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Klinika za ginekologijo in perinatologijo  
Univerzitetni klinični center Maribor  
Medicinska fakulteta, Univerza v Mariboru

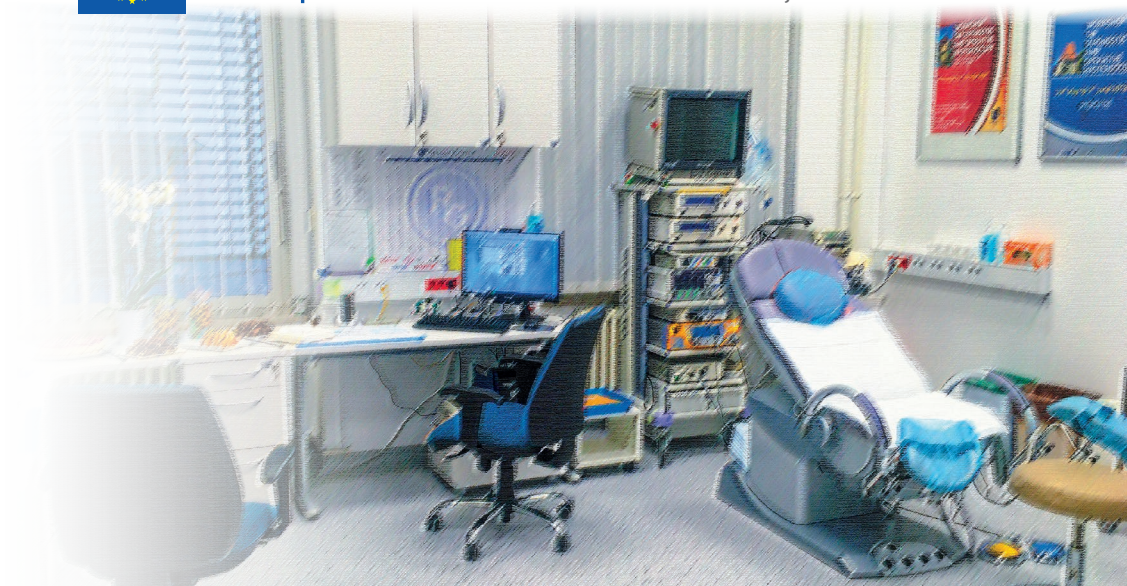
## Mednarodni simpozij DVAJSET LET AMBULANTNE HISTEROSKOPIJE V SLOVENIJI

## International symposium TWENTY YEARS OF OUTPATIENT HYSTEROSCOPY IN SLOVENIA



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### **Organizator / Organizer:**

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Taborska ulica 8, 2000 Maribor, Slovenia / Auditorium,  
Faculty of Medicine, University of Maribor,  
Taborska ulica 8, 2000 Maribor, Slovenia

### **Organizacijski odbor / Organizing Committee**

Branka Žegura Andrić

Tamara Serdinšek

Lucija Mulec

Tatjana Golob

Andreja Šlag

Rebeka Gerlič

### **Strokovni odbor / Scientific Committee:**

Branka Žegura Andrić

Tamara Serdinšek

Lucija Mulec

Igor But

Milan Reljič

Vesna Čač

Laura Krajnc Lorenčič

Marija Horvat

Iztok Takač

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## THE LIST OF AUTHORS

1. **Prof. Branka Žegura Andrić, MD, PhD**  
Department of General Gynaecology and  
Urogynaecology, University Division of Gynaecology  
and Perinatology, University Medical Centre Maribor,  
Slovenia
2. **Prof. Mark Hans Emanuel, MD, PhD**  
Bergman Clinics Hilversum, Netherlands, University  
Medical Centre Utrecht, Netherlands, University  
Hospital Ghent, Belgium
3. **Prof. Vasilios Tanos, MD, PhD**  
University of Nicosia, Medical School, Team Lead MD6,  
Nicosia, Cyprus
4. **Rudi Campo, MD**  
Life Expert Centre Leuven, Belgium
5. **Prof. Attilio Di Spiezio Sardo, MD, PhD**  
Department of Public Health, University of Naples  
Federico II, Naples, Italy
6. **Virginia Foreste, MD**  
Department of Public Health, University of Naples  
Federico II, Naples, Italy
7. **Ursula Catena, MD, PhD**  
Agostino Gemelli University Policlinic, Rome, Italy
8. **Istvan Argay, MD**  
European Academy of Gynaecological Surgery,  
Leuven, Belgium
9. **Serena Guerra, MD**  
European Academy of Gynaecological Surgery,  
Leuven, Belgium, Department of Public Health,  
University of Naples Federico II, Naples, Italy





# **FOREWORD**

## **20 YEARS OF OUTPATIENT HYSTEROSCOPY IN SLOVENIA**

The philosophy of outpatient hysteroscopy was introduced to Slovenia from the Netherlands in the second part of 2003. After a very successful donation campaign which followed shortly after that, the first outpatient hysteroscopic facility, not just in Slovenia but in a wider southeast European region, started to fully function in the year 2004 at the Department of General Gynaecology and Urogynaecology of the Clinic of Gynaecology and Perinatology, University Medical Centre Maribor. From then, more than 20.000 outpatient hysteroscopies were performed, the majority of them operative. To honour that important achievement in gynaecological endoscopic surgery in Slovenia, we organise an international symposium with internationally renowned speakers and our long-term teachers and supporters, Mark Hans Emanuel from the Netherlands, innovator and the inventor of the mechanical tissue removal system, Vasilios Tanos from Cyprus, the chair of the Gynaecological Endoscopic Surgical Education and Assessment (GESEA) programme, Rudi Campo from Belgium, past president of the European Society of Gynaecological Endoscopy (ESGE), member of the ESGE Board of Directors and the director of the MIS Academy Europe, Attilio Di Spiezio Sardo from Italy, member of the ESGE Executive Board and one of the initiators of the Global Community of Hysteroscopy and Ursula Catena from Italy, the chair of the Special Interest

