN SECTION: A CASE REPORT

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Abstract

Endometriosis is a condition in which the endometrial glands grow outside the uterus. Endometriosis occurring in the extra-pelvic organs is rare. One of the sites includes the abdominal wall. We reported one case of a 26-year-old woman with endometriosis on the rectus abdominis muscle three years following cesarean section. The patient presented with a complaint of lower abdominal pain, especially during menstruation, and there was a lump on the area of the cesarean section. CT scan was performed to diagnose the condition and extension of the disease. Wide excision surgery and salpingo-oophorectomy were performed and followed by histopathology examination which revealed endometrial gland and stroma between the muscle, connective, and fat tissues. Abdominal wall endometriosis is often undiagnosed due to many similar masses. Cesarean section is one of the critical risk factors in the case of abdominal wall endometriosis. The proper management of abdominal wall endometriosis may be performed with wide excision in order to prevent recurrences.

Keywords: Endometriosis, Rectus abdominis muscles, Abdominal wall endometriosis, Caesarean section

Introduction

Endometriosis is a condition in which the endometrial glands and stroma grow outside the uterus.¹ Endometriosis occurs in 10-15% of women during their reproductive age, with an incidence of 70% in women suffering from chronic pelvic pain which is usually found around the pelvic area covering the ovaries, ligament, and around the peritoneal area such as the intestines and bladder.¹ It rarely occurs in the extra-pelvic organ, such as the vulva, vagina, appendix, stomach, liver, bladder, umbilical, and inguinal canal.² Moreover, endometriosis can also be found in the abdominal wall post-surgery, its presence has been reported in the post-cesarean section scar. The incidence rate of cesarean section scar endometriosis is between 0.03-1.73.³

Case Report

We report a case of 26-year-old woman send in for consult by a digestive surgeon. The patient complained of lower right abdominal pain for one year, especially during menstruation. The patient also felt a lump in the same location. The lump has been felt for one year, it increased in size during menstruation. The patient had a history of cesarean section in 2017 performed because of placenta previa.

On physical examination, the vital signs were all within normal limit. The physical examination of the abdomen revealed a five cm mass in the hypogastric region above the C-section incision scar. The mass was solid, well-delineated of 2 x 2 cm, immobile, and without tenderness. Abdominal CT scan revealed the mass to be iso dense, well-delineated, with regular edges, without calcification, with a size of $\pm 2.96 \times 2.21$

x3.34 cm and located in the extraperitoneal region of the abdominal wall in the right iliac region. The mass was considered to originate from the rectus abdominis muscle. In addition, there was also a unilocular mass, round, well-delineated, with regular edges, without calcification, with a size of $\pm 3.85 \times 6.52 \times 4.46$ cm, which was thought to originate from the right ovary (Figure 1).

The patient was diagnosed with a cystic ovarian neoplasm and a rectus abdominis tumor. The patient was then planned for elective laparotomy. Intraoperatively, a mass in the right rectus abdominis muscle was encountered. This procedure was followed by an exploration of the pelvic cavity. The pelvic cavity revealed severe adhesions between right ovarian cyst, bowel and uterus. The condition suggested a grade IV endometriosis according to revised American Society for Reproductive Medicine (rASRM)

classification. The decision was taken to perform a partial oophorectomy in order to have histology of the cyst. Subsequently, a wide excision over the rectus abdominis rectus tumor was performed, followed by a polypropylene mesh insertion (Figure 2). The patient was given a Gonadotropin-Releasing Hormone agonist (GnRHa) in order to temporarily suppress the ovarian function.

Discussion

Endometriosis is a disease with a heterogeneous appearance. Rokitansky first described the various forms of endometriosis in 1860, where there is ectopic growth of endometrial glands and stroma with specific histological features.^{4,5} There are many theories regarding the cause of endometriosis: one of the most accepted theories is retrograde menstruation, in which the debris of menstruation contain endometrium cells that can grow in the pelvic cavity by preference. However, another type of endometriosis exists, which is the endometriosis in scar tissue. This condition is formed due to the iatrogenic transport of endometrial cells during surgical procedures on the uterus, such as during cesarean section.^{1,5} The obstetric surgical history is an important risk factor; during a cesarean section, it becomes possible for the

endometrial cells to be transferred, these cells can then be trapped in the surgical wound.⁶

