



the Trocar **Official Online Journal of ISGE**

#Enzian (Classification of Endometriosis)						
PERITONEUM	Ovary	TUBE	DEEP ENDOMETRIOSIS			
P Peritoneum ■ Size of all diameters	O Ovary ■ Size of all diameters	T Tubal ovarian condition ■ Adhesions ■ Mobility ■ Patency test	A Intestinal space Superior retroperitoneal area ■ Largest diameter	B Sigmoidocolic space Central retroperitoneal area ■ Largest diameter	C Rectovesical ■ Largest diameter	F Locations ■ Deep infiltrating endometriosis ■ Bowel ■ Vagina ■ Uterus
P1 $\Sigma < 3$ cm	O1 $\Sigma < 3$ cm	T1 Pelvic sidewall	A1 < 1 cm	B1 < 1 cm	C1 < 1 cm	F _A Anterior
P2 $\Sigma 3-7$ cm	O2 $\Sigma 3-7$ cm	T2 Pelvic sidewall/Bladder	A2 $1-3$ cm	B2 $1-3$ cm	C2 $1-3$ cm	F _B Bowel
P3 $\Sigma > 7$ cm	O3 $\Sigma > 7$ cm	T3 Pelvic sidewall/Bowel/USL	A3 > 3 cm	B3 > 3 cm	C3 > 3 cm	F _L Lateral
P _____	O _____	T _____	A _____	B _____	C _____	F _____
	left / right in: recto / sigmoid x: endometriosis / not visible	left / right in: recto / sigmoid x: endometriosis / not visible x: uterine / not visible x: para: Pelvic side		left / right		(Locations)

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**Moroccan Association for
Minimally
Invasive Gynecologic Surgery**

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ISGE 2022

Dear friends, COVID is now in its third year and will be with us for a long time. Last year, ISGE was the first society that dared to hold a physical congress (August 2021). Others followed, even though most events were held online again in winter. It remains difficult, but we are very happy to meet friends from all over the world again this year. With our friends from MAMIGS we put together a very interesting program and Agadir in Morocco is a very good place to cultivate international friendship. Especially at a time of war in Europe, we should show that scientific exchange connects and friendships are possible regardless of nationality, religion and origin. Therefore, we are very happy to meet many friends and colleagues in Agadir again. ISGE has tried again to involve other specialist societies in the annual congress and to give them space for their topics.

This year the European Endometriosis League and the Society for Neuropelveology are represented at our congress. Under the heading ISGE meets... we will organize special sessions on the topics of the colleagues. Agadir and the congress are worth a trip!!



As we continue to face uncertain times with the current crises (Covid; global warming and war in Europe), it is all the more important that a global community of physicians maintain friendship and scientific exchange. Let's show, as we have for many years, that only cohesion brings humanity further.

We as ISGE would like to continue to offer you a platform for this and are constantly working on it. With our journal we offer a low-threshold entry into publishing and we are very happy about contributions from specialists from all over the world, as in this issue. Teaching is our passion, for this we have developed further platforms in order to constantly develop our offer.

See you in Agadir!

Yours, Guenter Noé

ISGE 2022
Guenter Noé

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#Enzian classification, a new description of endometriosis for invasive and noninvasive diagnosis.

Background and description of a new approach to a complex disease.

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Abstract

The #Enzian classification provides a complete assessment of superficial, deep and also extragenital endometriosis findings. In contrast to the rASRM classification, it is applicable both in the diagnostic setting (ultrasound and MRI) and intraoperatively.

Key words: Endometriosis; Classification; #ENZIAN; ultrasound; surgery

Introduction:

Endometriosis is the most common benign disease in gynecology.

The important symptoms are cyclic pain, bleeding disorder, infertility and organ destruction which can lead to an enormous reduction of the patients' quality of life, sometimes even lifelong. The manifestations are very diverse. It primarily affects the organs of the internal genital tract, the peritoneum but also the neighboring organs in the small pelvis as well as extraperitoneal structures extending to the pelvic wall.

Endometriosis can also occur outside the pelvis (diaphragm, appendix, umbilicus, inguinal region, sacral nerves, lungs or abdominal wall etc.).

The symptoms of endometriosis are influenced by the activity of the foci as well as, essentially, by the localization and size of the findings. Sometimes small peritoneal foci remain asymptomatic, whereas large ovarian endometriomas may cause complex symptoms (pain, sterility, hormonal imbalances, etc.).

Extragenital foci in the intestinal or bladder wall or even in the ureter result in functional problems of the affected organs. In the case of an involvement of the pelvic wall including the ureter, for example, there is a risk of chronic urinary retention with consecutive damage to the kidney, which is sometimes recognized much too late.

Adenomyosis, a special form of endometriosis in the uterine wall, is usually responsible for severe dysmenorrhea, bleeding disorders (hypermenorrhea) and subfertility. However, not all findings are symptomatic.

Therapy:

In the absence of a clear theory of development, there is also no causal therapy to date.

Symptomatic endometriosis is treated either conservatively or surgically. Hormonal modulation or inactivation of proliferating endometriosis cells is sufficient in many cases.

This keeps the endometriosis inactive for the duration of the therapy, but does not destroy or even eliminate it. In contrast, elimination is achieved with surgical treatment of the disease, either by destruction or resection.

These procedures carry the risk that not all foci are/can be identified and removed intraoperatively, or that further problems may occur postoperatively due to complications. The recurrence rate after surgical interventions depends on the complexity of the disease but also on the most complete pre- and intraoperative identification of the foci and their complete removal. In any case, the most comprehensive preoperative (and intraoperative) diagnosis possible is essential.

Diagnostics:

Correct diagnosis begins with a differentiated history and gynecologic examination and often ends with diagnostic laparoscopy. To this day, the latter is still considered the gold standard for diagnosing endometriosis, especially since it also involves tissue sampling with histological evidence of endometriosis.

The additional visualization of adhesions and the examination of the tubo ovarian unit (entity?) is very important, especially in infertile patients.

The fact that endometriosis is not only an intraperitoneal disease often leads to an incomplete detection of the disease during diagnostic laparoscopy.

Diagnosis has to include difficult-to-detect but symptomatic findings in the bowel wall and/or findings in the extraperitoneal space. The persistence of the disease and thus unsatisfactory surgical results are also due to inadequate diagnosis.

This eminent problem has been considerably reduced by improving the techniques of operative laparoscopy on the one hand and by very differentiated ultrasound diagnostics on the other. In addition, MRI examinations are very valuable in cases of unclear symptoms or specific clinical findings, especially for the visualization of extragenital foci.

Classification:

For decades, attempts have been made to classify endometriosis by means of various classification systems in order to be able to make statements about the severity of the disease, the forms of therapy, the success, the recurrence rate after therapies and finally about the prognosis of the disease. Since 1979, the AFS/rASRM classification has been primarily used in the context of surgical intervention (laparoscopy, laparotomy) (1). However, among other classifications, especially the Enzian classification for deep endometriosis (DE) and the EFI (Endometriosis Fertility Index) for the assessment of chances to conceive in the presence of peritoneal/ovarian endometriosis are regularly used in clinical and scientific routine. This has also been recommended by various scientific societies.

As a further development of the Enzian classification, the #Enzian classification is now presented.

Strengths and weaknesses of these classifications.

1)AFS/rASRM classification

The application of the AFS/ rASRM classification requires a surgical procedure to classify the intra-abdominal extent of the disease with involvement of the peritoneum, ovaries and fallopian tubes, as well as the adhesions. The lack of correlation of the rASRM stages with symptoms can be partly explained by the different pathophysiological behavior of the disease itself, but also by the incomplete documentation of the overall findings.

Thus, the clinical relevance of this classification or its value in the analysis of clinical and scientific studies, especially in cases of DE, must be critically questioned.

Grading based on rASRM level into only 4 stages (1-4) is far too inaccurate. The complex distribution system of the points to be assigned often leads to the fact that the staging is determined by estimation rather than by an exact calculation.

In a study with endometriosis specialists, the use of the three different classifications systems (rASRM, Enzian, EFI) was tested by means of the commonly used paper survey forms or by means of a computerized data collection program (EQUsum). None(!) of the 40 endometriosis specialists succeeded in correctly classifying the clearly defined, fictitious cases using rASRM in paper form. Using the Enzian classification proved much easier and more accurate (2).

Problems with r ASRM in staging:

1. it is inappropriate for the detection of deep endometriosis (DE).
2. there is a low correlation between stage and symptoms
3. it cannot be used in diagnostic procedures (USD, MRI)
4. it does not allow prediction of prognosis
5. it is complex and difficult to use (especially, in paper form)

2) The Enzian Classification (3, 4)

The Enzian classification was the result of an expert meeting held by the Endometriosis Research Foundation (SEF) in 2002 (1st Weissensee Meeting). This new classification assesses deep endometriosis in its totality and does not divide the disease into an overall stage. It was used in combination with the rASRM classification - to provide the most comprehensive description of the disease.