Group Hysteroscopy at the ESGE and member of the ESGE Executive Board. Rudi Campo is also representing the memory of his friend and colleague from “the roller ball team”, the late Yves Van Belle, who was one of the leading experts behind the idea of the GESEA programme and our friend, teacher and great supporter of the idea to establish a GESEA Diploma Centre in Maribor, which was fulfilled in the year 2022. This is also the opportunity to thank my superiors and colleagues who supported and believed in the idea of outpatient hysteroscopy in Maribor, Radovan Breznik, Igor But and Iztok Takač. Special thanks go to our sponsors who made this honorary meeting possible (Gedeon Richter, Medip, Medtronic, MINAMed, Storz, Olympus, Johnson & Johnson, MM Surgical, Medinova, and Swixx Biopharma).

Branka Žegura Andrić

# 20 YEARS OF OUTPATIENT HYSTEROSCOPY IN SLOVENIA

*Branka Žegura Andrić*

## INTRODUCTION

Hysteroscopy is considered the gold standard endoscopic procedure for evaluating and treating intrauterine and intracervical pathology.<sup>1</sup> The technical development of hysteroscopic equipment enabled hysteroscopic procedures to be moved from operating theatres to ambulatory facilities. The most important is that despite that shift, hysteroscopy kept its combined diagnostic and therapeutic approach also in an outpatient setting. The terminus see-and-treat hysteroscopy is widely used. Different names exist in the literature - office hysteroscopy, outpatient hysteroscopy, ambulatory hysteroscopy, and awake hysteroscopy, making the comparison of different techniques and methods used in hysteroscopic procedures difficult to compare and study.

## INTERNATIONAL CONSENSUS STATEMENT FOR RECOMMENDED TERMINOLOGY DESCRIBING HYSTEROSCOPIC PROCEDURES

The aim of the international consensus statement for terminology was to describe hysteroscopic procedures, covering pain management, setting, model of care, type of procedure and hysteroscopic approach with the idea to enable a more effective communication for clinical and research purposes.<sup>1</sup>

Office hysteroscopy is performed at the medical practitioner's professional premises. The patient arrives for the consultation. Gynaecological examination and ultrasound are performed, and in the case of indication, hysteroscopy follows. In the case of outpatient hysteroscopy, the patient is referred to a healthcare facility (hospital, community clinic, freestanding surgical centre) to manage outpatients. In both cases, the patient arrives and leaves on the same day, and pain control management up to levels 1 to 3(a) is offered.<sup>1</sup>

Diagnostic hysteroscopy is a hysteroscopic procedure to evaluate the uterine cavity/cervical canal with or without targeted biopsy (under hysteroscopic visualisation). Operative hysteroscopy is a hysteroscopic procedure to treat uterine pathology or symptoms arising from the uterus or cervical canal under direct hysteroscopic visualisation using hysteroscopic instruments.<sup>1</sup>

Management of pain during hysteroscopic procedures needs to be clearly and consistently reported. A hierarchical description of pain management, consisting of 5 levels, is recommended:

Level 1: no medication or the use of non-sedative medication

Level 2: local anaesthetics

Level 3: conscious sedation

- 3(a): oral or inhalational medications with sedative effect
- 3(b): parenteral medications with sedative effect

Level 4: regional anaesthesia

Level 5: general anaesthesia<sup>1</sup>

## **OPERATIVE HYSTEROSCOPY IN AN OUTPATIENT SETTING**

Outpatient operative hysteroscopy has more possibilities than limitations. There is no need for operating rooms and anaesthesiologists, which makes us more independent in planning and organising the treatment of patients with uterine cavity and cervical canal abnormalities. Small-diameter hysteroscopes (less than 5 mm in diameter) are inserted atraumatically or vaginoscopically into the cervical canal. Consequently, no anaesthesia, premedication, or cervical canal dilatation is required. This results in fewer complications and decreases the cost of treatment of patients with uterine cavity and cervical canal abnormalities. The recovery of patients is fast; they usually return to their activities the day after the hysteroscopic procedure.

Limitations of outpatient operative hysteroscopy are surgeon, patient, equipment and pathology dependent.

Surgeon-dependent limitations in outpatient operative hysteroscopy:

- skills, knowledge,
- it is not the same as under anaesthesia; the patient is observing,
- reimbursement, financial issues,
- motivation.

Patient-dependent limitations in outpatient hysteroscopy:

- no anaesthesia, fear that they will be awake and will feel and hear everything,
- motivation.

The correct information and informed consent before outpatient hysteroscopy are the base for a successful outpatient hysteroscopy. The awake state of the patient offers communication between the patient, the doctor, and the nurse during the procedure. The patient can observe the hysteroscopic procedure if an extra monitor is available. This gives her a sense of control over the situation and allows her to understand the treatment better. If some changes during the procedure are needed, they can be immediately discussed with the patient.

Some basic rules need to be followed for successful outpatient hysteroscopy. Fasting is unnecessary; the patient can have a light breakfast. The environment should be as calm as possible, with not too many persons in the room, preferably only the doctor and the nurse. A person she trusts can accompany her to and during the procedure. The timing of the hysteroscopy is very important to have the endometrium as thin as possible, which is in the follicular phase of the menstrual cycle. The role of the nurse during an outpatient hysteroscopic procedure is not just to assist the surgeon and care for the instruments, but she also needs to support the patient emotionally during the procedure. She can distract the patient during the procedure by talking to her and offering her the so-called verbal anaesthesia. Preferred is the atraumatic insertion technique of a hysteroscope over the use of a speculum and tenaculum.<sup>2</sup> The cervical canal and the myometrium have to be respected. The correct indication for the procedure and the use of a proper technique for a specific pathology of the uterine cavity and the cervical canal are of utmost importance. The atraumatic insertion technique

of the hysteroscope or vaginoscopic approach means that no speculum or tenaculum is needed to perform an outpatient hysteroscopy.<sup>2</sup> The hysteroscope, which has less than 5 mm in diameter, is inserted in the vagina, which is filled with saline solution, and the hysteroscope is guided through the external opening of the cervical canal. It follows atraumatically, with minimal slow movements, and the axis of the cervical canal is dilated with warm standard saline solution at low pressure. The hysteroscope is guided into the uterine cavity with no lateral movements but with rotation of the hysteroscope in case a 30-degree rod lens is used. There is no need for the dilatation of the cervical canal and local anaesthesia or sedation.<sup>2</sup>