The patient described had a history of a previous cesarean section. A study by Plotski et al. showed that of the 24 scar endometriosis cases, 22 patients had a history of cesarean section with 4-7 years post-cesarean section interval. Half of these patients did consult to a gynecologist after being previously examined by a general surgeon.⁷ The patient presented with a painful and enlarged abdominal mass, especially during menstruation, which are typical findings of endometriosis. However, scar endometriosis cases are sometimes difficult to diagnose because the only symptom is abdominal pain, making it difficult to be distinguished from other conditions, including lipoma, hematoma, soft tissue sarcoma, abscess, and foreign bodies.^{3,8}

Additional investigations that might facilitate diagnosing scar endometriosis include ultrasonography, CT-Scan, and MRI. However, these investigations are considered to be inadequate to establish the diagnosis. The gold standard diagnostic procedure for scar endometriosis is a needle biopsy under ultrasound guidance. Some researchers do suggest that this examination should not be performed because it may trigger dissemination along the biopsy tract.^{2,9}

Conclusion

The incidence of scar endometriosis is closely related to the iatrogenic theory, where the cesarean section is an important factor in the appearance of the disease. However, establishing a definitive diagnosis of scar endometriosis is challenging due to the variety in complaints and signs. Nevertheless,

patients who had a history of cesarean section, with pain and a swollen mass occurring in sequence with the menstrual cycle, should be suspected of scar endometriosis. Eventually, the main treatment of scar endometriosis is wide excision to prevent recurrence

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Please add tables and Pictures in order of appearance here



Figure 1: Abdominal CT scan with contrast showed the mass to be isodense, well-demarcated, regular edges, without calcification, with a size of $\pm 2.96 \times 2.21 \times 3.34$ cm, extraperitoneal, on the abdominal wall of the right iliac region (arrow).

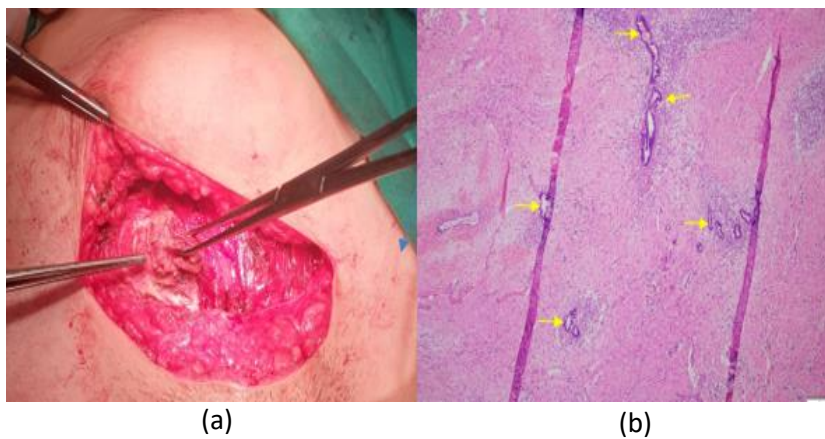


Figure 2: Intraoperative, the mass was obtained in the right rectus abdominis muscles. Wide excision was done, and polypropylene mesh was installed (a). The histopathology result showed the findings of stroma and endometrial glands between the muscle, connective, and fat tissues (b).

PREGNANCY FOLLOWING HYSTEROSCOPIC MYOMECTOMY IN SUBMUCOUS FIBROID : A CASE REPORT

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Abstract

Uterine fibroids, in particular submucosal fibroid may significantly affect fertility and cause heavy menstrual bleeding. The incidence of myomas in infertile women is estimated between 1- 2.4%. In general submucous fibroids account for 5 – 10% of all type of fibroids. Fertility rates may be increased following myomectomy when there is no other identifiable cause. This is a case report of a 22 year old woman with subfertility and heavy menstrual bleeding that had occurred for the last three months. Gynecologic examination revealed an enlarged and mobile uterus. Ultrasound examination showed a 40 mm mixed echogenic appearance arising from uterine cavity. It suggested a type I submucous myoma. Hysteroscopic myomectomy was scheduled to be performed by first administer GnRH agonist for two cycles. Shortly after the last injection, the patient had COVID -19 and had to undergo self – quarantine. Following recovery of COVID – 19 infection, we decided to administer extra shot of GnRH agonist before performing hysteroscopic myomectomy. Diagnostic hysteroscopy revealed a 40 mm type I submucous fibroid. Hysteroscopic myomectomy was performed with 5 Fr scissor in order to avoid electric current usage. Two months following hysteroscopic myomectomy, the patient had a positive pregnancy test result. The antenatal care was then continued as routine. Hysteroscopic myomectomy in submucosal fibroid may improve fertility and clinical pregnancy rates in patient without any other causes of infertility.