The substantial technical improvements in operative laparoscopy over the past 20 years allow for complete classification of deep endometriosis, although this may require invasive surgery. However, deep endometriosis can also be accurately visualized by non-invasive methods such as sonography and MRI diagnostics. These procedures also allow the use of the Enzian classification.

The Enzian classification is based on a topographic categorization (division?) of the pelvis into different compartments. In addition to the compartments designated with capital letters, all other extragenital lesions found are also documented according to location and size by means of the "code". Only affected

compartments are listed in the coding. The need to classify endometriosis in a such a differentiated manner has been investigated in several studies(5) (6) (7).

It has been shown:

1. certain affected compartments and the number of affected compartments correlate with symptoms.
2. there are usually significant similarities between the anatomical (surgical) findings and the findings obtained by sonography or MRI.
3. this classification allows an improvement of interdisciplinary therapy concepts.
4. the duration of surgery and the surgical difficulty correlate with the localization and the extent of the findings (Enzian) of the different compartments.
5. the risk for postoperative complications in complex findings can be estimated. with the Enzian classification.

3) EFI (Endometriosis Fertility Index) (8).

The EFI (Endometriosis Fertility Index) was developed in order to make a prognostic statement about the probability of pregnancy in endometriosis and infertility.

This multifactorial statistical model takes into account not only endometriosis but also other factors that limit fertility, such as the age of the patient, previous pregnancies, the duration of infertility, the state of the tubo-ovarian entity and finally the rASRM stage.

The points calculated in this process allow to give an estimation of the prognosis for a spontaneous pregnancy. However, of the maximum 10 points to be scored, only 2 points are given specifically

for endometriosis staging. Thus, the EFI cannot be considered primarily as a specific endometriosis classification.

4) Recommendations

Recommendations from various societies point out the above problems and advocate the simultaneous use of multiple classifications or a single comprehensive classification (9, 10) (11). Surgeons, ultra-sonographers and radiologists succeed in visualizing and documenting the full extent of endometriosis. A common "language", or classification, would be very useful (12).

5) The #Enzian classification

The original Enzian classification (without consideration of ovarian and peritoneal endometriosis and adhesions) was revised by a group of experts from SEF (Endometriosis Research Foundation) and by other international specialists and evolved into the #Enzian classification(13).

The new classification takes into account the different localizations and sizes of the lesions, including those that can be visualized in ultrasound(u) and MRI(m) examinations.

The individual anatomical regions are defined by capital letters and the size of the foci are divided into categories (1-3).

The classification aims to represent the entire extent of the disease in detail and not to reduce it to only e.g., 4 stages, which would cause a great loss of information.

The use of a code serves to present the entire findings in a more reproducible way.

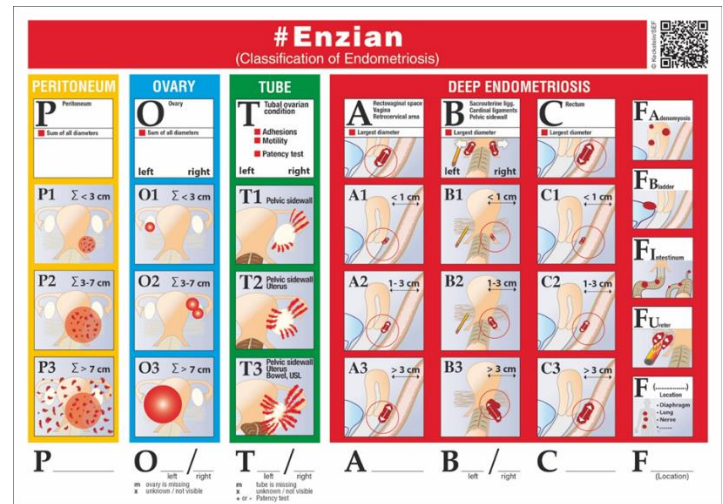


Figure 1 shows the schematic representation of the #Enzian classification and thus "coding formula". (Fig1.)

Figure 1: #Enzian classification. The different anatomical structures (compartments marked with capital letters) are systematically ordered next to each other. The size of the lesion, (1-3) is arranged from top to bottom. Special anatomical structures such as uterus, ureter, higher bowel segments, etc.) are additionally listed on the right.

These extragenital forms of the disease are labeled with the letters F such as FU= ureteral involvement with stenosis, FB = bladder endometriosis, etc....

6) Coding of the recorded findings:

P=Peritoneum (diameter of that circle in which the areas of all visible foci can be summarized fictitiously = Σ). P1=<3cm, P2=3-7cm, P3=>7, Detection by surgery

O= ovary (sums of diameters of all endometriosis cysts; each side assessed separately; left/right)

$O1 = < 3\text{cm}$, $O2 = 3-7\text{cm}$ $O3 = > 7$,

Detection by US/ MRI/surgery

T= adhesions and tubo-ovarian findings (adhesions of adnexa to pelvic wall, uterus and bowel, tubal patency= +/-; each side assessed separately; li/re).

T1= adhesions of ovary to pelvic wall

T2= adhesions of ovary, pelvic wall and uterus

T3= adhesions of ovary, pelvic wall, uterus and intestine

Detection by US/surgery

A/B/C = deep endometriosis

A= Retrocervical area, septum rectovaginale, vagina, B= parametrium, ligamentum sacrouterinum, C= rectosigmoid). Assessment of size, i.e., diameter as marked in Figure 2 in each case. Detection by TVS/ MRI/ surgery

F: FA= adenomyosis, FI= other intestinal lesions > 16 cm from anus, FU= ureter(left/right), obstruction, F(...)= defined other localizations. Detection by TVS/ MRI/ surgery,

Options for classification/coding: surgical(s), sonographic(u) or by MRI(m).

#Enzian classification can be applied intraoperatively or by sonography or with MRI, and is annotated with the small letters: (s)= Surgery, (u)= Ultrasound, (m)= MRI

Each of these diagnostic methods has specific strengths and weaknesses. For example, peritoneal lesions cannot be visualized and classified sonographically, or occasionally a bowel lesion cannot be visualized and classified sufficiently well by diagnostic laparoscopy alone.

A combination of the findings of the different methods is possible and also useful.

If anatomic structures cannot be assessed (e.g., due to extensive adhesions), the affected compartment is coded with an (x).

Only those compartments showing pathology are coded to make the extent of the disease with the affected organs easier and faster to understand when reading.

#Enzian (u), "Sonographic" classification:

Sonography can be used to visualize the ovaries (O), compartments A, B and C, uterus (FA), bladder (FB) and ureters (FU). Adhesions between the ovary, the pelvic wall, the uterus and the bowel can be described using dynamic ultrasonography, with the "sliding effect" as defined by the expert group IDEA (International Deep Endometriosis Analysis)

Good correlation between sonographic Enzian classification (old classification) and surgically obtained findings was demonstrated by Hudelist and al. (14).

In a retrospective study, the accuracy of the sonographic #Enzian classification(new classification) compared with that of surgery was demonstrated by Di Giovanni et al (15). Very similar significant results were shown in the prospective multicenter study by Montanari et al. using 745 patients from 7 centers with a proven expertise in the field of sonography and surgery (16) . This was confirmed by the study of Bindra et al. (17) recently.

These results support the ISGE recommendation for the documentation of endometriosis, which is based on the clearly structured systematics of the IDEA group and the #Enzian classification(18) (19). This especially underlines the importance of

systematic recording and interdisciplinary communication.

The correlation between the Enzian classification of DE and the severity of preoperative pain symptoms have been shown by Haas and Montanari (20, 21) (22).

Operating times and risk of surgical complications can be predicted by the Enzian classification. Intra-operative Enzian classification as well Enzian findings in MRI correlated with the duration of the surgical procedure (20, 21). Poupon et al (23) used the Enzian classification to create a nomogram based on three criteria: the patient's age, previous surgeries for DE, and the extent of disease

described by the surgical Enzian classification. This provides the possibility to predict a surgical risk.

Imboden also used Enzian classification to analyze the risk of bladder dysfunction after surgery for deep endometriosis(24). (Author in the last paragraph are you talking on #Enzian or Enzian please clarify)

The #Enzian classification also includes peritoneal and ovarian endometriosis, adhesions in the adnexa and tubal patency. So far, there are no data on the ability of this classification to predict fertility. A comparison of the different classification systems (table1), rASRM, EFI and Enzian und #Enzian have was summarized by Hudelist et al. (6).

	r-ASRM	EFI	Enzian	#Enzian
Acceptance	+++	++	++	u.i.
For non- invasive methods(TVS/MRI)	++	+	+++	+++ (TVS) ++ (MRI)
Deep endometriosis	+	+	+++	+++
Correlation with surgical complexity/complication	+	+	+++	u.i.
Correlation with infertility	++	+++	u.i.	u.i.
Correlation with symptoms	++	-	+++	u.i.