Operative outpatient hysteroscopic procedures:

- biopsy,
- polypectomy,
- myomectomy,
- retained products of conception (RPOC) removal,
- metroplasty,
- synechiolysis.

Other possibilities for outpatient hysteroscopy:

- endometrial scratching,
- vaginal polyp, septum removal,
- focal adenomyosis (selected cases) resection,
- ablation of cervical stump (after subtotal hysterectomy),
- removal or repositioning of misplaced IUD/IUS,
- removal of foreign bodies in the vagina (virgo),
- permanent tubal occlusion.

The local situation, costs, and the surgeon's preference influence the technique used in outpatient hysteroscopy, and no single technique should be preferred over others.<sup>3</sup>

The basic hysteroscopic equipment at an outpatient facility consists of small, less than 5 mm continuous flow hysteroscopes. For endometrial biopsies and smaller intrauterine pathologies like smaller/medium-sized polyps, adhesions, and uterine septum, mechanical instruments such as different types of graspers and scissors are available and usually suffice. For larger pathologies, such as larger endometrial polyps, submucosal myomas, RPOC, bipolar needle, laser or mini-resectoscopes are preferred. Typically, tissue chips are created with those instruments, which can reduce the visibility during the procedure, and removing those particles prolongs the hysteroscopic procedure. One of the rules in outpatient hysteroscopy is that the hysteroscopic procedure should be as short as possible in a given situation. The technique of hysteroscopic intrauterine mechanical tissue removal or intrauterine shaving offers, at the same time, mechanical cutting of an intrauterine lesion and suction of removed tissue, which shortens the procedure.

## **MANAGEMENT OF PAIN AND DISCOMFORT DURING OUTPATIENT HYSTEROSCOPY**

Causes of pain during outpatient hysteroscopy are at the level of the introduction of the hysteroscope in the cervical canal because of the over-distention of the uterine cavity and the direct stimulation of the uterine myometrium. The sensitive innervation of the uterus starts at the myometrium. The hysteroscopic procedure should be performed at the lowest pressure in the uterine cavity, which still offers good visibility for safe surgery. Pain and patient discomfort are the main concerns when comparing



inpatient and outpatient hysteroscopy. Pain is the main reason for the failure of outpatient hysteroscopy.<sup>4</sup>

The pain perception is influenced by age, medical conditions, genetics, gender, emotions and the patient's support system.<sup>5</sup>

Cristina del Valle et al. studied pain management during outpatient hysteroscopy. In a review of the English literature, they looked for the risk factors for a painful outpatient hysteroscopy and the effectiveness of different methods for pain control during outpatient hysteroscopy. They found out that the risk factors for a painful outpatient hysteroscopy were menopause and nulliparity, both representing a narrow cervical canal, pre-existing dysmenorrhea and chronic pelvic pain, more extended time of the procedure and an inexperienced hysteroscopist. Nonpharmacological methods for reducing pain in outpatient hysteroscopy would be the vaginoscopic approach, use of mini hysteroscopes, reduced waiting time, music, a calm environment in the hysteroscopic facility and an experienced hysteroscopist.<sup>4</sup> Cochrane Database reviewers analysed available studies on pharmacological interventions for pain relief during outpatient hysteroscopy. Their results show a significant reduction in the mean pain score for the use of local anaesthetics vs placebo during the procedure and within 30 min after the procedure. However, there was no significant reduction in the mean pain score with the use of non-steroidal anti-inflammatory drugs or opioid analgesics compared with placebo during or within 30 min after the procedure. None of the interventions was more successful than placebo in reducing the mean pain score more than 30 min after the

procedure. The reviewers could not find any consistent good-quality evidence of a clinically meaningful difference in safety or effectiveness between different types of pain relief compared with each other or with placebo or no treatment in women undergoing outpatient hysteroscopy. Their conclusion is that pharmacological pain relief should not be offered routinely to all women who need outpatient hysteroscopy.<sup>4,6,7</sup>

A comparison of the effect of different types of local anaesthesia on pain control during outpatient hysteroscopy showed that paracervical block was superior to other anaesthetic methods: intracervical, transcervical (intrauterine), and topical (superficial) application of local anaesthetic. The use of local anaesthetic did not significantly affect the incidence of vasovagal episodes. Regardless of the results, no consensus exists on the routine use of analgesia during outpatient hysteroscopy.<sup>4,6,7</sup>

## **OUR EXPERIENCE WITH OUTPATIENT OPERATIVE HYSTEROSCOPY**

At the University Medical Centre Maribor, Slovenia, outpatient hysteroscopy has existed since 2003. After receiving an educational grant from the European Society of Gynaecological Endoscopy (ESGE) in the year 2002, I spent six months of my fellowship and training in gynaecological endoscopy in the Netherlands at Sparnee Hospital in Haarlem and OLVH in Amsterdam. Soon after I arrived in the Netherlands, I realised that the highlight of my fellowship was going to be outpatient hysteroscopy, and soon, I embraced the philosophy of hysteroscopic procedures without sedation and general anaesthesia.

