

NHYSTEROSCOPY NEWSLETTER

Morocco is a developing country with a population of over 34 million today . The country has been seriously challenged by the scarcity of healthcare human resources over the past few decades, and there are currently less than 2000 Obstetrician-Gynecologists in total, leading to an unacceptable level of pregnancy and childbirth-related deaths and morbidities. Our predecessors focused on adressing this issue but neglected the development of the fields of Gynecologic surgery and Fertility management.

As a young professor in the early nineties; I found this situation unacceptable. So I decided to resign and along with a small group of passionate colleagues we created the Moroccan Society of Gynecological Endoscopy (SMEGYN) and organized our first workshop with the support of our French colleagues, mainly Pr. Leon Boubli from Marseille and Pr. Jean-luc Mergui from Paris. The next step was to further develop Laparoscopic surgery, in collaboration with Pr Jean Bernard Dubuisson and the renowned team of Clermont-Ferrand.

Up until now, we organized 20 congresses, 11 courses of Hysteroscopic Surgery currently delivered by an exclusively Moroccan team, with over 400 participants in total, and 9 courses of Laparoscopic Surgery . Currently hysteroscopy is spreading throughout all the country.

Regarding the technical aspects, diagnostic hysteroscopy is provided in an office setting by vaginal approach without anesthesia and the large majority of surgical procedures are scheduled in the OR, using a resectoscope. Short procedures are performed under general anesthesia and laryngeal mask or rachianesthesia for very long procedures such as large myomas or severe synechiae.

The majority of us never use glycocol but rather 5% Glucose serum when monopolar current is used (bipolar current is the reference for the majority). I have personally done some demonstrations with the shaver and think the advantages are well-known. But one needs to take into the account the necessary 8 mm dilation; the device is heavy; and the prohibitive cost of the shaver and pump, in the context of poor financial support for medical care in Morocco. In addition, we still need the resectoscope to adress all the pathologies. In the field of ART, the majority of us advocate systematic hysteroscopy though the recent recommandations witch are debatable.

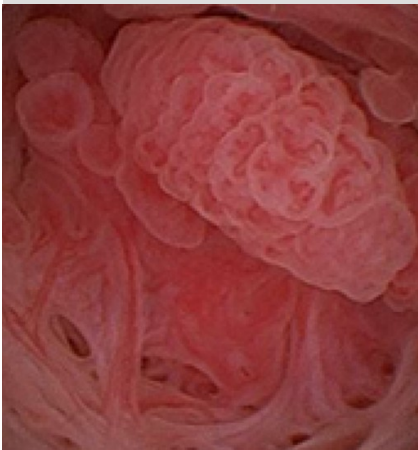


Nowadays, the situation has quite evolved with the new generation of Heads of Gynecology units in the University Hospitals and as we have created the first university diploma for reproductive medicine we are about to create the diploma of endoscopic surgery. See you soon in Barcelona with a larger moroccan group than in 2017!

Jamal FIKRI

President of Collège Marocain de Fertilité
Vice president of Moroccan Society of Gynecologic Endoscopy

INSIDE THIS ISSUE



<i>Welcome</i>	<i>1</i>
<i>Hysteroscopy Pictures Cervical Polyp</i>	<i>2</i>
<i>Interview of the month Keith Isaacson</i>	<i>3</i>
<i>HysteroProject</i>	<i>5</i>
<i>Hysteroscopy Basic How to avoid complications</i>	<i>6</i>
<i>Conundrums Intrauterine Adhesions</i>	<i>8</i>
<i>Talking About Resectoscope to treat Vaginal Septum</i>	<i>10</i>
<i>Original Article Pregnancy Outcome in Women with Uterine Anomalies (I)</i>	<i>12</i>
<i>Hysteroscopy Devices Pumpino</i>	<i>19</i>

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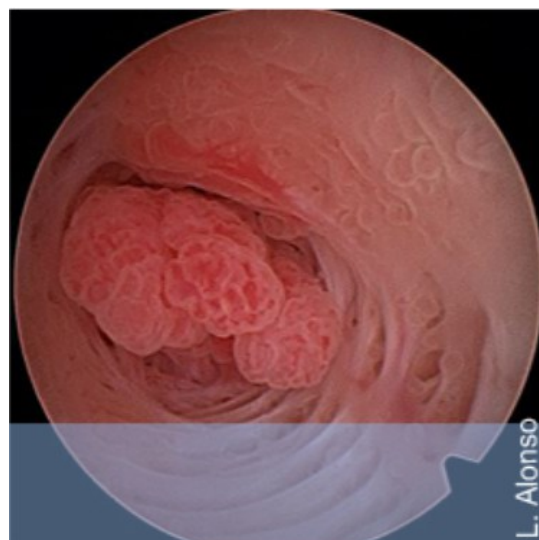
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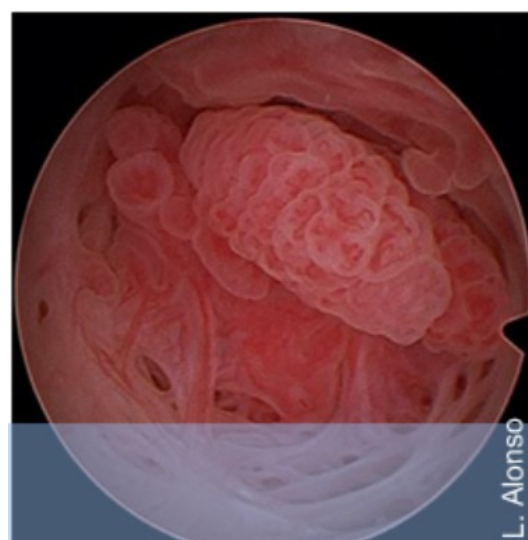
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HYSTEROSCOPY PICTURES



Detailed view of a cervical polyp in premenopausal patient



Cervical polyps are usually not symptomatic

Cervical polyps are the most frequent primary tumor of the uterine cervix, with an estimated incidence of up to 30% of women, being more frequent in multiparous between 40 and 60 years of age. Hyperplastic proliferative processes of the endocervical mucosa are considered more than true neoplasms. They are considered benign structures and their malignant transformation is exceptionally rare reported as low as 2 to 3 per thousand. Most are asymptomatic and are incidentally diagnosed.

The stroma of the polyp is made by connective tissue surrounding a vascular axis with dilated vessels. Its surface is covered with columnar epithelium. Several types of polyps can be distinguished according to their composition being the endocervical or mucosecretor subtype the most frequent (almost 70%) which is formed by normal endocervical epithelium. The second most common uterine polyp is the endometrial, which undergoes cyclic changes characteristic of this type of epithelium. Other less frequent are vascular, fibrous, inflammatory, pseudodecidual and sarcomatous.

If you are interested in sharing your cases or have a hysteroscopy image that you consider unique and want to share, send it to hysteronews@gmail.com

INTERVIEW WITH...

Dr. Keith Isaacson has been extremely involved in medical education and in sharing his passion about minimally invasive gynecological surgery.

Hysteroscopy is gaining a very important role in modern gynecology. In your opinion. What is the current role of hysteroscopy in clinical gynecology?

Pathology of the uterus and vaginal canal affect females of all ages from infants and toddlers with vaginal bleeding to women in menopause with abnormal bleeding that may be an early warning sign of malignancy. As well, abnormalities of the uterus are most often responsible for heavy menstrual bleeding which is a complaint of up to 30% of patients in the reproductive age. Other common symptoms related to uterine abnormalities include pain and infertility. In short, there is no busy gynecologist who treats women for benign conditions caused by uterine abnormalities who would not benefit from mastering the hysteroscopic tool that allows for diagnosis and treatment of intrauterine abnormalities. A gynecologist without a hysteroscope is like a urologist without a cystoscope or a gastroenterologist without a colonoscope. It is an essential tool that every gynecologist should utilize in order to provide their patients the best care possible.