Table 1: Advantages and disadvantages of the different systems (- not suitable, + little, ++ moderately and +++ well suited, among others, u.i. under investigation (6)

7) Application and examples:

The possible application of the ultrasound probe in transvaginal ultrasound diagnostics is shown in Fig. 2 and 3.

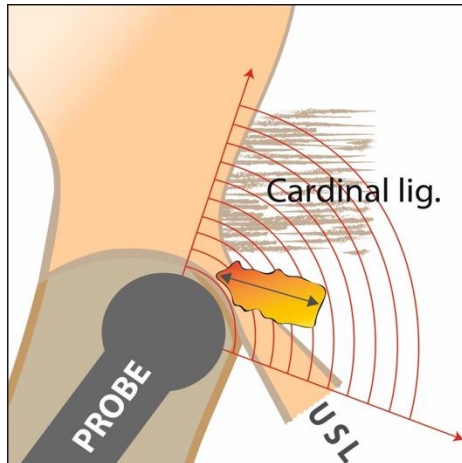
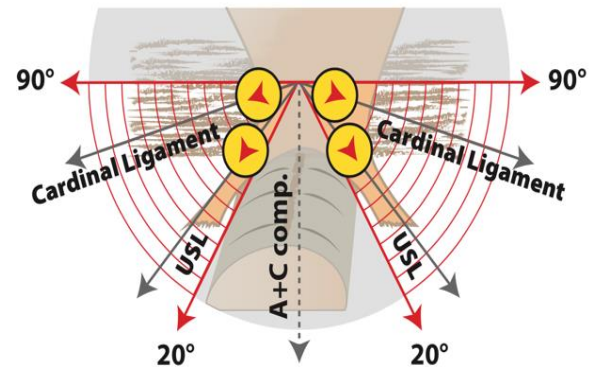


Figure 2: Sonographic measurement of the B compartment. Positioning of the ultrasound probe in the fornix, with a slight tilt and lateral positioning of the probe. The maximum length of the lesions is measured and coded with #Enzian (13).



The #Enzian coding in sonographic assessment is explained in figure 3. Figure 3: Illustration of the correct position of the probe during sonographic assessment of the USL and parametria= B compartment. In the range between 20 and 90° lateral to the sagittal plane, the entire B compartment is included. In the middle (sagittal section), the A and C compartments are assessed.

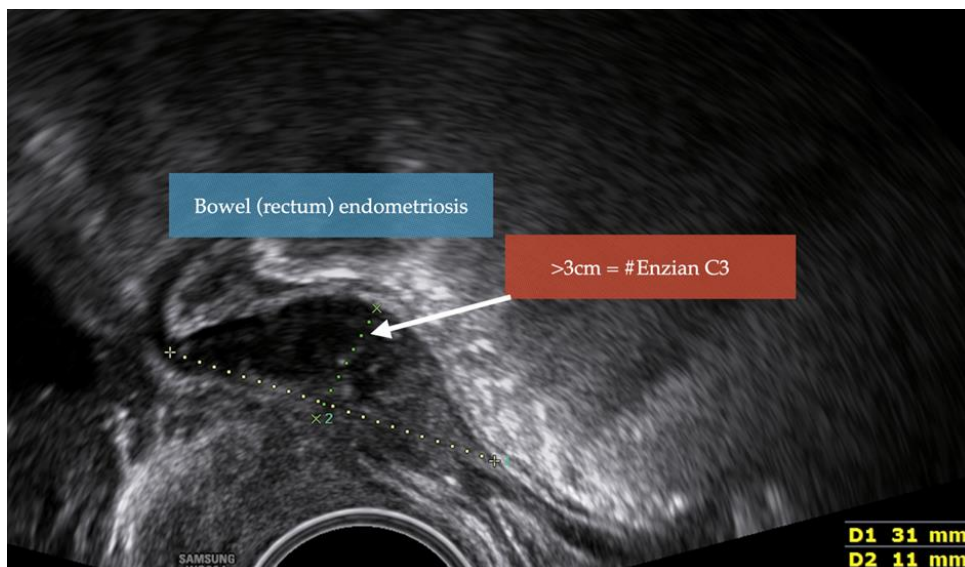


Figure 4: Example 1; Sonographic imaging and coding of DE of the anterior wall of the rectum, in sagittal section. The rectal wall is infiltrated by endometriosis (hypodense area represents the infiltration of the muscular layer) over a length of 3.1cm. Coding: #Enzian(u) C3.

#Enzian(m), MRI classification.

The accuracy of the diagnosis of endometriosis and systematic documentation with #Enzian (25) or Enzian has been demonstrated by several

research groups (26) (27-30). The advantage of MRI examination is likely to reside in the assessment of uterine muscles, pelvic wall including nerves and extra pelvic findings such as diaphragm, lungs etc.

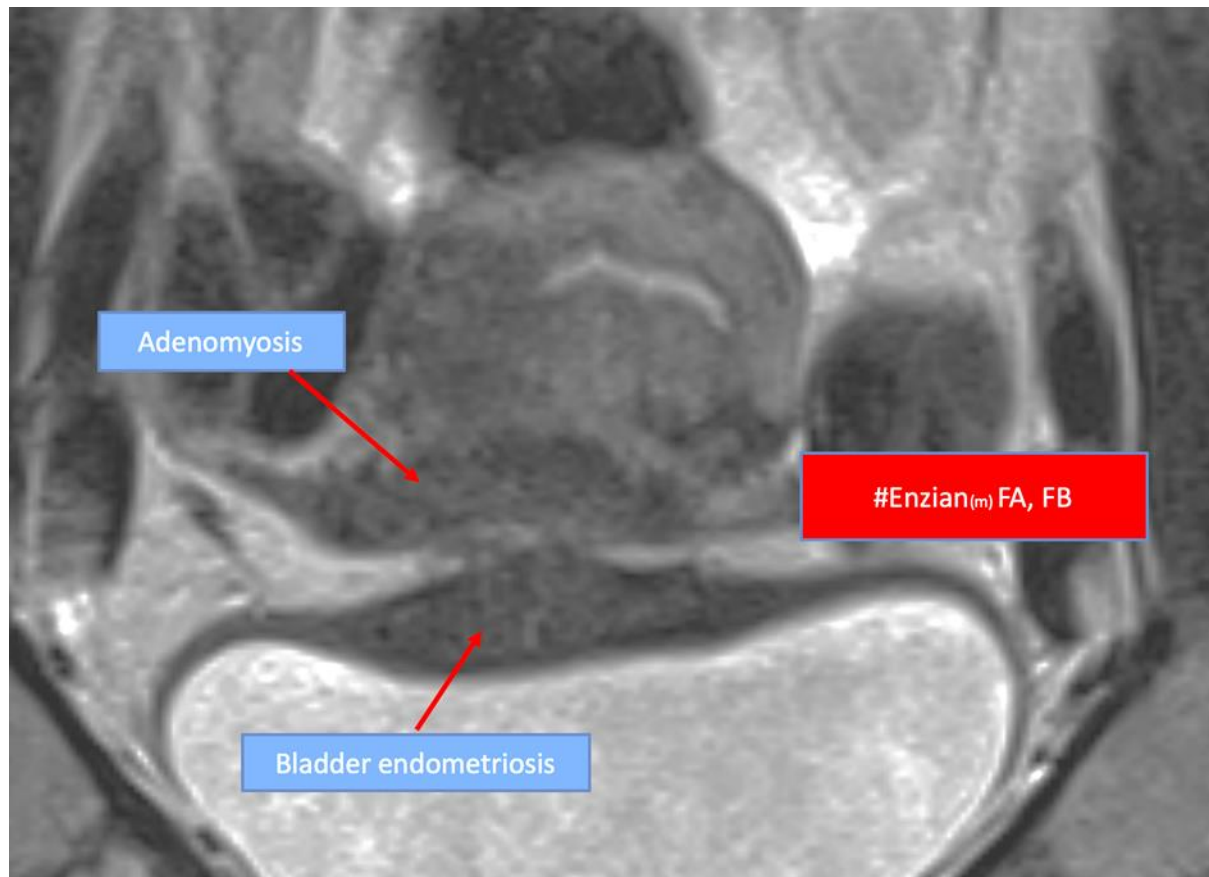


Figure 5: Example 2; MRI image showing adenomyosis and bladder wall endometriosis. FA: Adenomyosis, FB: Bladder endometriosis; Coding: #Enzian(m) FA, FB (Author I did put more contrast in the picture see if this is OKE for you)

#Enzian(s), Surgical Classification:

Diagnostic/surgical laparoscopy has been the gold standard to definitively diagnose and

classify endometriosis. To measure lesion sizes, the surgical instruments used (diameter 5 or 10 mm) serve as a reference measure, or a special

measuring instrument is inserted into the abdomen. Visualization and evaluation of extraperitoneal structures, parametria to the pelvic wall, or intramural intestinal lesions (DE) cannot be fully appreciated by pure diagnostic laparoscopy. Accurate classification then requires a more invasive procedure with exposure of the structures and excision of the lesions if necessary. However, if a complete

dissection is not necessary, not desired, or not possible, the unclear compartments within the #Enzian classification can be coded with an x (= not presentable) or the inclusion of sonographic(u) or MRI(m) findings can be made. This leads to a comprehensive view, allowing for interdisciplinary communication. The new #Enzian classification serves as a common language for diagnostics and therapy.