I was privileged to have teachers and mentors, such as Dr. Kees Wamsteker, Prof. Mark Hans Emanuel in Haarlem, and Dr. Sjord de Blok in Amsterdam. I was fortunate to see the first prototype of a mechanical tissue removal device invented by Prof. Mark Hans Emanuel in Haarlem. Already during my stay in the Netherlands, I wrote e-mails describing the idea of outpatient hysteroscopy to my superiors (Assist. Prof. Radovan Breznik, Prof. Igor But and Prof. Iztok Takač), who understood that outpatient hysteroscopy would be very interesting for the University Division of Gynaecology and Perinatology, University Medical Centre Maribor. After my return to Maribor from the Netherlands, our tiniest hysteroscope was 7 mm, but hysteroresectoscopy was already very well established in Maribor then. I knew I could lose my hysteroscopic knowledge from the Netherlands without proper instruments. Hence, an idea about a donation campaign emerged, which was, at that time, the fastest option to get hysteroscopic instruments for the new outpatient hysteroscopic setting. With our supporters, we managed to get the financial means for the whole equipment for the first outpatient hysteroscopic facility, not just in Slovenia, but in a wider southeast European region, which started to fully function in the year 2004 at the Department of General Gynaecology and Urogynaecology of the Clinic of Gynaecology and Perinatology, University Medical Centre Maribor. Since then, education and teaching the principles of outpatient hysteroscopy have been very important to us and we welcomed colleagues from all gynaecological departments in Slovenia and colleagues from abroad as well (Albania, Austria, Belgium, Bosnia and Herzegovina,

Bulgaria, Croatia, Czech Republic, Egypt, Estonia, Japan, Jordan, India, Israel, Italy, Kosovo, Kuwait, Latvia, Lithuania, Germany, Greece, Hungary, Montenegro, Moldova, North Macedonia, Norway, Palestine, Poland, Portugal, Rumania, Saudi Arabia, Serbia, Slovakia, Spain, Sudan, Switzerland, United Kingdom, United Arab Emirates). We have a strong collaboration with the ESGE, the European Academy of Gynaecological Surgery, and the Minimal Invasive Surgery Academy Europe, who are organising hysteroscopic workshops and webinars together. From 2022, the Maribor GESEA Diploma Centre is based at the Faculty of Medicine University of Maribor.

At the outpatient hysteroscopic facility of the Department of General Gynaecology and Urogynaecology of the Clinic of Gynaecology and Perinatology, University Medical Centre Maribor, more than 96% of all hysteroscopic surgery is performed, annually around 1400 hysteroscopic cases (Photo 1). Patients are referred by their gynaecologists; all have gynaecological ultrasound before the procedure, and level 1 to 2 pain control is offered to our patients (Photo 2). By using four different hysteroscopic techniques (mechanical with grasper/scissors, bipolar needle, intrauterine mechanical tissue removal/shaving, mini-resectoscope), more than 98% of all endometrial polyps, more than 60% of submucous myomas, more than 80% of uterine septum dissection and more than 80% of intrauterine adhesions are successfully treated by outpatient hysteroscopy. Regarding our experience, the outpatient hysteroscopy was successful in 96.8%. The causes of failed outpatient hysteroscopy in 3.19% were severe occlusion of the cervical canal and extreme

discomfort. Those patients were referred to inpatient hysteroscopy, and the procedure was then performed under parenteral sedation or general anaesthesia. The rate of complications in outpatient hysteroscopy was very low, at less than 0.8%. In the majority of those, vasovagal attack during or immediately after the procedure was the main complication. The average pain perception score during outpatient hysteroscopy, estimated by the visual analogue scale (VAS), was  $3.1 \pm 1.4$  (0-8). The satisfaction with the outpatient operative hysteroscopy procedure was rated 5, which means highly satisfied in 95 % of all cases.



*Photo 1. Outpatient hysteroscopic facility in 2020, University Medical Centre Maribor (photo credit: Branka Žegura Andrić).*



*Photo 2. Outpatient operative procedures in University Medical Centre Maribor, Slovenia, in 2022. (from the left: Lucija Mulec, nurse, Prof. Branka Žegura Andrić, hysteroscopist)  
(photo credit: Primož Struna)*

## **CONCLUSION**

Outpatient operative hysteroscopy is an accurate, reliable, safe, and patient-friendly procedure that offers a combined diagnostic/therapeutic approach with more possibilities and fewer limitations.

## **LITERATURE**

1. J. Carugno, G Grimbizis, M Franchini et al. International Consensus Statement for Recommended Terminology Describing Hysteroscopic Procedures. JMIG. 2022;29,385-91.
2. Bettocchi S, Selvaggi L. A vaginoscopic approach to reduce the pain of office hysteroscopy. J Am Assoc Gynecol Laparosc. 1997; 4:255-8.
3. Raz N, Feinmesser L, Moore O et al. Endometrial polyps: diagnosis and treatment options - a review of literature. Minim Invasive Ther Allied Technol. 2021 Oct;3(5):278-87. 5: 141-7.
4. Tracy LM. Psychosocial factors and their influence on the experience of pain. Pain Rep. 2017 Jul 11;2(4): e602.
5. Ahmad G, Saluja S, O'Flynn H, Sorrentino et al. Pain relief for outpatient hysteroscopy. Cochrane Database Syst Rev. 2017 Oct 5; (10) (10):CD007710.
6. Tangsiriwatthana T et al. Paracervical local anaesthesia for cervical dilatation and uterine intervention. Cochrane Database Syst Rev. 2013 Sep 30;(9):CD005056.





# THE DEVELOPMENT OF HYSTEROSCOPIC MORCELLATION; EVOLUTION OR REVOLUTION IN OUTPATIENT HYSTEROSCOPY

*Mark Hans Emanuel*

While writing my PhD thesis (Abnormal Uterine Bleeding and Submucous Myomas; epidemiology, diagnosis and treatment), which I defended in 1998 at the University of Amsterdam, I realised something was missing in hysteroscopic surgery. No, it was not a fancy robot, but it was more elegant and safer for the patient technology that had to be easy to handle, use, and learn.