"Science is always in progress"

You have been a leader of very important societies (Past president of the Society of Reproductive Surgeons (SRS) and the American Association of Gynecologic Laparoscopists (AAGL). How can leadership of different gynecologic societies help to expand the use of hysteroscopy around the world?

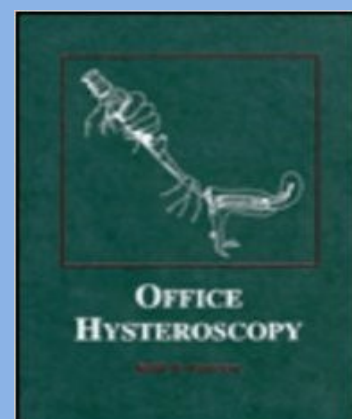
Societies such as the AAGL and SRS along with active gynecologic surgical societies in Asia, Europe and South America can play a huge role in expanding hysteroscopy around the world. They can do this through education including "hands on" courses with in vitro and cadaveric models. The organizations can sponsor workshops focused on hysteroscopy such as the AAGL is doing this summer in Toronto Canada. Promoting clinical research is key for us to determine which are the most cost efficient and clinically useful tools and techniques. Just as large societies can play a role in developing novel instruments, they should also play a role in outcomes assessment and provide manufacturers with high quality information that will lead to rapid adoption or rapid kill of a new device. On-line videos such as those on Surgery U and Websurg are very useful educational tools sponsored and vetted by key societies. The large societies often have close ties with industry which is important in helping direct industry to develop and market novel cost effective hysteroscopic tools. Lastly, the large societies can help programs that bring hysteroscopic knowledge and tools to underdeveloped countries around the world. Hysteroscopy is the original "NOTES" procedure. As we all know, it is the least invasive procedure for patients that yields excellent outcomes with minimal morbidity.



Keith Isaacson

Past president of AAGL
Reproductive-Infertility
Specialist
Newton Wellesley Hospital

Boston, USA



This text offers 'how to' information on the use of the hysteroscope in an office setting. Provides guidelines for the selection of the proper equipment, when to use the procedure, nursing requirements and how instruments are sterilized. Covers the technique for diagnostic hysteroscopy step by step, as well as normal and pathologic findings associated with hysteroscopy. Simpler procedures such as IUD removal or endometrial biopsy are also covered. Includes management of complications, fallopscopy and the future of hysteroscopy.

You are a strong advocate of In-Office hysteroscopy. What are the 3 most important factors to consider when performing In-office hysteroscopy?

First, define your mission. If a physician group only wants to perform diagnostic office hysteroscopy than the equipment necessary is very different from those who are interested in procedures. A "procedure room" is not necessary to perform office hysteroscopy. Current equipment is small and mobile allowing hysteroscopy to be performed in a standard exam room. Second, make hysteroscopy fun and financially productive for your practice. Once a gynecologist learns the vaginoscopic technique of performing hysteroscopy in the office without the need for a speculum, tenaculum or paracervical block it is incredibly fun and rewarding to perform the procedures in the office. We will perform polypectomies, small myomectomies, metroplasties and adhesiolysis on the initial patient visit. It is very cool to have a patient with these conditions be diagnosed and treated and then go back to her normal activities within 15 minutes. Because we do not dilate the cervix, we give no restrictions on timing for activities such as swimming or intercourse. Third, minimize the stress of performing procedures in the office by keeping an updated Crises Checklist in every room in which the procedure is performed. This checklist should be simple to read, include symptoms related to a cause (i.e. bradycardia from vagal reactions), medication dosing and easily rehearsed. Going through a mock crises every six months will diminish everyone's anxiety and build confidence should an unusual event occur.

Intrauterine adhesions formation (Asherman's syndrome) is a problem that appears to have no answer. How can we prevent or treat intrauterine adhesions?

I see up to 10 patients a week with Asherman's syndrome and I have no idea how to prevent its occurrence. Asherman's can occur after post-partum D&Cs as well as first trimester D&Cs, myomectomies, and other intrauterine procedures. My hypothesis is that those patients that have Ashermans after retained products of conception have some unknown factor in their uterus that caused the retained tissue to be present and therefore increases the risk of adhesion formation after evacuation. However we can minimize adhesion formation by not resecting opposing uterine walls during myomectomy. Likewise, obstetricians who routinely wipe out the endometrium after a Cesarean section need to be as gentle as possible. I have seen entire cavities removed by this procedure. As well, I have seen cavities removed with hysteroscopic morcellators. As a general rule, pathology should be removed with direct visualization with the goal of creating as little trauma as possible to normal endometrial tissue.

You are extremely involved in resident's education. Should residents graduate with the skills to perform complex hysteroscopic surgery or complex hysteroscopic procedures should be limited to experts?


When I completed my residency, a rollerball endometrial ablation was considered a very simple surgical procedure appropriate for a first year level resident. When Global Ablation technologies came out between 1997-2003, Industry convinced gynecologists that operative procedures such as the rollerball is very complex and should only be done by experts. Understand that every ablation technology approved was compared to the rollerball and none showed superiority in efficacy or safety. We have failed our residents and I lose sleep over it every day. I see my colleagues and residents removing polyps with \$1500 per use morcellators because "they don't want to deal with chips". I see residents and colleagues leave 50% of myomas in the muscle because they only know how to use a morcellator and not a resectoscope. Resectoscopy is not a complex surgical procedure. It is very simple to teach. The problem is that we rely on industry to provide funding for teaching and there is no money in a pair of scissors and a grasper. If I want to go watch complex surgery, I will watch Arnaud Wattiez perform a laparoscopy and bowel resection for stage IV endometriosis or watch Marc Possover resect endometriosis off the sciatic nerve. There are relatively very few "complex" hysteroscopic surgeries.




Do you have any advice for the young physician who is starting in the world of gynecologic minimally invasive surgery?


My advice is to have fun with this amazing and rapidly changing field. Become involved in societies such as the AAGL, ASRM, ESGE, APAGE etc. You will develop lifelong friends who share your passion for providing minimally invasive gynecologic care to as many patients as possible. You will befriend and socialize with these people at every meeting you attend. This will allow you to rapidly rise through the organization ranks and become involved in teaching, administration and research if you so desire.