Key words: Hysteroscopic myomectomy, submucosal fibroid, infertility

Introduction:

Myoma is a benign growth of uterine muscles. It occurs in 30 – 40 % women in their 30s or 40s but may occur at any ages. The association between myoma and infertility have not been established due to a large variety of the size, numbers, and location. The incidence of myomas in infertile women without any obvious cause of infertility is estimated between 1 - 2.4%.¹ Only 5 – 10% fibroids are estimated to be submucous and tend to be symptomatic. Common symptoms include menorrhagia, intermenstrual bleeding, and infertility. Submucous fibroids are classified according to the European Society of Hysteroscopy as: Type 0 (complete intracavitary myoma), Type I (50% of the myoma contained within myometrium).²

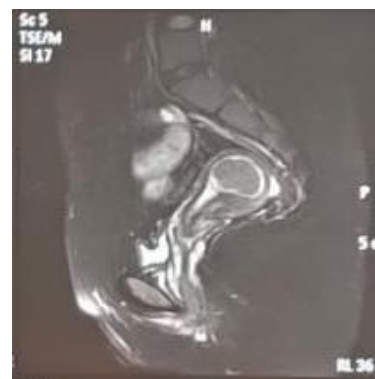
Many theories have been proposed to explain the effects of myomas on fertility. It is generally accepted that the location of a fibroid is an important factor in causing infertility. Submucous myoma is generally considered as the etiology of infertility.³ Myomas may cause dysfunctional uterine contractility, which may interfere with sperm migration, ovum transport, or nidation. Myomas may also be associated with implantation failure or gestation discontinuation due to focal endometrial vascular disturbances, endometrial inflammation, secretion of vasoactive substances or an enhanced endometrial androgen environment.⁴

Submucous fibroid myomectomy may be performed hysteroscopically, especially for type 0 and type I myoma. It is considered generally safe for one time operation without

significant complications. Fertility rates after submucous myomectomy may increase when the fibroid is solely expected to be the etiology of the infertility.⁵ Our case report demonstrated a successful pregnancy following hysteroscopic submucous fibroid removal without evidence of any other causes of infertility.

Case Report:

A 22 – year – old married women was evaluated for menorrhagia occurred for three months. Apparently, she had been married for 8 months and never carried a pregnancy. Gynecologic examination revealed a slightly mobile enlarged uterus. The patient was then evaluated with transvaginal sonography which revealed an intracavitary mass suggestive of a submucous myoma. In order to ascertain the pathology, we perform pelvic CT – Scan to evaluate the extension of the myoma and other pathologies that may be overlooked (Figure 1). The estimated size of the myoma was 40 mm. Other causes of infertility were excluded in both couples. Submucous fibroid was considered to be the solely cause of the infertility.