At that time, we organised 3-day international courses for the Hysteroscopy Training Center in the Spaarne Hospital in Haarlem, the Netherlands, in cooperation with Olympus Endoscopy, directed by the late Kees Wamsteker (our classification of submucous myomas was the basis for the later FIGO PALM-COEIN classification).<sup>1</sup>

I met many novices in hysteroscopy who were all complaining about the fact that resectoscopy (designed for urology and not for gynaecology) was too complicated and too difficult to learn. Nevertheless, there was no alternative then, so our courses were welcomed and attracted colleagues from all over the world.

Branka Žegura stayed at our department and in the OLVG hospital in Amsterdam for six months to master hysteroscopy and laparoscopy. She was a brilliant student, and tutoring her has always been a tremendous joy. We always stayed in close contact, and her introduction of (office) hysteroscopy in Slovenia and the Balkan region is an unforgettable masterpiece.

Branka witnessed my ongoing search and growing ideas about an alternative for resectoscopy, which kept me busy. I started to orientate into other fields of endoscopic surgery (ophthalmology, orthopaedic surgery, ENT, etc.). The idea of mechanical cutting and fragmentation with aspiration and tissue fragment collection, with saline irrigation and distention of the uterine cavity, was born. At that time, just monopolar high-frequency electrodes were available that could only be used with non-conducting electrolyte-free fluids, which could potentially be harmful to the patient in case of extensive intravasation. Therefore, using saline for irrigation and distention in major hysteroscopic surgery was very welcome after it had already been introduced in diagnostic hysteroscopy and minimal hysteroscopic surgery with conventional instruments. Furthermore, it was obvious that, as in the latter techniques, the new technique had to be continuous flow at all times.

After building a prototype and protecting the intellectual property in a worldwide patent, Smith and Nephew Endoscopy Inc. in Andover Mass (S&N) was contacted as they were marked leader for similar ENT and orthopedic surgery techniques. The representatives of the company were very enthusiastic about the ideas, especially when the first patients were treated successfully in Haarlem.

At the beginning of this millennium, in January 2000, the patent rights were assigned to S&N. From that moment on, it took a few more years before a full range of versatile instruments (for soft and hard tissue) were developed, FDA-approved and launched into the market in 2006

In the meantime, the technique was presented at several international scientific meetings, for the first time in Bologna, in 2002 at the Annual ESHRE Meeting. ESHRE organised a press conference, and the technique was revealed to the general public through many articles in public journals.

The first scientific manuscript was published in 2005.<sup>2</sup> The products under the brand name TRUCLEAR found their way to gynaecologists, especially in the USA and the rest of the world. Many more scientific studies were published and presented at international conferences. In 2013, the AAGL rewarded the Birmingham Women's Hospital gynaecology team the Golden Hysteroscope Award for their MERT study, a randomised comparison between office use of Truclear and electrosurgery.

After the successful introduction of Truclear, the first competitive device with similar technology came on the market in 2011 (Myosure by Hologic Inc.) and in 2012 (IBS by Storz GmbH, not available in the USA). Individuals stated: "The interest of other companies has affirmed that this technique is the way of the future...". Because of the FDA warning against laparoscopic morcellation in 2014, the technique is no longer called hysteroscopic morcellation but Tissue Removal (Systems or Technology). In 2016, Medtronic Inc. acquired the Truclear brand and

products. In the last fifteen years, it became apparent that the technique has stimulated and further introduced hysteroscopic surgery into the general gynaecological practice of minimal access surgery, which is in the interest of all our patients. I am delighted that the Global Community of Hysteroscopy (GCH) organised the first world congress about HTRS, which took place in Malaga, Spain, in May 2022.

## LITERATURE

1. Wamsteker K, Emanuel MH, de Kruif JH. Transcervical hysteroscopic resection of submucous fibroids for abnormal uterine bleeding: results regarding the degree of intramural extension. *Obstet Gynecol* 1993 Nov;82(5):736-40.
2. Emanuel MH, Wamsteker K. The Intra Uterine Morcellator: a new hysteroscopic operating technique to remove intrauterine polyps and myomas. *J Minim Invasive Gynecol* 2005 Jan-Feb;12(1):62-6.