HYSTERO P rojects

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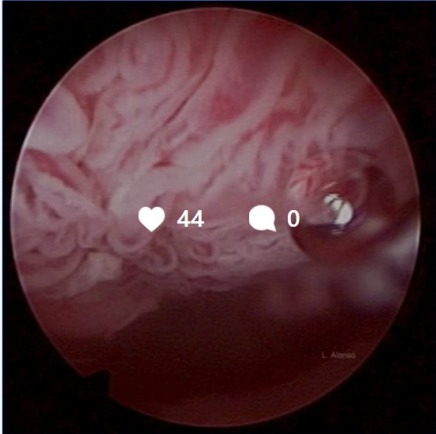
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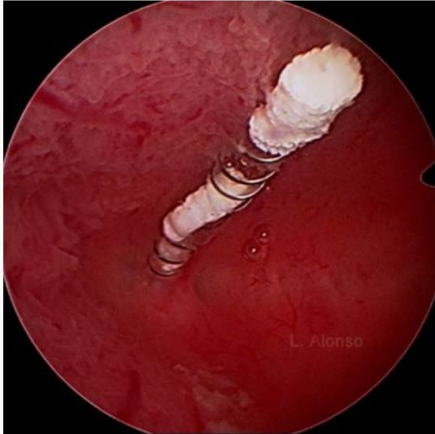


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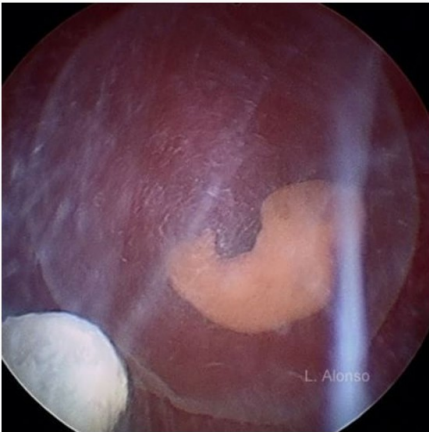


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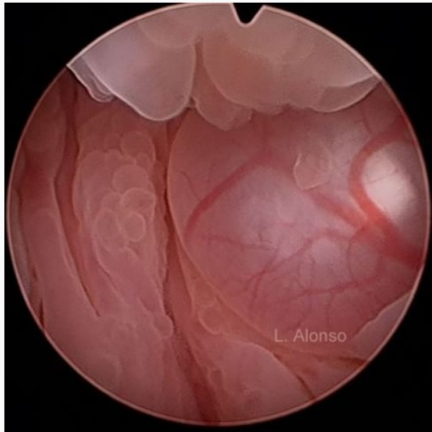
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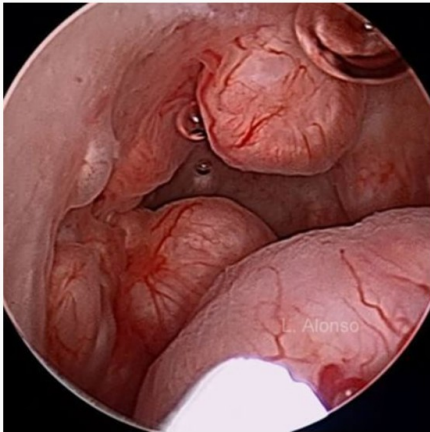
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HYSTEROSCOPY

BASIC

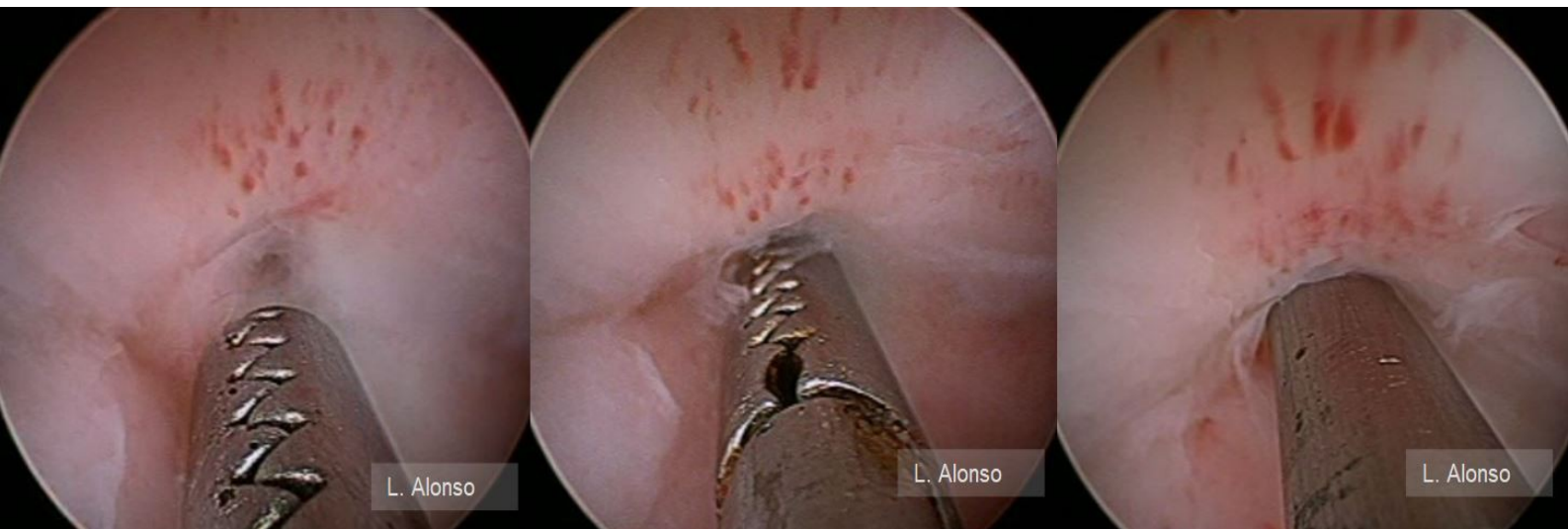
How To Avoid Complications Of Hysteroscopy

Alice Rhoton-Vlasak, MD. Reproductive Endocrinology & Infertility. University of Florida

Hysteroscopic surgical techniques have advanced to include more endometrial ablation devices, bipolar electrosurgery, hysteroscopic sterilization, and morcellators. As residents complete simulation training programs and learn to become hysteroscopic surgeons, it is important to follow safety tips at each step of the surgery. Hysteroscopy procedures involve the introduction of instruments into the uterus and distention with fluid media. There are particular risks that surgeons must be aware of. The most common perioperative complications associated with operative hysteroscopy are hemorrhage (2.4%), uterine perforation, (1.5%), and cervical laceration. Other complications include fluid overload, visceral injury, infection, air embolism, and rarely death.

The following are a list of safety tips:

1. **Appropriate patient preparation** involves proper positioning to avoid nerve injury. Care should always be taken since the OR time may be longer than expected.
2. For difficult cases such as Asherman syndrome or large type II submucosal myomas, combined **synchronous laparoscopic control or ultrasound guidance** may be considered to decrease the risk of perforation and visceral injury.
3. Prior to initiating the surgical procedure, all hysteroscopic equipment should be connected to light sources, suction, and fluid irrigation. **It should be tested to ensure it is working appropriately** prior to starting the procedure. Backup equipment should be available if technical difficulties occur on the day of surgery.
4. During the initial portion of the procedure adequate visualization of the cervix should be obtained. Hysteroscopic dilation of the cervix using the scope and hydrodistension is ideal. If cervical dilation is needed, it is important to **only dilate the cervix and not advance the dilator all the way to the fundus** to avoid perforation and trauma to the endometrial cavity that will affect visualization. Often in postmenopausal patients, the uterine depth will be small, and perforation could even occur during dilation.



5. In order to avoid air embolism, preventative strategies including **flushing air from tubing** and making sure that the procedure is stopped and tubing is purged of air when bags are changed.

In addition the patient should not be placed in the Trendelenburg position during cervical dilation or during the procedure in order to avoid a suction that may draw air into the uterine cavity. If there is a sudden cardiovascular collapse immediate management should be initiated for an air or CO2 emboli.

6. Care should be taken while inserting the hysteroscope into the uterine cavity to assure that a **false tract in the cervical canal** has not been made. If one proceeds to close to the depth of sounding without visualization of the cavity this should be considered, with re-attempts to gain entry into the uterine cavity.

7. Hemorrhage may occur during hysteroscopic surgery and can be controlled with **electrosurgical coagulation** if the bleeding site can be visualized. Other strategies include injection of vasopressin into the cervical stroma or Foley catheter balloon tamponade.