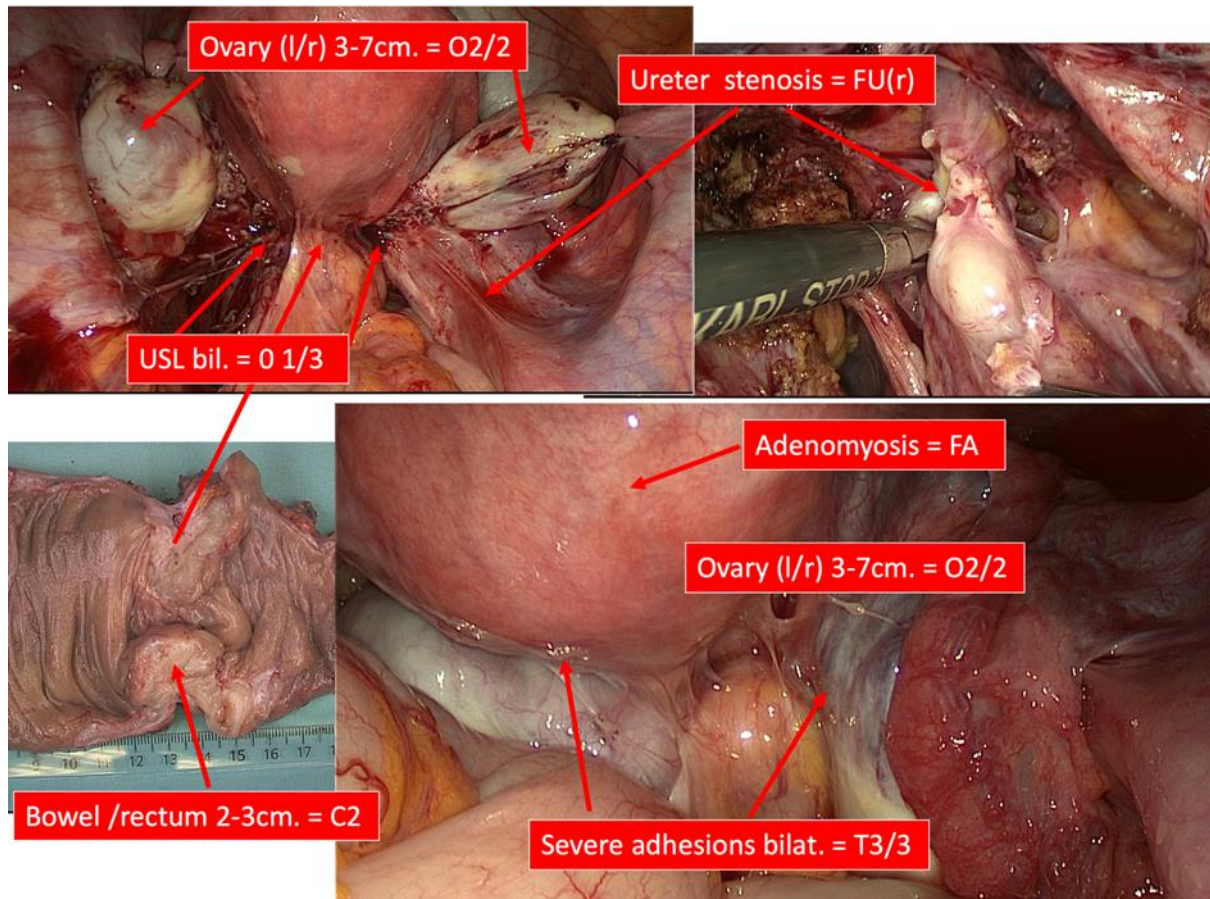


Figure 6: Endoscopic view with coding of the affected structures according to the #Enzian classification

P= Peritoneum: All foci shown have a combined diameter of 3-4cm = P2.

O= Ovary: endometrioma, diameter left 5cm, right 4cm = O2/2

B= USL: nodules in the ligamentum sacrouterinum (USL) left side > 1cm/ right side of 3,5 cm = B1/3

C= rectum: nodule of 2-3 cm = C2

T= Adhesions: between right and left ovary, uterus and pelvic wall and bowel = T3/3

FA= Uterus: adenomyosis (sonographically detected) = FA(u)

U= Ureter: intrinsic endometriosis right Ureter= FU(r)

Coding: #Enzian(s) P2, O2/2, T3/3, B1/3, C2, FA(u), FU(r).

Summary:

The #Enzian classification is the first comprehensive system to describe endometriosis as completely as possible and to provide a useful tool for various diagnostic procedures.

The coding takes into account all affected anatomical structures, including the very complex manifestation of TIE and also less frequently detected localizations.

The possibility to use the classification also in the context of non-invasive diagnostics (ultrasound

and MRI) and in combination with surgery simplifies the interdisciplinary procedure.

A reduction of the collected findings to an overall stage (stage 1-4) as in rASRM is deliberately avoided in #Enzian in order to depict the extent of the disease in an optimal way.

The positive findings to date in the application of the #Enzian classification show good applicability and high accuracy with regard to the reproducibility of the findings and the correlation with the complexity of the disease and its treatment.

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How to reduce operation time in Pectopexy using a wire stapler?

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Abstract

Introduction: In recent years, the importance of laparoscopic procedures for the treatment of genital prolapse has increased significantly. In addition to the traditional "gold standard" Sacropexy, new processes have become established. One of the most scientifically studied is the Pectopexy. In order to make the techniques easier and faster, the necessary mesh interpositions have been attached with staplers for years. We initiated this study to check whether the pectopexy can be performed faster using staplers.

Material and method: With the pectopexy, the ligament used is not suitable for standard staplers. Therefore, we used a wire-based stapler from the manufacturer Microval™ (SPIRE`IT). 4 surgeons of different experience used the stapler. The time required for the traditional individual suture times was compared with the pure stapler time. In addition, the impact on the time used when additional securing stitches were performed. In addition, we have compared the time advantage to the surgeon's experience with the technique.

Results: All surgeons benefited comparably with a reduction in operating time of between 70% and 82% when comparing the use of the stapler alone with standard suture technique. The absolute reduction was measured between 7.3 to 21 minutes. The time spent was clearly due to the experience of the user.

Summary: The use of special staplers can significantly shorten the operation time of pectopexy. For high volume users (over 100 procedures per year) it is certainly not cost effective to use. For most surgeons, the use of staplers is very helpful in the learning phase and, in the case of rather small operation volumes, also in the long term.

Key words: pectopexy; stapler; operation time; surgical volume; prolapse, sacropexy

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Introduction

Prolapse surgery emerged in the late 19th century. During this time, the basics for the well-known vaginal surgical procedures were developed (1). At the beginning of the 20th century, the so-called Manchester technique emerged, which was introduced by Fothergill in 1921 (2). The cervix is cut and the parametrium is sewn onto the uterus. This method is still used today in many countries. The first sacropexy was described by Küstner in 1910 (3). Since the end of the vagina was sewn directly to the promontory due to a lack of bridging material, excessive tension arose with ventral displacement of the bladder and wide opening of the cul-de-sac. In 1951, the sacro-spinous fixation, which a.o. was described by Amreich and Richter (4), prevailed and is still used today. An attempt to use allografts to fix the apex was first described in 1952 by G.A. Williams and A.C. Richardson. They prepared two strips of aponeurosis, which were guided laterally past the rectus abdominis muscle and then sewn to the end of the vagina. However, since the length of the fascial strips is very limited, the apex is also strongly ventralized with this technique, with the resulting side effects (5).