# ENDOMETRIAL SUBTLE LESIONS DIAGNOSED AND TREATED BY HYSTEROSCOPY

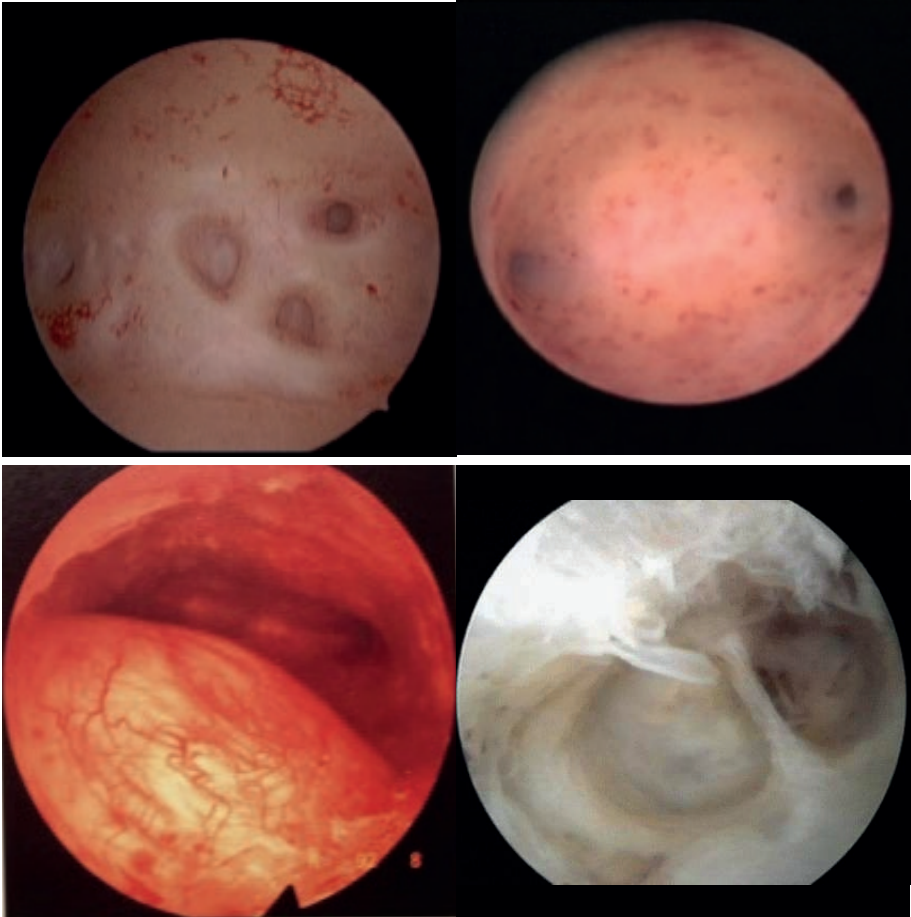
*Vasilios Tanos*

Uterine subtle lesions have been identified in the figure of the uterus, endometrial cavity morphology, endometrium and junctional zone endometrium characteristics. During embryogenesis, the uterus is formed around 6-8 weeks but develops in 28 - 33 weeks of gestation and reaches maturity around the age of 16. Further uterine changes are noted with age, gravity and parity. This slow in utero development and late maturity in adult life exposes the uterus to genetic and epigenetic factors, contributing to both myometrium's and endometrium's characteristic variability and function. The frequency of unsuspected intrauterine pathologies diagnosed by hysteroscopy ranges from 25 - 56%.

Diffuse polyposis, strawberry endometrium, hypervascularisation, mucosal elevation, endometrial defects, adenomyosis and small intramural fibroids can all be considered subtle endometrium lesions. In addition, prolonged hypo or hyper-estrogenism and /or lack of progesterone can affect the endometrial cells, altering normal endometrium appearance and function.

These subtle lesions cause morphological and functional uterine abnormalities in 4 different levels.

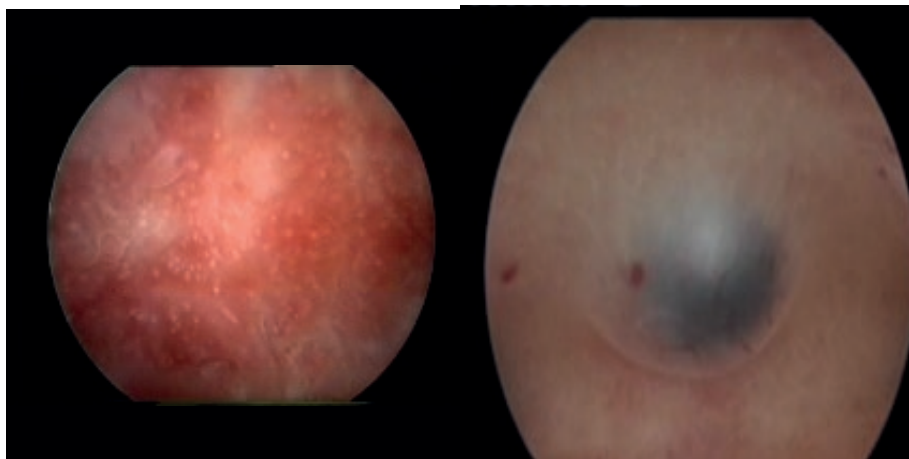
1. Endometrial cavity morphology (fundal indentations, T-shape uterus, etc.)
2. Endometrial thickness and appearance (adenomyosis, strawberry and thin endometrium)
3. Sub-endometrial area (JZE) thickness and appearance (Small IM fibroids, Focal adenomyosis)
4. Endometrial contractility (disturbed)



Sonography has its limitations regarding the size and type of lesion detection. Contrast sonography, although it seems to have higher sensitivity and specificity with smaller lesions, for endometrial and sub-endometrial pathologies diagnosis fails to provide conclusive results.

Hysteroscopy using standard saline solution and distention at low intrauterine pressure is useful and provides excellent diagnosis and treatment of subtle endometrial lesions.

Endometrial subtle pathologies usually need biopsies to final diagnosis, for endometrial dating (IVF mock cycle implantation window) to rule out cancer, endometritis, thin endometrium associated with endometritis, sub endometrial adenomyosis, retained products of conception, junctional zone endometrium integrity, adhesions and micro polyposis. Exploration of the uterus should not be limited to the uterine cavity but should include exploring the sub-endometrial area.





Biopsies of areas with morphological abnormalities such as hypervascularisation, mucosal elevation, marked localised vascular pattern and endometrial defects should also be performed. The effectiveness of hysteroscopic surgery in sub-fertile women indicates a potential benefit, although firm scientific evidence is missing.



# ADENOMYOSIS - A NEW CHALLENGE IN HYSTEROSCOPY

*Rudi Campo*

Despite the optimal use of advanced reproductive technologies, it is well known that due to unexplained causes, excellent embryos sometimes do not implant.

The uterus is an essential component of achieving and carrying a pregnancy to term successfully. Unfortunately, this complex organ is often a neglected incubator. Especially the inner third myometrium, or archimyometrium, plays a crucial role in the implantation process. Alterations of this inner layer, amongst others, the presence of ectopic endometrial tissue, as in adenomyosis, are hypothesised to disturb reproductive performance and cause infertility and recurrent pregnancy loss.