8. **Monitor fluid intake to avoid fluid overload.** Complications may be prevented by limiting excess fluid absorption, keeping track of ins and outs, and selecting a distending medium such as saline that minimizes risks in healthy patient's using isotonic solutions. A maximal fluid deficit of 2500 mL is acceptable in a young healthy patient, but is 1000 mL for hypotonic solution such as glycine. The fluid deficit should be limited in older patients or patients with heart failure or renal insufficiency.

9. **A preoperative pelvic exam** should be completed by the clinician to determine uterine position. Ultrasound guidance may be useful to avoid uterine perforation. If the hysteroscope is inserted and the uterus is unable to be distended at any point during the procedure it is possible there is a uterine perforation. At this point the case should be stopped and reassessed. Laparoscopy may be needed and useful to determine the extent of damage.

10. It is important that if any new devices are used for hysteroscopy that the entire surgical team **has been trained** and is aware of their use ahead of time. This could include new morcellators or electrosurgical devices.

If one follows these general safety tips and consideration it will ensure an emphasis on patient safety and continuous audit of new techniques or technologies. Remember it is always appropriate to select cases carefully and practice using simulation. There should be patient and surgical team preparation before entering the operating room. One should be familiar with the equipment and distention media in order to maximize patient care.

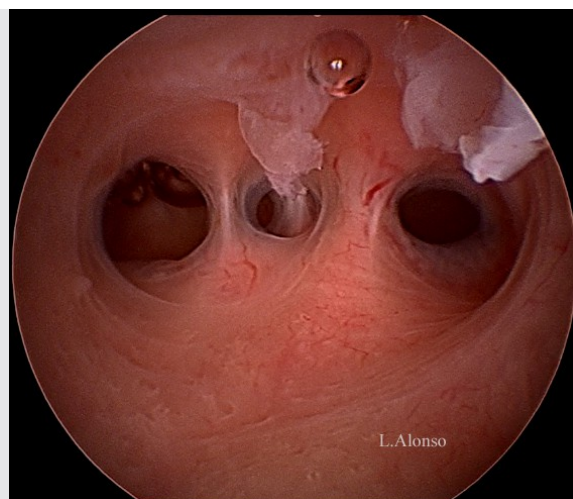


Hysteroscopy Conundrums

Intrauterine Adhesions

What do you use to prevent adhesion?

Adhesions can originate in the endometrium, the myometrium or in the connective tissue. Endometrial adhesions are usually filmy and have similar characteristics to normal endometrium. Adhesions originating in the myometrium are the most common and are usually formed by muscular covered by endometrial tissue.



Rubèn Baltà Me encanta esta imagen!

[Recomendar](#)

2semanas



Nash Moawad Nice image, Luis as always! I use nothing in the uterus to prevent intra-uterine synechiae other than good technique, minimizing tissue trauma and minimizing electrosurgery. I use an IUD when indicated for other reasons. I would treat with OCPs or estradiol if the patient is not already on hormones. I do recommend a second look office hysteroscopy to take down any filmy adhesions that may be starting to develop. Several trials could not demonstrate that any method is better than nothing. **Mostrar menos**

[Dejar de recomendar](#) | 2 y tú

2semanas



Xiang Xue I normally do hysteroscopy "second look "again 2-3 weeks after operation, if the result of uterine cavity examination is good, 3 months recheck again, if it is still normal, patients can go to pregnancy or follow up further. If adhesions still exist, check them again 2-3 weeks after separation. But I think the key factor is the repair and regeneration ability and injury degree of endometrium. Sometimes after resection and 1-2 months, the endometrium grow well, but after 3 months, the endometrium become thinner and unvital like again. **Mostrar menos**

[Dejar de recomendar](#) | Tú

1semana



Gavin Cooper What is the groups thoughts on using anti adhesion gels?

[Recomendar](#)

1semana



Ricardo Lasmar I use mainly scissor, hormoniotherapy and revision with new hysteroscopy

[Dejar de recomendar](#)

👍 1 y tú

2semanas



adel sedrati Nice picture Luis!

I use nothing, juste a safe surgery withe small instruments and less trauma as soon as possible

Hier we don't have a gel to prevent synechiae and i don't so much believe in the IUDs effects .
Just i performe a second look .

[Dejar de recomendar](#)

👍 2 y tú

2semanas



Xiang Xue I also do not believe that IUD can prevent uterine cavity adhesion, but in some places get clinical use, it is more easy to open uterine cavity again when some adhesions occur again in patients with adhesion after operation, and second exploration, especially for the obstructed uterine cavity adhesions that seal the uterine cavity.

[Dejar de recomendar](#)

👍 Tú

1semana



Hsuan Su Foley cath, high dose estrogen, second look every two weeks

[Dejar de recomendar](#)

👍 Tú

1 día



Luis Alonso Pacheco I also use a Foley Catheter and Hormonal therapy. But I think that one of the most important points is to perform an early "second look" hysteroscopy. In case of new adhesions, they are usually filmy or thin in that early hysteroscopy , and they can be easily removed.

1 día



Parul Kotdawala I have stopped using electric current as far as possible in the uterine cavity. Am giving estrogens systemically for 10-15 days.
Have been promoting second look hysteroscopy within 2-4 weeks. But in private practice patients are reluctant.
Hyaluronidase based gels are not available in India, but would love to know others' experiences on them.
Am not using any interposition material like balloon or IUCD.

Mostrar menos



Adewole Adebayo I use Foley catheter balloon size 8, 10 or 12 depending on the uterine cavity volume/size. The balloon is inflated with 3 to 4ml of sterile water. Additional hormonal therapy for 1 to 3months depending on the degree of adhesion. I perform second look hysteroscopy for only moderate to severe IUA.

[Dejar de recomendar](#)

👍 Tú

1semana

TALKING ABOUT

Use of the Resectoscope to Treat Vaginal Longitudinal Septum

Luigi Montevicchi, M.D. Rome - Italy

Hysteroscopic approach to treat uterine malformations has been well defined more than 35 years ago. Colacurci and colleagues (1) wrote: *"Hysteroscopic surgery replaced abdominal metroplasty and is today the treatment of choice for congenital uterine malformations"*. Fayez J A (2) in 1986 stated that *"...hysteroscopic metroplasty may be preferable to the transabdominal procedure based on cost and morbidity considerations as well as on anatomic and reproductive outcome..."*. Candiani et al. in 1991 (3) demonstrated that *"...microscissors are the simplest, fastest, most effective, and least expensive instrument to correct a septate uterus..."*, because of the poor vascularized tissue of the intrauterine septum.

Sometimes the uterine malformation can be associated to a double vagina, due to the presence of a longitudinal vaginal septum