a) sagittal plane

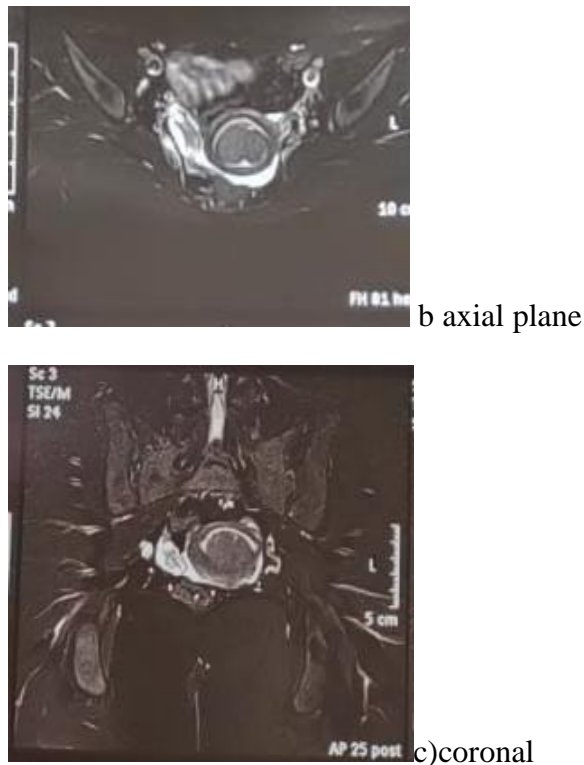


Figure 1. Pelvic CT – scan reveal a clear border and soft tissue density of the fibroids without degeneration and calcification, no other pathologies and intramural extension of myoma

Following thorough consent, the patient agreed to undergo hysteroscopic myomectomy. GnRH agonist was intended to be administered for two shots (one month apart) before procedure. Unfortunately, following the last shot the patient had COVID – 19 and need to be quarantined. She was quarantined for two weeks. Following recovery of her COVID – 19, an extra shot of GnRH agonist was administered in order to reduce intraoperative haemorrhage.

Hysteroscopic procedure was then performed under spinal anesthesia. We first performed diagnostic hysteroscopy with 3 mm sheath. The uterus was distended with NaCl 0,9% to increase the margin of safety of fluid

administration. Uterine pressure was constantly maintained at 100 mmHg. Fluid balance was constantly monitored in order to avoid fluid overload. Diagnostic hysteroscopy with 30° telescope revealed 40 x 40 x 35 mm Type I submucosal myoma (Figure 2a).

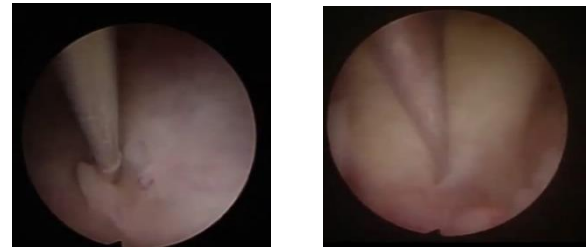


Figure 2. (a) Diagnostic hysteroscopy revealed type I submucosal myoma, (b) myoma enucleation was performed by 5 Fr scissor.

Following the diagnostic hysteroscopy, myoma enucleation was performed in 5 mm working channel hysteroscope (Figure 2b). Myomectomy was performed by cutting of the base of the myoma with 5 Fr scissor combined with hydromassage in order to facilitate myoma protrusion. The electric current was avoided in order to not damage the endometrial layer. The procedure lasted for 30 minutes and completed without remarkable complications.

Two months following the procedure, the patient came with positive home pregnancy test. Ultrasound examination show a gestational sac with mean sac diameter 16 mm. Two months later, the pregnancy showed a positive fetal node and heart beat (Figure 3). Antenatal care was scheduled as routine care for pregnancy.



Figure 3. Ultrasound examination show a 12 weeks pregnancy with a crown rump length of 5.34 cm and a positive fetal heart beat

Discussion:

Uterine fibroids may be the etiology of infertility by produce a mechanical distortion of endometrial cavity, compression of the endometrium, blockage of tubal ostia, and altering uterine contractility as well as tubal peristalsis.⁶ In particular, submucosal fibroids may significantly decreased endometrial receptivity especially for HOXA10 gene. Besides, submucosal fibroid has thicker pseudocapsule in comparison with intramural and subserosal fibroid. This characteristic may significantly reduce clinical pregnancy rates.⁷ In conjunction with subfertility, our patient also suffered from heavy menstrual bleeding that had occurred for the last three months. Submucosal fibroid may cause heavy menstrual bleeding by increase the uterine surface area, increase vascularity and vascular flow into the uterus, reduce myometrial contractility especially of the inner junctional zone, endometrial ulceration, and compression of the venous plexus within myomeyrium.⁸

Submucosal myoma was classified by International Federation of Gynecology and Obstetrics depending on the proportion of myoma protruded into uterine cavity (Figure 4). G0 or Type 0 myoma is almost entirely intracavitary, G1 or Type 1 myoma is >50% intracavitary and G2 or Type 2 myoma is < 50% intracavitary.⁹ The benefits of hysteroscopic myomectomy of submucous myomas for improving the chance of pregnancy rates and term delivery are still debatable. There are three factors that may determine the feasibility of hysteroscopic myomectomy, the degree of intramural extension, the myoma size, and the myoma consistency.¹⁰ Technical factors such as the surgeon's skill and experience as well as techniques used surely play an important role. In our case, the patient had type I submucosal myoma which may be the sole etiology of her infertility. Hysteroscopic myomectomy once considered to increased fertility rate in submucous myoma. Hysteroscopic myomectomy in submucuousal fibroid is technically challenging especially in infertility case. We prefer to perform the more conservative strategy in order to preserve endometrial layer by not introducing electric current.