The success story of sacropexy began in 1962, when Lane fixed the vagina to the longitudinal ligament of the sacrum using a mesh interposition and was thus able to fix the vagina in its natural axis with little tension (6). Since that time, multiple modifications have been described. Numerous cohort data with very good healing rates have been published. This has made this technique the so-called "gold standard" against which other techniques have to be measured (7-9).

In the early 1990s, surgeons such as Nezhat and Dorsey adapted the technique laparoscopically. Although the authors mentioned above paid attention to restore the correct axis of the vagina and performed a deep fixation to the sacrum (10), the majority of surgeons today prefer to use the

promontory as a cranial fixation point for feasibility reasons.

Today there are many different approaches, which makes comparability difficult or impossible. Traditionally, the end of the vagina or the cervix (possibly also the uterus) is fixed to the sacrum using a Y-meshes. Defects in other compartments are additionally treated using other techniques (vaginally or laparoscopically) (9, 11). The approach of tackling all defects with one technique has also become widespread. Bladder and rectum are widely dissected and the vagina is generously covered with mesh material ventrally and dorsally. This is joined at the apex and then fixed to the promontory by means of an extension (12-14). The majority of the studies are monocentric, they show good long-term results, but sometimes very different rates of side effects. The occurrence of de novo stress incontinence differs noticeably (6-50%). As a rule, only older studies report on defecation disorders, although the problem is well known. The narrowing of the pelvis and the disruption of the hypogastric plexus probably play a major role here (15).

According to studies, 17-34% de novo defecation problems after sacropexy must be expected (7, 16-18). These can manifest as sluggish bowel movements, chronic bloating, painful defecation, or mild to severe constipation. If the mesh or nerve damage is the cause, the problem cannot be solved or can only be solved with difficulty.

Obese patients in particular often have narrow conditions in the pelvis. In addition to a higher proportion of retroperitoneal fat, there is often a largely immobile colon after diverticulitis has passed. Especially for the latter, an even worse intestinal passage is a great disadvantage. To circumvent the surgical difficulties, we developed pectopexy in 2007 (19). Randomized studies (comparing Pectopexy to Sacropexy) showed the equivalence of the method and confirmed the fewer problems with defecation. Pectopexy was able to establish as a new procedure and offers uro-

gynecologists the advantage to combine very good results with low surgical risk. This provides a good alternative to classic sacropexy for surgeons with laparoscopic practice. In the long-term evaluation of the comparative study, we were able to measure a satisfaction rate of 95.1 or 97.6% after 1.5-3.1 years(20). A large international multicentre study confirmed the good feasibility when the method was applied outside the centre of excellence where this approach was developed (21).

In time of mesh discussion, especially in vaginal surgery laparoscopic uro-gynecological procedures are used more and more focussing on less mesh use (22). Native Tissue use and uterus preservation are progressing (23, 24) which requires more training and specialization.

In sacropexy, a tackler is very often used to attach the mesh to the sacrum in order to keep the operation time short. Elaborate sewing work is also necessary with the Pectopexy in order to attach the mesh centrally and bilaterally. The classic spiral tackers seemed to penetrate too deeply into the tissue to be used on the pectineal ligament. Since the suture is very tiring, especially for beginners, we looked

for a support and found a suture-like stapler that only goes flat, like a needle, under the ligament.

Material and method

In order to achieve a suture-like fastening, especially the lateral fastening, the SPIRE'IT™ instrument made by the MICROVAL™ company was used. This contains a heat-sensitive wire that curls up after it exits the device. As a result, it undercuts the ligament like a needle and does not penetrate into the periosteum. The instrument is regularly used for the mesh fixation in sacro-colpopexy.

Four surgeons participated in the study. Two of the surgeons had already performed several hundred procedures, the third about 100 and one the first 20 procedures. In total, SPIRE'IT™ was used 30 times. The lateral attachment was performed by using 3-4 spiral taks (Fig. 1) In addition, lateral sutures were applied. The cervix was only sutured, usually only 2 staplers were used as situation suture (Fig 2). The sewing times as well as the time for using the tackler were measured. In addition, the suturing times for interventions without a tackler were determined and compared.

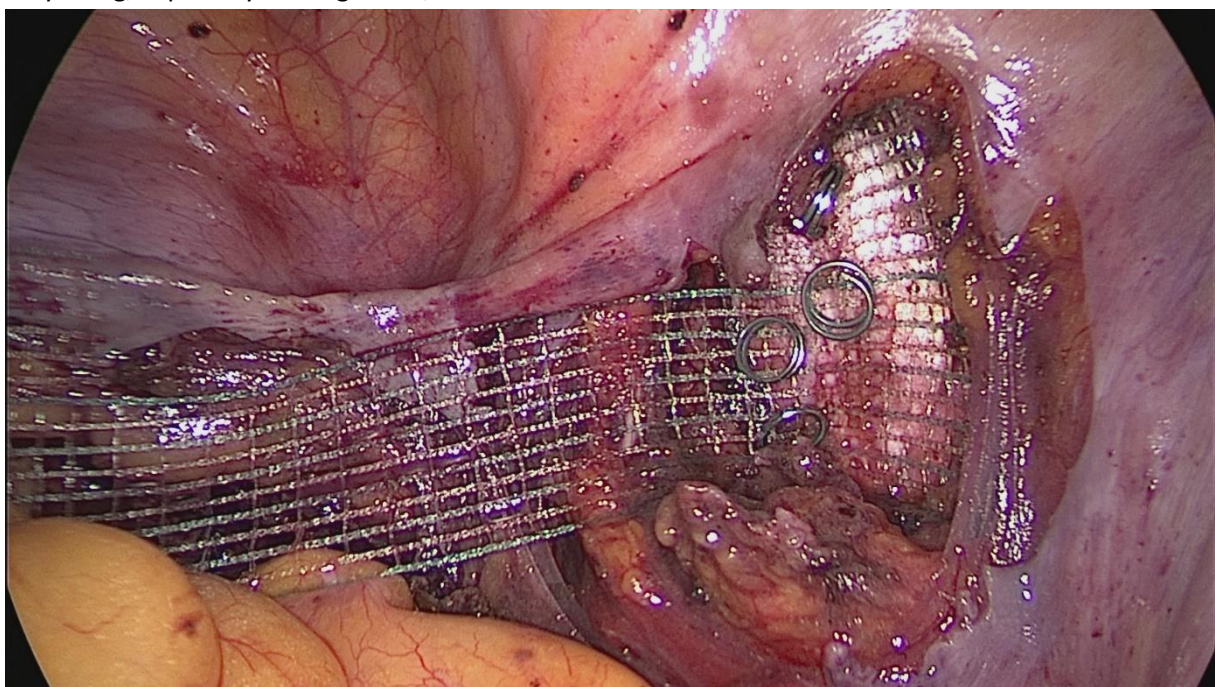


Figure 1: Spire Tacker left Pectineal ligament

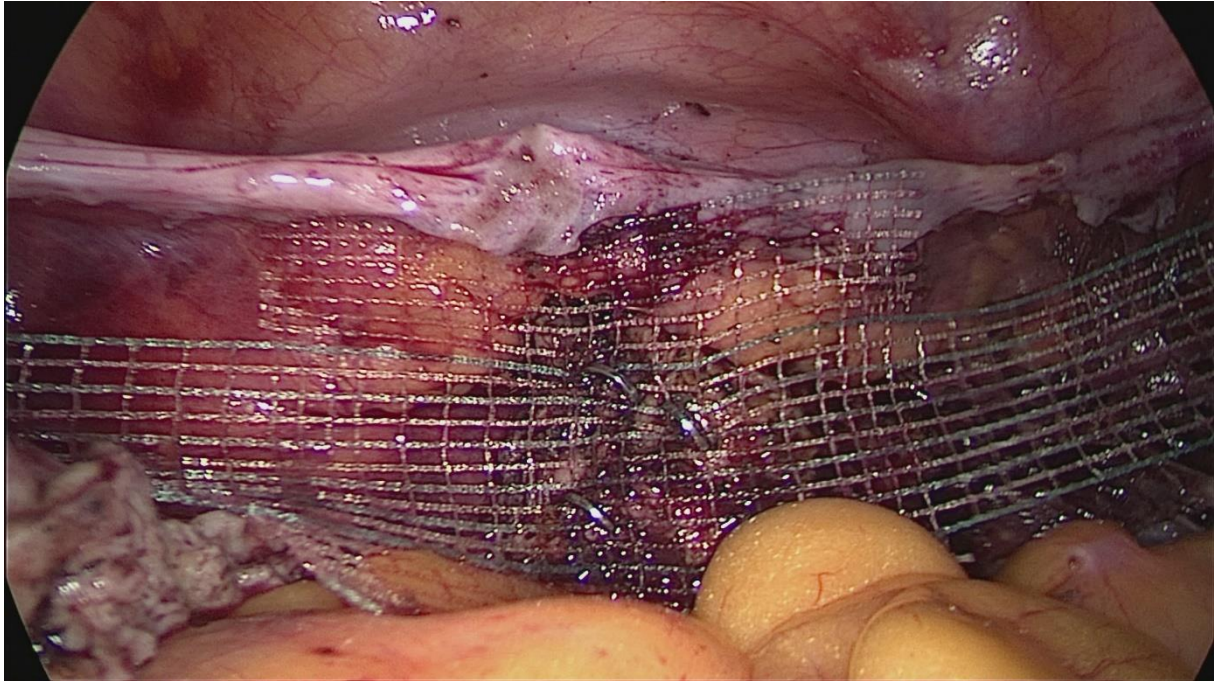


Figure 2: Temporary fixation to the cervical stump

The documentation and statistics were performed with Excel (Microsoft) and Sigmaplot (Systat Software GmbH). First question was “does every surgeon benefit from using additional taker? Second “ is it cost-effective to use a taker in every situation or by every surgeon. The aim of the investigation was to find out whether the use of a tacker, which is associated with higher costs, can correspondingly accelerate the intervention.