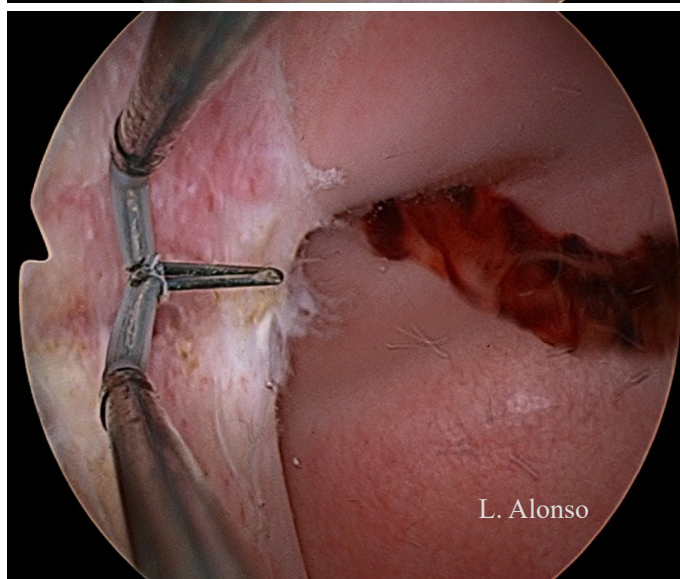
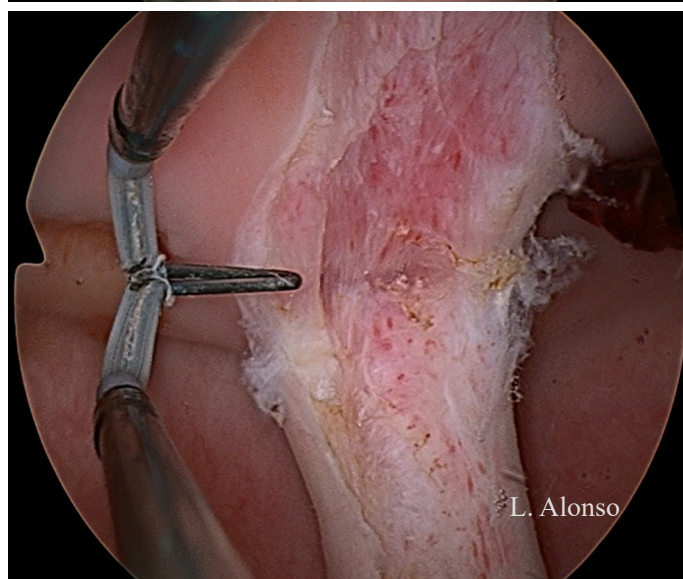
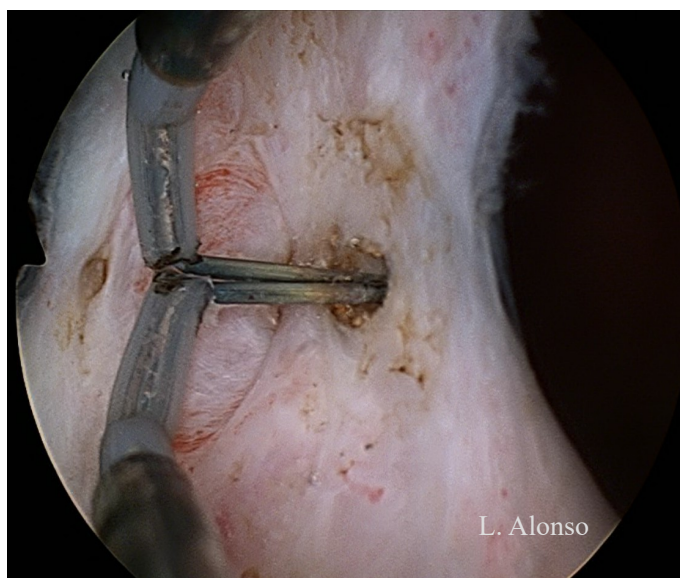
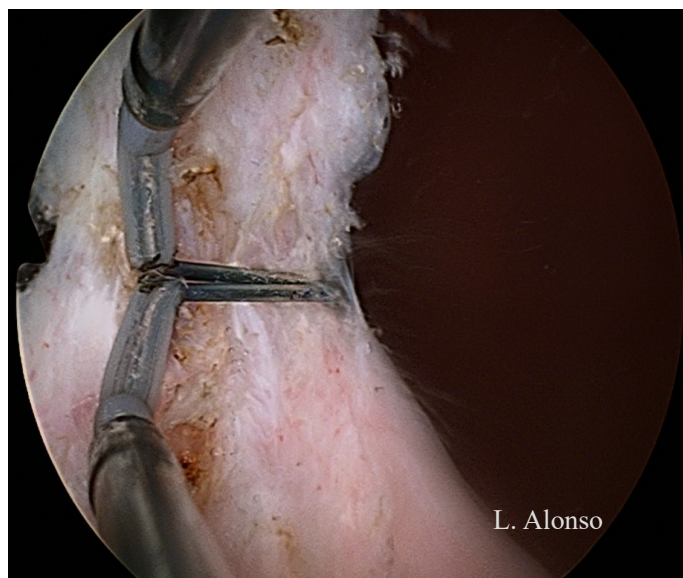
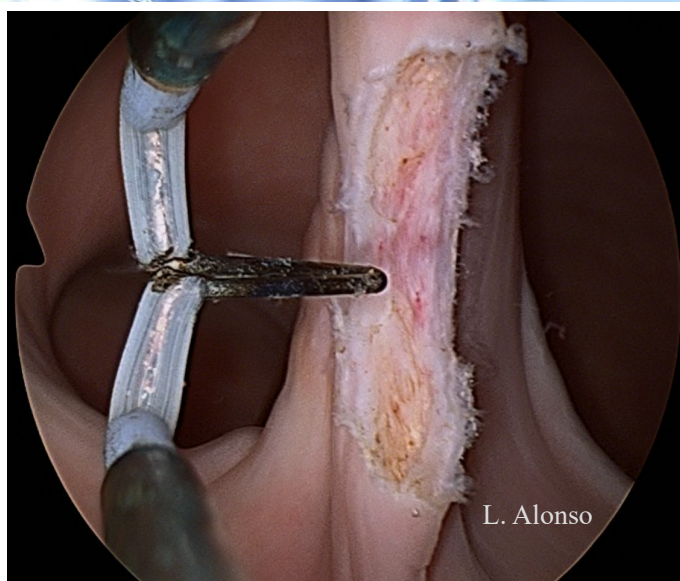
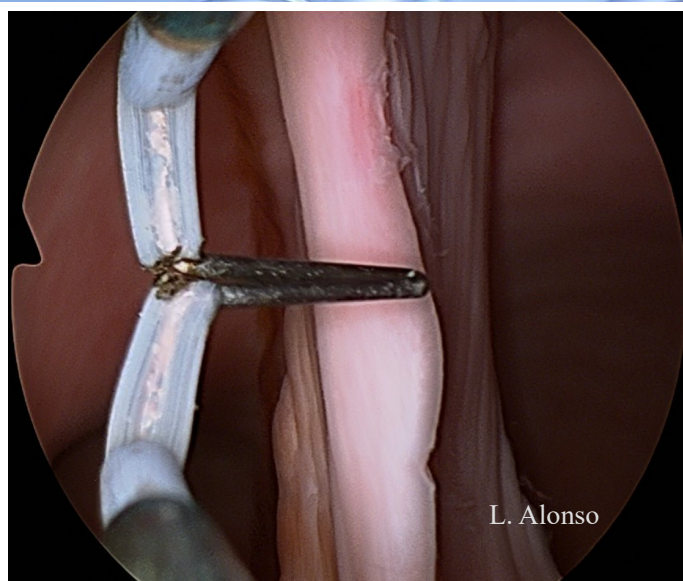
The associated vaginal longitudinal septum cannot be treated just with microscissors as in the isolated intrauterine Mullerian defect due to its abundant vascularity, requiring an electrosurgical treatment to prevent unnecessary bleeding.