Gonadotropin – releasing hormone analogue (GnRHa) once considered the main indication for the preoperative use before performing submucous myomectomy. Many studies had described a significant reduction in terms of the size, absorption of distention media, and bleeding after GnRHa administration.^{11,12} Well – controlled bleeding was our main priority due to avoidance of using electricity during surgery. Our case showed that GnRHa administration may reduce the amount of

blood intraoperatively. However, GnRHa administration is burdened by high cost, side effects, and increased risk of uterine perforation.¹³

Complications of hysteroscopic myomectomy have ranged from 0.3% to 28%. Fluid overload and uterine perforation were the most common complications during myomectomy.¹⁴ Other complications that may occur during hysteroscopic myomectomy include bleeding, cervical trauma, air embolism, and intrauterine adhesions.¹⁵ Fortunately, our patient did not have any remarkable complications as mentioned above.

Hysteroscopic myomectomy was associated with increased fertility and pregnancy rates. Pregnancy rate was increased in type 0, 1, and 2 by 57.1%, 42.8%, and 25% subsequently. In particular, fertility rates appear to increase in type 0 and 1 submucous myoma following hysteroscopic myomectomy.⁵ Hysteroscopic

myomectomy may increase pregnancy rate. However, obstetrical outcomes such as preterm delivery, intrauterine fetal death, fetal malpresentation, intrauterine growth retardation remain unchanged following hysteroscopic myomectomy.¹⁶ To date, there is no obstetrical complication occur in our patient and we hope that the patient may continue her pregnancy without any remarkable complications.

Conclusion:

Hysteroscopic myomectomy in submucosal fibroid was associated with increase fertility and pregnancy rate. Various techniques in hysteroscopic myomectomy may be applied with similar outcomes. However, further research may be required to determine the best technique to significantly increase fertility, pregnancy, live birth rate and decrease complications rate of hysteroscopic myomectomy.

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Video Article: Synechia treatment by the Intrauterine Bigatti Shaver (IBS)

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Abstract:

Study Objective: To confirm the validity of the Shaver technique in the treatment of postsurgical synechia.

Design: Description of the surgical steps and prognosis according to a case report

Setting: “SELEC Sino European Life Expert Centre” of Jiao Tong University, Shanghai

Key word: Operative hysteroscopy; Asherman syndrome; Intrauterine Bigatti Shaver; Materegen gel

Casereport:

Patient: A 23 year old woman with a previous history of 3 D&C for induced abortions and two years of hypomenorrhea. 2/3D. Ultrasound in her early prolipherative phase showed a synechia inside the uterine cavity with an endometrial thickness of 3 mm. A fibrotic synechia in the fundal area of the uterine cavity was confirmed by diagnostic hysteroscopy with Campo Trophy - scope. Due to the patient’s desire of pregnancy, an operative hysteroscopy with a tubal patency test was planned.

Intervention:

the operative hysteroscopy was performed with the Intrauterine Bigatti Shaver (IBS®) along with the use of scissor, Shaver blade and bipolar probe. The Shaver 24Fr optical system with SA blade was used. The rotational speed of the blade was 2100 rotatons pro minute (rpm) with a suction flow of 250 ml per minute. Initially, the 4 mm scissors, introduced through the IBS® strait operative channel, were used to cut the fibrotic synechia. Then, the Shaver SA blade removed the fibrotic tissue previously cut to restore the normal volume of the uterine cavity. The bipolar probe was used at the end of the procedure to control the bleeding. Finally, hydrotubation with methylene blue introduced inside both tubal ostia with a

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transparent silicon catheter was performed. The whole procedure lasted 6 minutes with a saline fluid deficit of approximately 300 ml. No intraoperative complications were observed, and the patient was discharged from the hospital 1 hour after the operation. The patient took Oestradiol Tablets (1mg) and Dydrogesterone Tablets (1mg) for 14 days after the operation and no antibiotic was administered. Materegen gel[®] by Bioregen was inserted under visual supervision inside the uterine cavity for adhesion prevention.