MRI has provided new insights into myometrial architecture and its functions. In the eighties, Hricak and Lee described a low-intensity band on T2-weighted sequences separating the endometrium in high signal intensity from the outer myometrium in the intermediate signal. The term “junctional zone” was baptised, and pelvic MRI seemed ahead of histological methods, which could not identify this uterine zonal anatomy on light microscopy.

M. J. Harmsen et al. (Ultrasound Obstet Gynecol. 2023 Jul;62(1):42-60) compare MRI, transvaginal ultrasound and histology, and it shows clearly that the different

exams do not reflect the same conditions and that routine histology cannot reflect the functional properties of the JZ myometrium. US and MRI can do so, but clearly, the JZ in the US and MRI are seen differently, and the prognostic value of the images is still unclear.

It is now questioned if a one-stop advanced ultrasound and hysteroscopy exploration of the junctional zone can provide objective information to validate the reproductive capacity of the uterus. The digital hysteroscopic clinic set up and implemented in the Life Expert Centre, Leuven, Belgium, provides ideal conditions for this exploration.

Under ultrasound guidance, hysteroscopic exploration of the sub-endometrial myometrium is performed with 5 French micro scissors, recognising cystic or adenomyotic lesions.

A pseudo capsule plane is recognised during the dissection with the typical capillary vascular network and neovascularisation areas.

Cystic and adenomyotic lesions up to 3 cm are resected with excellent results. Not only is the absence of postoperative adhesion formation surprising, but the ongoing pregnancy and delivery rate in the first series of patients with unexplained failed implantation is even more impressive.

The first experience of the hysteroscopic exploration of focal changes of the junctional zone myometrium, as gathered at the Life Expert Centre, is very interesting and promising. Whereas neither histology nor ultrasound clearly defines pathological functional changes in the junctional zone myometrium, hysteroscopy seems to

recognise typical patterns. Resection of those lesions seems feasible, low risk under ultrasonographic guidance and surprising results regarding health delivery rates.

We will demonstrate the typical hysteroscopic images and surgical pathways to explore and treat adenomyotic focal lesions.



# UTERINE MULLERIAN ANOMALIES; THE ROLE OF HYSTEROSCOPY IN DIAGNOSIS AND TREATMENT

*Virginia Foreste, Attilio Di Spiezio Sardo*

The Müllerian anomalies continue to represent a tremendous diagnostic and therapeutic challenge for the gynaecologist. These anomalies are often associated with infertility, obstetric complications as well as gynaecological disorders among women of reproductive age. A hysteroscopic approach associated with tridimensional ultrasonographic evaluation is essential to define an individual treatment strategy and assign a surgical schedule adapted to the requirements of each case. Operative hysteroscopy is the gold standard in the treatment of most of those anomalies amenable to surgical correction. The hysteroscopic approach offers numerous benefits with regard to intraoperative and post-operative aspects (reduced morbidity, absence of a scar on the abdominal wall and uterus, shorter hospital stays and a faster resumption of daily activities, as well as significant cost reductions) and better reproductive outcomes (no reduction in the volume of the uterine cavity, lower preconception interval after surgery, and no need to resort to an elective caesarean section). The evidence to date shows an ongoing increase in the release

of recommendations in favour of operative hysteroscopic treatment in concert with the progressive refinement of hysteroscopic technologies and techniques.

# THE ROLE OF HYSTEROSCOPY IN THE FERTILITY SPARING TREATMENT OF ENDOMETRIAL CANCER

*Ursula Catena*

Endometrial cancer (EC) is the sixth most common female cancer worldwide. 4% of women diagnosed with EC are younger than 40 years old, and 70% of these women are nulliparous. These data highlight the importance of preserving fertility in these patients at a time when the average age of the first pregnancy is significantly delayed and is now firmly established at over 30 years of age.

National Comprehensive Cancer Network (NCCN) guidelines state that the primary treatment of endometrial endometrioid carcinoma, limited to the uterus, is a total hysterectomy, bilateral salpingo-oophorectomy and surgical staging.

Fertility-sparing treatment is not the standard of care, and patients eligible for this treatment always have to undergo strict counselling. In 2023, the ESGO/ESHRE/ESGE guidelines for the fertility-sparing treatment of patients with endometrial carcinoma state that a combined approach consisting of hysteroscopic resection, followed by oral or intrauterine-released progestins, is the most effective fertility-sparing option in terms of complete

response rate and live birth rate. Hysteroscopic resection followed by progestins achieved a total response rate of 95.3% with a recurrence rate of 14.1%. The pregnancy rate in women undergoing fertility-sparing treatment is 47.8%, but rises to 93.3% when only considering women who tried to conceive during the study period.

The ProMisE molecular classifier can be applied in all young women with endometrial carcinoma who wish to preserve their fertility. The results are encouraged, although available data do not allow clinical applicability yet. Immunohistochemistry for the identification of mismatch repair deficient tumours is mandatory to identify patients at high risk for Lynch syndrome. In women harbouring copy number high (p53 ABN) tumours, fertility-sparing treatment would be inappropriate.





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## **GESEA4EU**

# **Gynaecological Endoscopic Surgical Education and Assessment for Europe Project Number: 101101180**

*Istvan Argay, Serena Guerra, Rudi Campo*

## **INTRODUCTION**

The Gynaecological Endoscopic Surgical Education and Assessment Programme (GESEA) is a structured educational approach to Gynaecological Endoscopy, providing training, certification and skill advancement for surgeons. This programme is well established and already provides certification to gynaecological surgeons, with over 4000 certificates issued to date. GESEA4EU is a two-year project built on GESEA, which began in February 2023.