To our knowledge, no one before us has described the treatment of the longitudinal vaginal septum by means of an hysteroscopic resector...the following table, as published in our previous paper with R.Valle (4), shows two other reports about a similar technique, during the last decade of past century

Tab. *Treatment of longitudinal vaginal septum with the endoscopic technique*

Author	Year	Technique	Malformation
Montevicchi L	1990	Hysteroscopic	vaginal septum in an adolescent virgin with obstructed hemivagina
Montevicchi L	1996	Hysteroscopic	Complete longitudinal vaginal septum in two virgin young girls
Tsai EM, Chiang PH, Hsu SC, Su JH, Lee JN	1998	Hysteroscopic	vaginal septum in an adolescent virgin with obstructed hemivagina
Cicinelli E, Romano F, Didonna T, Schonauer LM, Galantino P, Di Naro	1999	Hysteroscopic	unilateral imperforate vagina complicated by hematocolpos and hematometra

The procedure, in each case, was easy, fast (it required no more than five minutes) and bloodless; the operative hysteroscope was introduced into the right hemivagina, and the resection started on the upper portion of the septum, not far from the uterine cervix. Once I penetrated into the left side, I completed the resection as in a standard hysteroscopic metroplasty, pushing the electrode towards the upper portion, than pulling and cutting in the direction of the external vaginal os.



1. **The significance of hysteroscopic treatment of congenital uterine malformations** N.Colacurci, P.De Franciscis, F.Fornaro, N.Fortunato and A.Perino - Reproductive BioMedicine Online Volume 4, Supplement 3, 2002, Pages 52-54
2. **Comparison Between Abdominal and Hysteroscopic Metroplasty** Jamil A. Favez Obstetrics & Gynecology. 68(3):399-403, SEP 1986
3. **Argon laser versus microscissors for hysteroscopic incision of uterine septa** Candiani, G. B. et al. American Journal of Obstetrics & Gynecology , Volume 164 , Issue 1 , 87-90, Jan 1991
4. **Resectoscopic treatment of complete longitudinal vaginal septum** Montevecchi L1, Valle RF. Int J Gynaecol Obstet. 2004 Jan;84(1):65-70.
5. **An unusual case of septate uterus with double cervix and longitudinal vaginal septum simulating uterus didelphys** Vijay A et al. Int J Reprod Contracept Obstet Gynecol. 2017 Jan; 6(1):303-305
6. **Complete septate uterus with longitudinal vaginal septum** Pentti K. Heinonen, Fertility and Sterility Volume 85, Issue 3, Pages 700-705

Original Article

Pregnancy Outcome in Women with Uterine Anomalies (I)

Carlo de Angelis, M.D. Università degli Studi "La Sapienza" Rome - Italy

Uterine malformations consist of a group of various congenital anomalies of the female genital system that have often been associated with increased miscarriage, preterm delivery and other adverse fetal outcome rates.

Uterine malformations are the result of four major disturbances in the development, formation or fusion of the Mullerian ducts during fetal life: a) failure of one of the Mullerian ducts to develop (agenesis; AFS unicornuate uterus without rudimentary horn); b) failure of the ducts to canalize; c) failure or abnormal fusion of the ducts (AFS didelphys or bicornuate uterus); d) failure of reabsorption of the midline uterine septum (AFS septate and arcuate uterus). (Grimbizis et al. 2001)

Moreover, T-shaped uterus or hypoplastic uterus is a rare uterine malformation, except in woman exposed in utero to diethylstilbestrol (DES), an anti-abortion drug that used to be given to women with threatened miscarriage until the end of the Seventies (Fernandez *et al.*, 2011). The pathogenesis of this malformation remains unclear and its cause is still unknown.

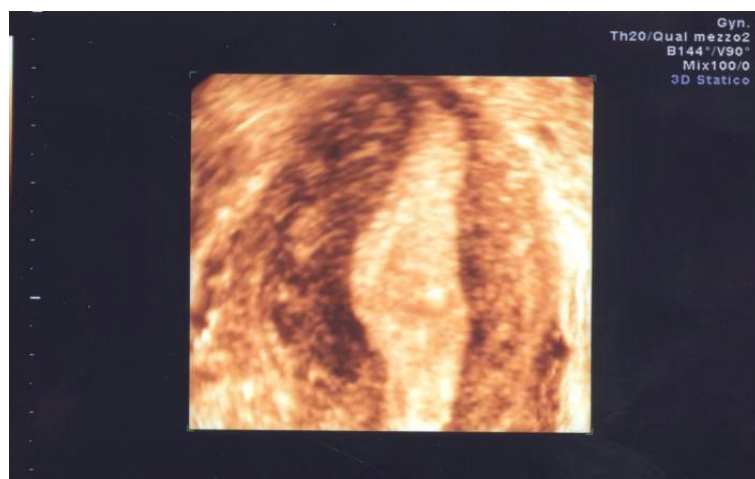
The prevalence of congenital uterine anomalies in high-risk women is unclear as various diagnostic approaches have been applied to different groups of patients. In a recent, comprehensive systematic review Chan et al. have identified 94 observational studies comprising 89,861 women. Pooled prevalence rates of uterine anomalies diagnosed by optimal tests are 5.5% in the unselected population, 8.0% in infertile women, 13.3% in those with a miscarriage history and 24.5% in those presenting miscarriage and infertility. That means that one out of four women with miscarriage and infertility have uterine anomalies.

Looking at the different classes of uterine anomalies, the so-called resorption or canalization defects, namely arcuate and septate uteri, have the highest prevalence rate (22.0%) in high-risk patients with miscarriage and infertility, whereas unification defects have lower prevalence rates in the same patient population (bicornuate 4.7%; unicornuate 3.1%; Didelphys 2.1 % ; Chan *et al.*, 2011).

The presence of a malformed uterus in a woman is thought to impair normal reproductive performance by increasing the incidence rates of early and late abortions, preterm deliveries and obstetrical complications. However, each uterine malformation may have a different effect on pregnancy outcome.

HEMI-UTERUS (AFS UNICORNUATE)

What is the probability for those patients to deliver a healthy child, and what specific obstetrics challenge will they face on the way to that desired endpoint? An investigation of the existing literature, largely anecdotal and incomplete, relies heavily on case reports and case series to prognosticate for these patients. However, women with untreated unicornuate uterus seem to have a relatively poor pregnancy outcome.



The challenge faced by patients with unicornuate uterus has long been thought to be pregnancy maintenance rather than impaired fertility (Reichman, 2009). Patients with anomalies have higher frequencies of spontaneous abortions in the first and second trimester, preterm labor, and abnormal fetal presentations (Raga, 1997). The assisted reproductive technology data, however, suggest that clinical pregnancy rates are reduced by 33% in patients with unicornuate uterus, which contradicts the former statement (Lavergne, 1996).

Moreover, the rudimentary cavitated horn can be a site of implantation that results in horn gestation (ectopic pregnancy). This seems to be more likely in patients with AFS Class II a malformations (cavitated communicating horn) whose horn cavities are in direct communication with the primary uterine cavity. It is extremely uncommon to have an ectopic horn pregnancy in AFS Class Ib malformations, in which the rudimentary horn cavity does not communicate with the main uterine cavity, even though intra-abdominal sperm migration is a frequent occurrence in human reproduction (Nahum et al, 1998). Fedele et al. have reported 5 cases of ruptured rudimentary horn containing ectopic pregnancy out of 49 patients with unicornuate uterus (10.2%).

In this chapter, we cover mainly on data derived from the two most updated systematic reviews on that issue, In the first review, Grimbizis et al. (2001) have assessed 151 patients pooled from eleven studies published between 1953 and the late 1990s. Out of a total of 260 pregnancies, the following rates are recorded: mean abortion, 37.1%; mean preterm delivery, 16.4%; mean term delivery, 45.3 (%); and mean live birth, 55.1%.

The second and most updated report is by Reichman et al. (2009) who have evaluated the data from 20 papers published up to 2006. In total, they have examined 290 women with unicornuate uterus, for an overall number of 468 pooled pregnancies. Overall, 2.7% of pregnancies are ectopic, 24.3% end in first-trimester abortion and 9.7% in second-trimester abortion. The preterm delivery prevalence rate is 20.1%, term deliveries account for 44.0%. A very high rate of intrauterine fetal death is reported (10.5%) as against a lower-than 50% live-birth rate (49.6%).