Main Result: At one month follow up, during the patient's early proliferative phase, a diagnostic hysteroscopy with a Campo trophy scope was performed. The patient's periods were regular. The uterine cavity returned to its normal shape and volume with regular

endometrium and without any postsurgical adhesion.

Conclusion: This case report shows that combination of the Shaver technique with gel application for postsurgical adhesion prevention should be the treatment of choice in case of synechiae or Asherman syndrome. The Shaver technique, the aim of which is not only to cut but also to remove the fibrotic tissue, combined with the gel application should improve the results of Operative hysteroscopy. The mechanical action of the Shaver without any electrosurgery is probably the reason of the promising results in this video. The Shaver optics with the bipolar probe offers a precise coagulation under direct visual control only of the vessels involved in bleeding.

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The History of Laparoscopy in view of the future (a video-lecture)

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Video Lecture

The author does not retrace the history of Gynecological surgery. MIGS has changed the course of gynecological surgery. Laparoscopy has been defined a revolving revolution. Thirty years after the beginning of this revolution can we define laparoscopy an actual innovation? We should ask herself the question what is an innovation. ***“Innovation is the practical application of an inspiration”*** Innovation should bring new benefits to the patient! It should improve the quality of health and care. On the hand of examples, the author tries and explains where MIGS fit in the reality of your daily practice and what techniques have been adopted by the general community of gynae surgeons. In surgery the application of new techniques is slower that in the community at large because surgeons have to be convinced of the benefits for our patients but above all of the safety of the newer technique replacing the known one. A learning curve is necessary. This is the reason why a number of the many new techniques introduced have not been accepted. We have to look at the S-shaped diffusion curve (the three phases of growth in any new technological innovation) We can do that on the hand by the number of the patents, for new products, along with the number of scientific articles on the same subject. This lecture illustrates this by looking at i.e., laparoscopic hysterectomy, vNOTES, SILS and the adaptation of the new techniques by different hospitals and patient groups. The conclusion is that ***“The future ain't what it used to be”***

Factors that will shape the future of laparoscopy are:

- 1) Intrinsic factors (physics, optics, electronics...)
- 2) External factors (non-technical), costs, societal issues.
- 3) Changing nature of gynaecologic disease
- 4) Developments in other medical fields.

Surgeons have to realise that: 1) Laparoscopy has not changed the nature of disease 2) The basic principles of good surgery still apply (appropriated case selection, excellent exposure, high technical expertise) 3) If a procedure does not make sense with conventional access, it will make no sense with a minimal access approach. The future and main advantage of MIGS lays in reducing the surgical trauma also by using the vagina a port to retrieve specimen. What is needed is to promote Academic Laparoscopy Training Programs to train as many gynaecologists as possible in MIGS by installing MIGS research and clinical trials.

This boils down in 1) Quality improvement in initiatives (i.e., incentives for referrals to higher-volume laparoscopic units) 2) Improving access for quality gynaecologic surgical care for all women, irrespective of age, comorbidities, race or payer status 3) Generating high quality evidence evaluating new technologies and utilization of evidence guided practice.

10.36205/trocar4.2021001	Minimally Invasive Hysterectomies: A Survey of Current Practices amongst members of the International Society for Gynaecologic Endoscopy A. Chrysostomou, Bruno J. van Herendael
10.36205/trocar4.2021002	Introduction of a new procedure in UK- Laparoscopic Pectopexy. Two years follow up study Zbigniew Tadeusz Tkacz
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10.36205/trocar4.2021004	Endometriosis of the rectus abdominis following a cesarian section: a case report Eddy Hartono, Sebastianus Tannur, Fatmawaty Madya, Witono Gunawan
10.36205/trocar4.2021005	Pregnancy following hysteroscopic submucosus myomectomie a case report Witono Gunawan, Eddy Hartono
10.36205/trocarvid4.2021001	Synechiae treatment by the Intrauterine Bigatti Shaver (IBS) Giuseppe Bigatti, Xia Yin
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