Results:

In order to evaluate the difference between the original suturing technique and the use of the stapler, we determined the pure time for the use of the stapler on the one hand, as well as the times for the pure suturing technique. Since we always fixed the cervix with a complete suture and only used the tacker for temporary adaptation, we were also able to identify differences. Since the use of the stapler is new, we also secured the lateral suspension with stitches and determined the times.

Surgeon	Suture mean lateral	Suture mean mid	Suture mean total	Stapler total
1	4,75 (4-7)	4,00 (2-6)	8,75 (6-11)	3,25 (2-4)
2	7,18 (5-9)	10,3 (8-17)	17,4 (14-26)	3,14 (3-4)
3	7,00 (4-10)	11,0 (10-11)	18,0 (14-22)	4,0 (2-6)
4	11,4 (6-18)	9,8 (8-13)	21,2 (14-27)	4,8 (3-9)

Table 1: shows the total stapler time bi-lateral and at the cervix and the time used for the additional sutures (minutes used and range)

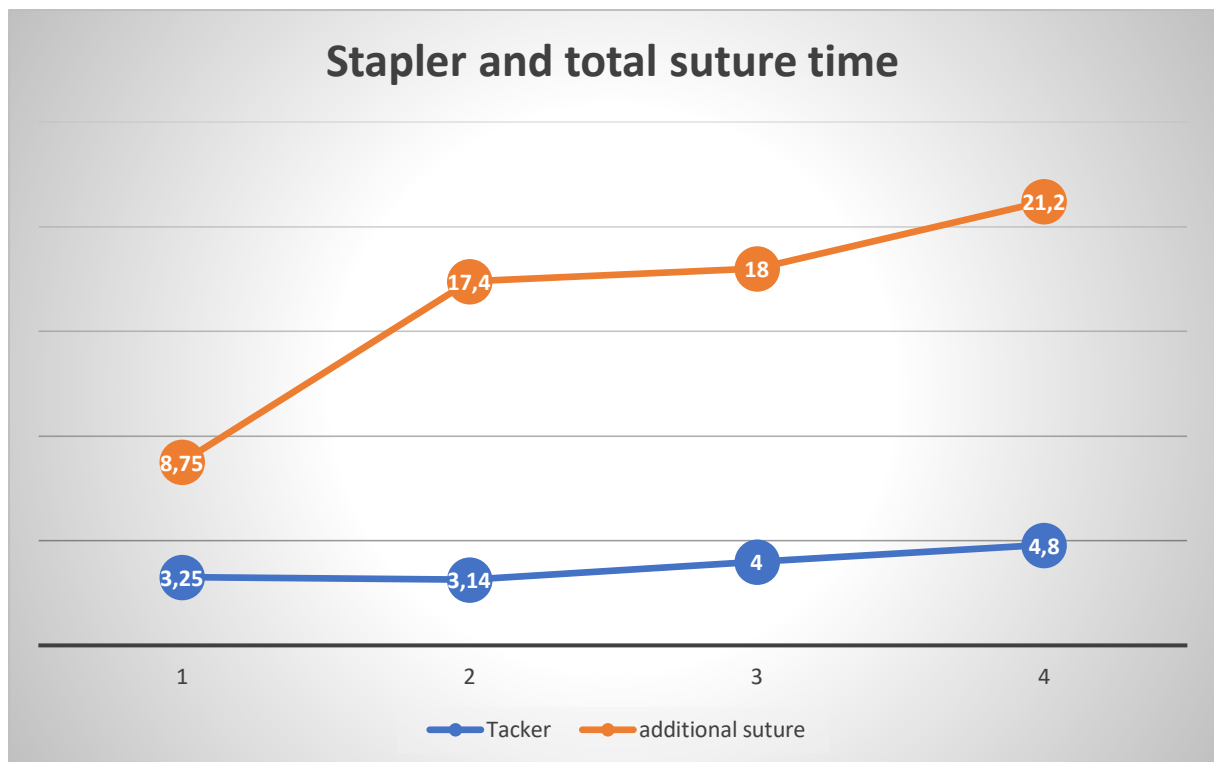


Figure 1: shows the difference between time for tacker use and the additional suture

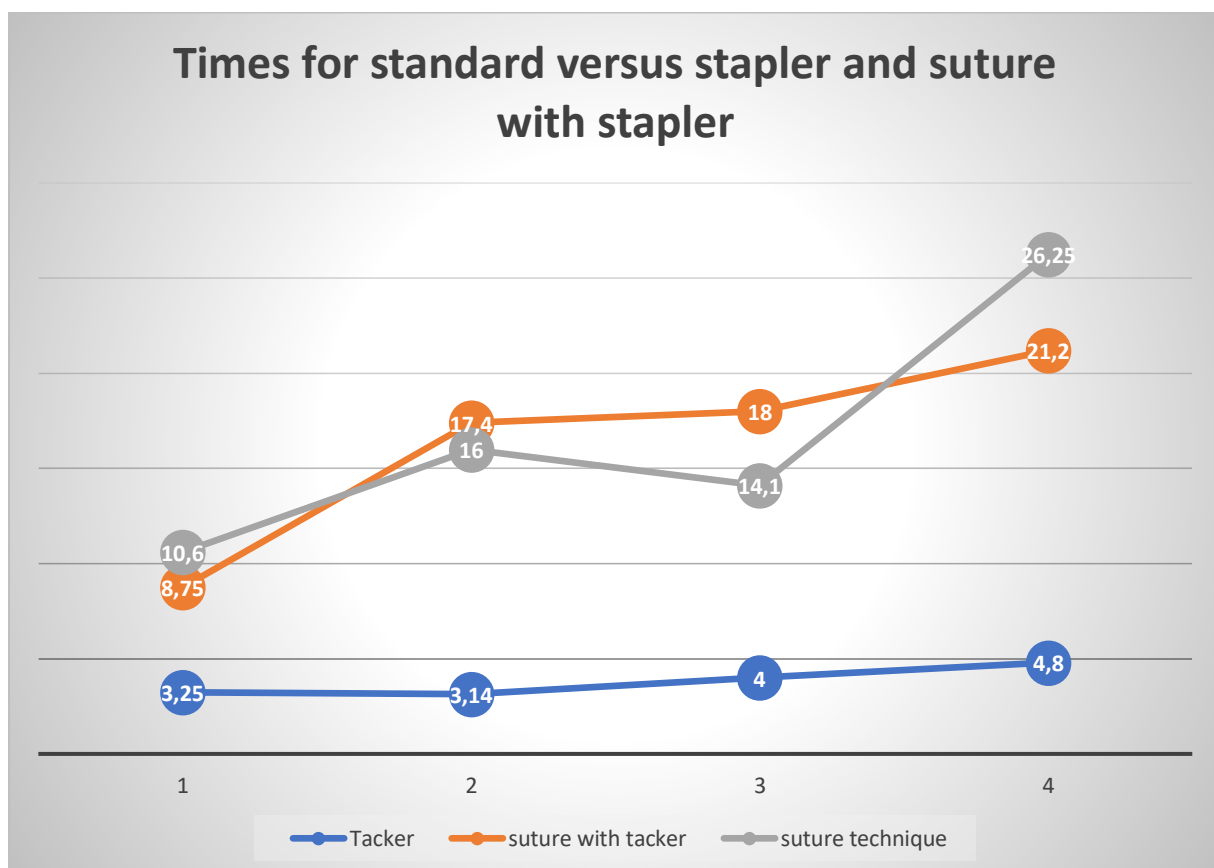


Figure 2: shows in gray the suture time of surgeon 1 to 4 in comparison to the single stapler time in blue and the combined suture time.