TABLE 1. Pregnancy outcome in patients with unicornuate uterus								
Authors	No.studies	Patients	Pregnancies	Ectopics	Abortions	Preterm del.	Term del.	Live birth
		n.	n.	n (%)	n (%)	n (%)	n (%)	n (%)
Grimbizis et al.	11	151	260	3 (1.2)	95 (36.5)	42 (16.2)	116 (44.6)	141 (54.2)
Reichman et al.	20	290	468	28 (6.0)	114 (24.3)*	86 (18.4)	177 (37.8)°	232 (49.6)

* Firsttrimesterabortion n.84 (17.9%); secondtrimesterabortion n.30 (6.4%)* Intrauterinefetaldeath n. 16 (3.4%)

Therefore, the data reported in most recent studies are even worst when compared to the earlier ones, with high prevalence of ectopic pregnancies and fetal death in utero, and a live birth rate lower than 50%. (Table 1). If we look at the different subclasses of unicornuate uterus, we can see that subclass b (no rudimentary horn) is associated with the absolute lowest pregnancy outcome.

Three main factors have been suggested as possible causes of such outcomes:

- **Diminished muscle mass:** the unicornuate uterus walls are thinner than normal, myometrium diminishes in thickness as gestational age advances, causing inconsistencies over different aspects of the uterus (Reichman, 2009). This reduced myometrial muscle thickness is supposed to play a role in both second-trimester abortion and premature delivery, which accounts for up to 25% of these patients.

- **Abnormal uterine blood flow:** disturbance in the uterine blood flow caused by an absent or abnormal uterine or ovarian artery, which could explain growth restriction or spontaneous abortion. Poor vascularization could lead to impaired fetal nutrition, reduced fetal size and higher incidence of first-trimester abortion for compromised utero-placental blood flow (Moutos, 1992)

- **Cervical incompetence:** even though, as reported by Reichman et al., it seems unlikely that it plays a key role given that the great majority of pregnancy losses in unicornuate uteri occur during the first trimester.

BICORPOREAL UTERUS (AFS BICORNUATE AND DIDELPHYS)

Bicornuate uterus, which is rare in the unselected population (0.4%), is significantly more prevalent in women with infertility (1.1%) and miscarriage (2.1%), particularly if these coexist (4.7%) (Chan et al. 2011).

Nevertheless, the relative frequency of having a bicornuate uterus in women presenting with a first-trimester recurrent pregnancy loss and a divided cavity seems to be very low as reported by some authors (Proctor et al). Maneschi et al.(1993) has compared thirteen patients with bicornuate uterus who had not undergone corrective surgery and eight women treated with metroplasty, namely the Strassman procedure. The cumulative pregnancy rates are 67% and 95% in patients without surgical repair and 63% and 88% in the surgery-treated group. The probability of giving birth to a live-born infant is as follows: with no corrective surgery 30%, 58% and 79% for the first, second and third pregnancy, respectively; after corrective surgery 71% and 86% for the first and second pregnancy, respectively.

Fertility seems not to be impaired in patients with bicornuate uterus, whereas gestational capacity is. A prognostic estimate of the likelihood of giving birth to a live-born baby can be formulated according to the number of pregnancies or surgical correction.

Based on the data reported in the literature on patients with untreated bicornuate uterus, even this malformation seems to have a poor pregnancy outcome. In the largest report published on the issue, out of 261 pooled patients from four studies with untreated bicornuate uterus for a total of 627 pregnancies, the mean abortion rate is 36.0%, the mean preterm delivery rate 23.0%, the mean term delivery rate 40.6%, and the mean live-birth rate 55.2%. (Grimbizis et al., 2001).



In comparative studies on women with bicornuate uterus and normal controls, the pregnancy outcome in patients with bicornuate uterus is significantly poorer than that of patients with a normal uterus (Acien, 1993), whereas the miscarriage rate is significantly higher (41.8% vs. 6.4 %; Risk ratio: 6.56). (Chan, 2011). Even Shuiqing (2002) and Zlopasa (2007) have reported significantly high abortion rates in women with bicornuate uterus compared to controls (42,6 % vs. 9.1%, risk ratio 4.69, and 27.5 % vs. 16.4%, risk ratio 1.68, respectively).

Saravelos (2008) et al. suggest that the miscarriage rate increases according to embryological severity of uterine anomalies. In twenty-nine patients with bicornuate uterus they report a first-trimester miscarriage rate of 72.4% (21/29) and a second-trimester miscarriage rate of 13.8% (4/29) for a total miscarriage rate of 85.8%. In this study, the pregnancy outcome in patients affected by bicornuate uterus seems to be really very poor, with a live birth rate of 13.8%. It is unclear if a complete bicornuate uterus has a poorer pregnancy outcome than partial bicornuate uterus since data in the literature are conflicting (Acien et al., 1993 and Raga et al., 1997).

As for Didelphys uterus, its prevalence is very low. According to Chan's review it is 0.1% in the unselected population, 0.5% in women affected by infertility, 0.5% in women with miscarriage and 3.1 % in women with mixed infertility and miscarriage. The pregnancy outcome in women with didelphys uterus seems to be similar to that of women with bicornuate uterus. A review of 152 pregnancies by 114 pooled patients with untreated didelphys uterus has revealed a mean 32.9% abortion rate, a mean 28.9% preterm delivery rate, a mean 36.2 % term delivery rate with a mean 56.6% live birth rate (Grimbizis et al., 2001).

Therefore, according to these data, didelphys and bicornuate uteri seem to have a similar effect on reproduction, since the presence of the second cervix and of the second channel seems not to have a beneficial effect, from a functional point of view, on the reproductive capability of the uterus.

Nevertheless, there are some conflicting data on that issue. Heinonen et al. (2000), in the largest single series on women with didelphys uterus and pregnancy (49 cases), reported a mean miscarriage rate of 21%, ectopic pregnancies in 2%, prematurity in 24%, fetal growth retardation in 11% and perinatal mortality in 5.3% . A fetal survival rate of 75% has led the author to conclude that fertility in women with didelphys uterus is not impaired significantly, pregnancy prognosis is comparatively good, while prematurity and fetal growth retardation indicate meticulous prenatal care. Even Shuiqing et al. (2002) has found a low incidence of first-trimester miscarriage rate in women with didelphys uterus as against women with normal uterus (9.5% vs. 9.1%, risk ratio 1.05). In our opinion, a possible explanation for this discrepancy could be seen in the difficulty that sometimes occurs in a correct diagnosis of the anomaly .Also differential diagnosis between didelphys uterus and complete septate uterus with duplicatio cervix, being the latter an anomaly not included in most previous classification systems, could sometimes be an explanation for conflicting data.

Actually, the most salient difference between the two subtypes of unification defects remains the opportunity for a bicornuate uterus to be treated surgically, i.e. with laparotomic or laparoscopic Strassman metroplasty. (Table 2). Occasionally, a bicornuate uterus is combined with the septum, and in most of those cases treatment does not vary from that of a septate uterus alone.

TABLE 2 . Pregnancy outcome after Strassman metroplasty for bicornuate uterus

Authors	Patients N°.	Pregnancies N°.	Abortions N°. (%)	Live birth N°. (%)
Candiani <i>et al.</i> (1990)	71	66	14 (19.7)	52 (73.2)
Maneschi <i>et al.</i> (1993)	8	7	n.a.	7 (88.0)
Lolis <i>et al.</i> (2005)	22	19	0 (0)	19 (86.4)
Rechberger <i>et al.</i> (2009)	13*	10	2 (16.6)	8 (66.7)
Total	114	102	16 (14.1)	86 (75.4)

* One patient was lost at follow-up

DID YOU KNOW...?