This innovative cross-border project brings together 16 partners from 8 European countries and is co-funded by the European Union. GESEA4EU partners plan to standardise the GESEA training offer already provided to surgeons in the existing 12 GESEA centres and expand it to meet the training needs of other healthcare professionals, including nurses and supporting non-clinical staff. During the project lifetime, 27 learning modules are being developed and trialled within the existing network under the current certification procedures. Furthermore, GESEA4EU is enabling the GESEA programme to be expanded to meet the training needs of 9 new GESEA centres already identified in Spain, Hungary, Bulgaria, Croatia, Estonia, Poland, Ireland and Greece, where the learning modules will be piloted and evaluated. Finally, GESEA4EU is supporting the promotion of the GESEA programme through the European Board & College of Obstetrics and Gynaecology as part of the EBCOG PACT Framework.

## **GENERAL TRAINING OBJECTIVES AND METHODS**

Surgical simulation is an exercise enabling the trainee to practice a surgical task several times and under safe conditions. Several training models are available for simulation, including static models, wet labs and virtual reality simulators. The European Society for Gynaecological Endoscopy (ESGE) has established the GESEA (Gynaecological Endoscopic Surgery Education and Assessment) Programme to standardise certification and accreditation for gynaecological endoscopic psychomotor skills in static model simulators.

Skills assessment is carried out using the following models:

**LASTT:** Laparoscopic Skills Training and Testing;

**SUTT:** Suturing and Knot Tying Training and Testing;

**HYSTT:** Hysteroscopic Skills Training and Testing;

**ROSTT:** Robotics Simulator Training and Testing.

The LASTT (Laparoscopic Skills Training and Testing) model is a training model that represents the spatial distribution and orientation of the different planes and angles of a female pelvis. It provides validated laparoscopic exercises to train and test the individual on laparoscopic psychomotor skills.

The SUTT (Suturing and Knot Tying Training and Testing) model consists of two levels, SUTT1 and SUTT2, with increasing levels of difficulty and trains laparoscopic suturing and knot tying.

The HYSTT (Hysteroscopic Skills Training and Testing) model tests and trains hysteroscopic camera navigation and instrument handling. The model is shaped like a human uterus and installed in a female genital model. It has two levels of difficulty, HYSTT1 and HYSTT2, consisting of two exercises.

Lastly, the ROSTT consists of a series of robotic skill exercises performed on a simulator to train and assess the psychomotor skills needed for robotic surgery.

The simulation tools validated for gynaecological endoscopic skills assessment are currently employed in the GESEA Training and Diploma centres and also for training sessions.

## CREATION OF THE TRAINING CURRICULUM

The training curriculum was developed during the first four months of the project. The process leading to the definition of the Learning Modules began with the collection of the training tools and programmes currently in use in the GESEA Training and Diploma Centres in the Consortium.

The Consortium agreed by means of a survey on the usefulness and effectiveness of a static simulation model - currently employed in the GESEA Educational Programme for credentialing and certification - for training purposes. The opportunity and usefulness of other training tools and methods (wet lab, virtual reality simulators) will eventually be investigated.

The Consortium agreed by group meetings and consultations that a stepwise process (basic, intermediate, advanced levels) is the most appropriate educational path for theoretical knowledge and corresponding practical skills-building for specialist professionals. Group consultations and a survey have provided support in the definition of the Learning Objectives within each learning module.

Implementation and validation of the content are envisaged by outcomes measurement, and thanks to the potential expansion of the training centre network, the partnership will be able to run and assess training activities according to the outputs of the GESEA4EU Project.

Following the lead of the already agreed learning modules envisaged in the GESEA4EU Project Proposal, all Partners in the Consortium have systematically been involved in special interest group meetings and online consultations

to develop a syllabus with details regarding the type of learning material (slides, lectures, videos, teaching guides) and experts in charge of content provision for each learning module.

Thirteen centres contributed (all GESEA Training and Diploma Centres in Europe) and supported content translation in 8 languages in the Consortium.

## **TRAINING AND DIPLOMA CENTRES**

The GESEA4EU project partnership includes 9 Diploma Centres and 3 Training centres, divided as follows:

### **Diploma centres**

- Université of Liège, Belgium (ULG)
- Faculty of Medicine, University of Maribor, Slovenia (MUM)
- Hospital da Luz, Portugal (GLSMED)
- University of Turin, Italy (UNITO)
- University of Naples, Italy (UNINA)
- European Academy of Gynaecological Surgery (EAGS)
- CUF Academic Centre/CETEC, Portugal (CAC)
- International Centre for Endoscopy Surgery, France (CICE)
- Policlinico Universitario Agostino Gemelli, Italy (FPG)

### **Training centres**

- Pius Hospital Oldenburg, Germany (PiuSH)
- Aristotle University of Thessaloniki, Greece (AUTH)
- University of Nicosia, Cyprus (UNIC)

As specified in the proposal, only diploma centres will be involved in Hysteroscopic and Laparoscopic training for specialist professionals.

For the online courses, which include the General courses, Advanced Laparoscopy and the Online elements of Basic and Intermediate Laparoscopy and Hysteroscopy, trainees are guided by the centres and training leaders to access the material in their own time, which is being made available in the Teachable platform hosted by ESGE.

## Conclusion

The design of a standard training curriculum in gynaecological endoscopy is vital in successfully implementing the current educational programmes for gynaecological residents and surgeons. It is envisaged that this methodology, if evidence-based and proven effective, will be scaled up in European Training Programmes.

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#### References:

1. Ethicon, I5-0061, SURGICEL™ Powder versus SURGICEL™ Original. Final Report, September 2015, Data on File (080594-201124)
2. Ethicon, 08032016, SURGICEL™ Powder versus Competitive Powdered Hemostats. Final Report, PSE Accession No. 16-0006, Project No. 16438, March 2016, Data on File (080594-201124)
3. SURGICEL™ Powder Absorbable Hemostat, Instructions for Use (080594-201124)
4. Ethicon, K-5678 SURGICEL™ Endoscopic Applicator Summative Usability Design Validation Surgeon and Nurse Study, December 2016, Data on File (080594-201124)

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