The infertile patients with endometriosis had a higher prevalence of endometrial polyps, and those polyps are often combined with simple hyperplasia.

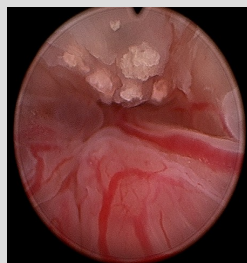
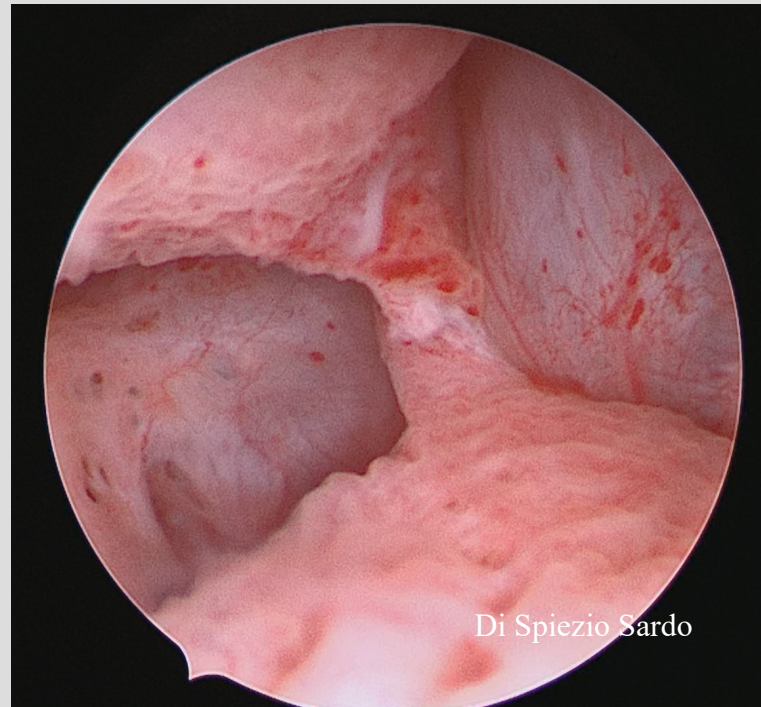
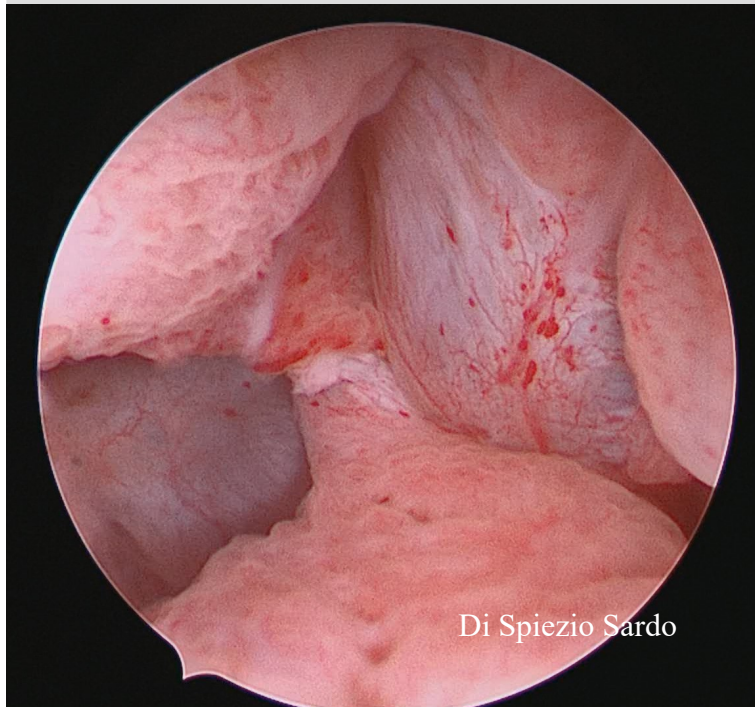
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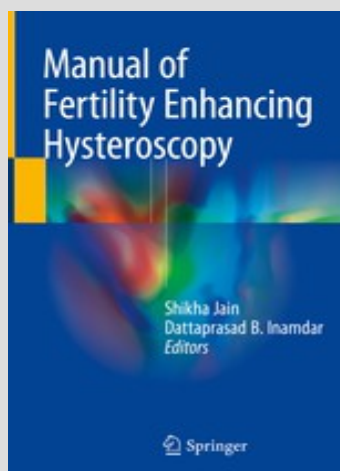
Robert's uterus is characterized by uterine septum dividing the endometrial cavity asymmetrically with non communicating hemi uterus due to obstruction by the septum.

doi: 10.4172/2325-9795.1000304

WHAT'S YOUR DIAGNOSIS?



*Answer to last edition:
Calcium deposits in the cervical canal*



Manual of Fertility Enhancing Hysteroscopy
Shikha Jain & B. Dattaprasad Inamdar
Springer 2018

This book is an illustrated and comprehensive compilation by experts in the field of fertility enhancing endoscopic surgery and assisted reproduction. This book catalogues full spectrum of diagnostic and operative hysteroscopy in the infertile population. The authors describe different techniques in various clinical conditions and review the recent evidence based literature supporting them. All procedures are explained in clear and precise text supplemented with high quality color pictures.



HYSTEROSCOPY DEVICES

PUMPINO

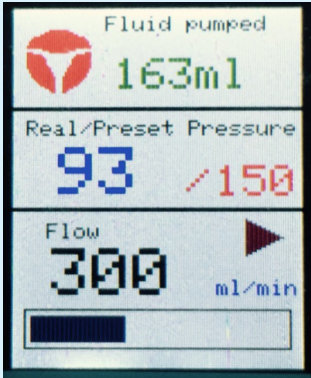
With the trending practice of office hysteroscopy and the increasing variety of procedures involved, a revolution in the technology and instruments is occurring on the parallel. Along the main concept of office hysteroscopy, which is smaller callipers that avoid cervical dilatation, other needs arise on the way. Simpler and smaller equiment, compact/portable devices, and more cost efficient settings, are all important issues for an outpatient hysteroscopy unit.

Obviously, a competent fluid distension system, with monitored and controlled flow parameters (flowrate and pressure) is an integral part in hysteroscopy unit setup. The new small pump (**Pumpino**) has capabilities that covers the needs of hysteroscopic procedures (flowrate 150-550 ml/min), (pressure 50-200 mmHg), while it has a small size (<1000 cm3), weight (>1000 g) and a special attachment system that fixes it to any IV stand. With a multifunction Knob, a 1.8" color screen, and a custom designed operating system, controlling all the required fuctions is very simple, fast and single handed. Further options include a touchscreen and a footswitch. The tubing system can both be reusable and disposable.



Pumpino attached to an IV stand

	Pressure monitor	Pressure control	Flowrate monitor	Flowrate control	No dedicated personnel	Small size	Simple usage	IV stand attach	Cost
Gravity-depd flow	✗	✓	✗	✗	✓	✓	✓	✓	-
Pressure Cuffs	✗	✓	✗	✗	✗	✓	✓	✓	\$
Endoscopic Pumps	✓	✓	✓	✓	✓	✗	✗	✗	\$\$\$\$\$
Pumpino	✓	✓	✓	✓	✓	✓	✓	✓	\$\$



Main Interface

HYSTEROSCOPY

Editorial team



**&
MANY
MORE.**