The analysis shows that the times for using the stapler are very similar for all surgeons. Although there was still an absolute difference of 33% between the fastest and the slowest, this only plays a minor role due to the

significantly shorter time. All surgeons benefited comparably with a reduction in operating time of between 70% and 82% when comparing the use of the stapler alone with standard suture technique.

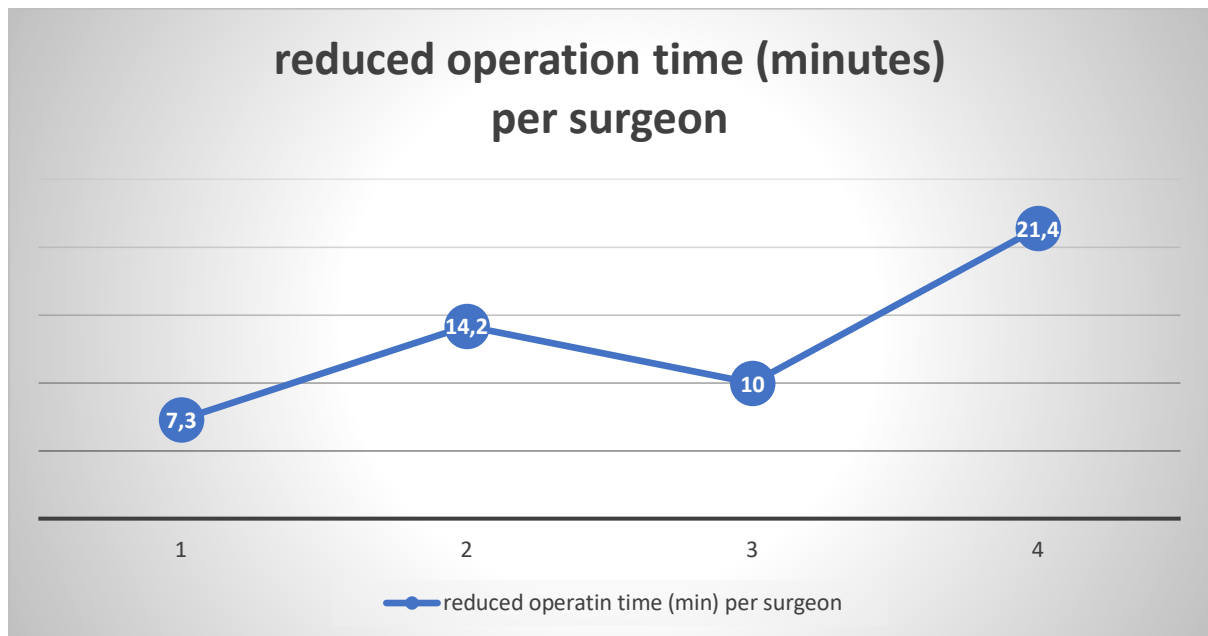


Figure 3: shows the theoretical reduced operation time when only a stapler is used for Pectopexy in minutes.

Discussion:

Pectopexy has become widespread in recent years and laparoscopic procedures are enjoying increasing popularity. However, the learning curves are very flat, especially for low-volume surgeons, which generates a demand for the simplification of the technique. The use of staplers is very common in sacropexy but is subject to the anatomical peculiarity of the pectineal ligament in pectopexy(23, 24).

As the results show, the use of staplers can also enable a significantly faster operation in pectopexy. Both advanced and beginners benefit from this. Although the relative reduction is close for everyone (70-82%), the absolute reduction (7.3-21 minutes) is only financially interesting for low-volume

surgeons. In addition, it must be said that we could not check the reliability because we only considered the time differences in this study. However, the SPIRE'IT tacker has been in use for sacropexy for a long time, which ultimately could allow for an analogy.

As long as safety sutures are applied, no significant advantage can be measured. Since Pectopexy is very often combined with native tissue repair, the use of stapler is certainly advantageous for many surgeons. Further studies that determine long-term data for the pure use of the SPIRE'IT stapler are desirable in order to be able to give a final recommendation.

Disclosure: Microval™ supported the study providing the staplers used

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How to proceed with laparoscopic radical Hysterectomy after LACC trial (New approach add. Video Article)

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Abstract

After the publication of the LACC trial, most surgeons have refrained from laparoscopic radical hysterectomy. Numerous clinics have switched back to open surgery. So far, there is no data on the extent to which this has negative consequences for complications and side effects(1, 2). The renunciation of morcellation has also led to the resumption of the laparotomy and resulted in significantly higher complication rates. Ultimately, this must also be expected for radical hysterectomy. One of the great advantages of the laparoscopic procedure is undoubtedly the possibility of being able to protect the pelvic nerves much better. There were significantly fewer urinary and defecation disorders than via laparotomy. No comparable randomized study is currently available. However, there are large studies that do not confirm the data of the LACC trial. These have existed before and new ones are being added (3, 4). Since the LACC trial has many weaknesses and the results obviously have to be interpreted as learning curves, we did not switch completely to laparotomy. The German S3 guideline also recommends laparotomy for the treatment of cervical carcinoma, ultimately only on the basis of the LACC trial(5).

It would be important to create comparable, very well-designed studies to really classify the LACC trial. As long as this is not available, from our point of view it is very difficult to suddenly negate the good results to date. Assuming that the data reflect reality, the poorer result cannot be caused by the laparoscopic preparation. If one continues to assume that all surgeons have achieved real radicality, then the only remaining cause is the opening of the vagina in the CO2 milieu. The latter is said to lead to the spread of tumor cells.

In order to take this assumption into account, we have combined our procedure laparoscopic and open. Ultimately, to obtain the benefits of the laparoscopic nerve-sparing approach. So far, we have performed the radical hysterectomy laparoscopically and the separation of the uterus from the vagina via a classical cross-sectional laparotomy. The latter to avoid potential contamination of the abdomen by tumor cells. In order not to have to perform a laparotomy unnecessarily, we have developed a stapler procedure for the last step. After complete dissection, a 60mm stapler is inserted from the side and the vagina is stapled analogously to the bowel resection. After the preparation has been separated, it is temporarily stored in a recovery bag. Then the row of staples remaining on the vagina is separated and recovered trans-vaginally together with the other preparation bags. The procedure guarantees an adequate vaginal cuff and avoids potential contamination. The video shows the procedure.

Key words: radical Hysterectomy, LACC trial, laparoscopy, Stapler

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Description of the Endometrium at the different phases of the Menstrual Cycle (A Handout)

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Abstract

On demand of a specific entity in New Zealand a practical handout based on images backed up by histology was conceived to help the junior residents to interpret the endometrial lining of the uterine cavity. The description of the vaginal epithelium and the cervical lining are not included in the handout.

Material and Methods:

The description of the endometrium is based on histological bases to explain the different layers under the surface epithelium – visible with the diagnostic hysteroscope. These findings are then correlated with the visible features, through the hysteroscope in a non-contact mode. These findings are related to the morphologic and histologic changes allowing for the dating of the endometrium. The different specific phases of the endometrial cycle are described by pictures.

Discussion:

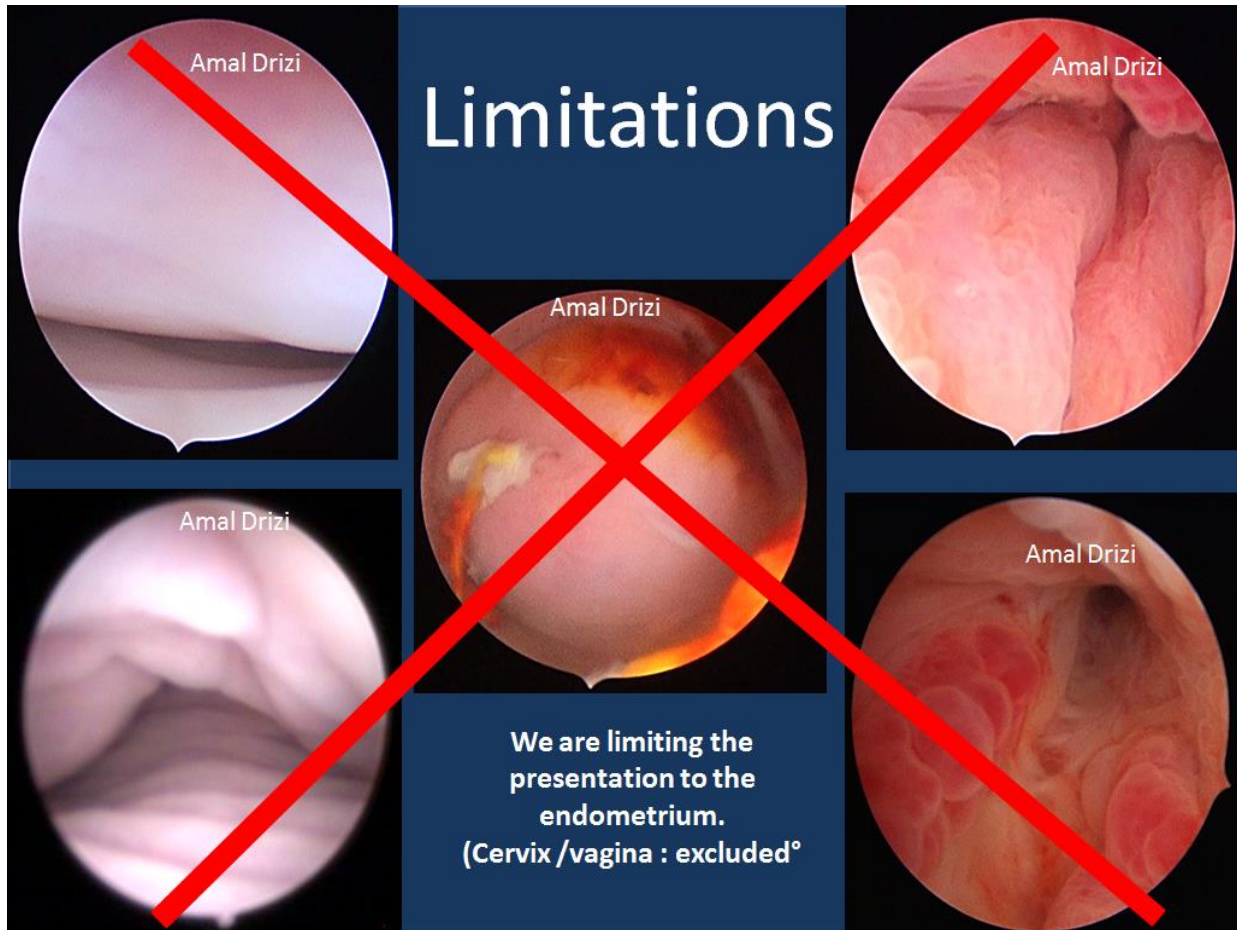
The histological features of the Endometrium are correlated with the hysteroscopic aspect and can be a guide to screen the Endometrium during diagnostic procedures. However, the final diagnosis remains with the pathologist.

Key words: endometrium; hysteroscopy, handout, phases menstrual cycle

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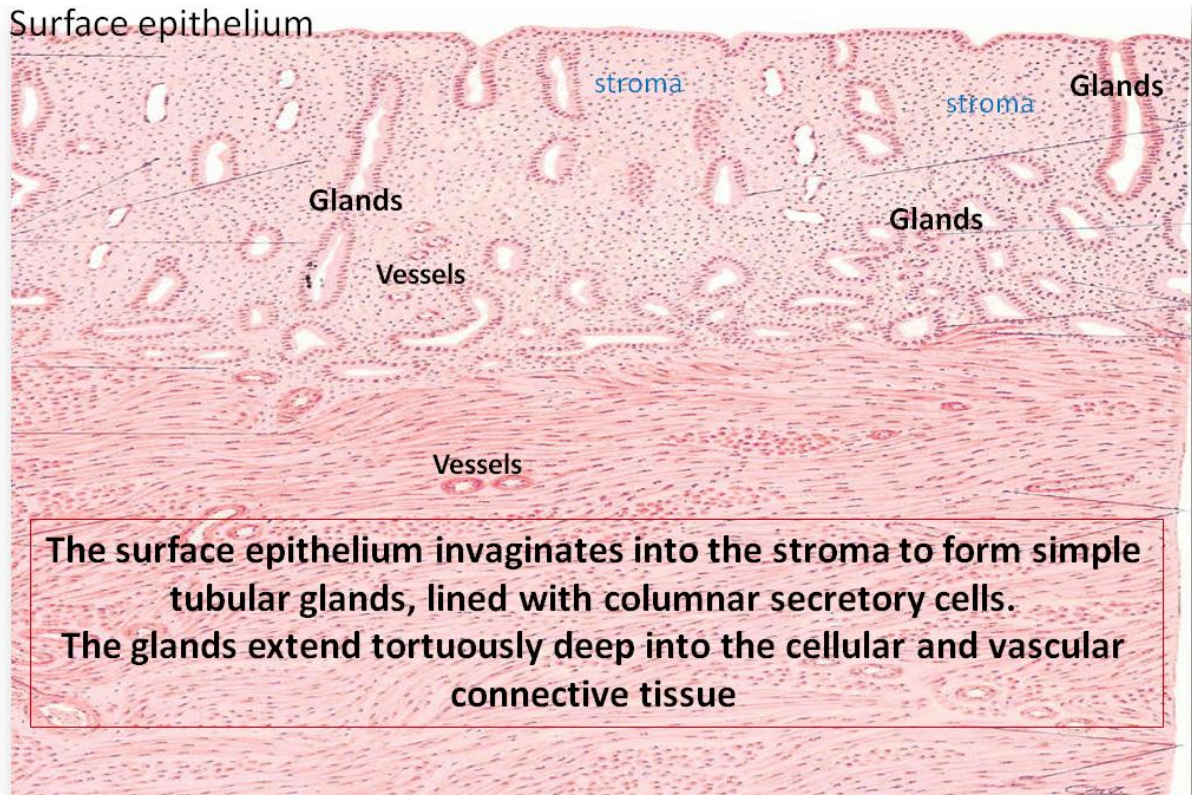
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First

What is the endometrium?

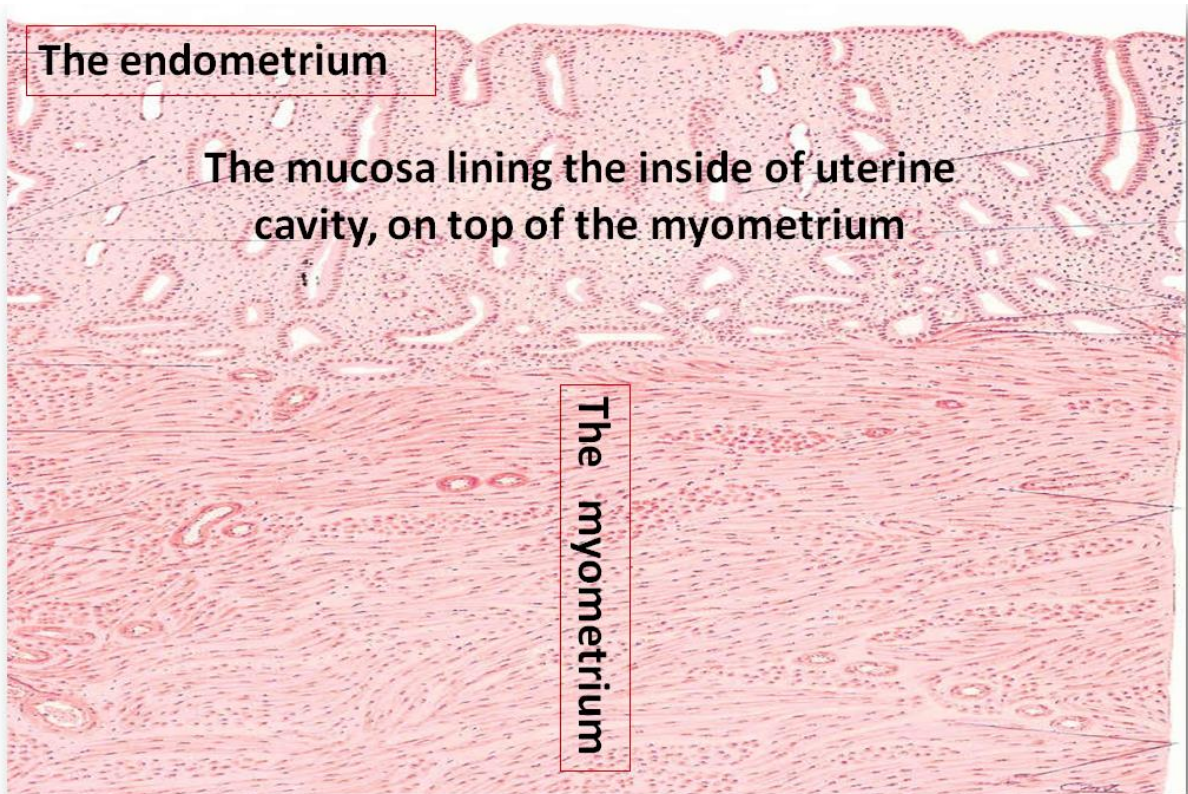
Surface epithelium

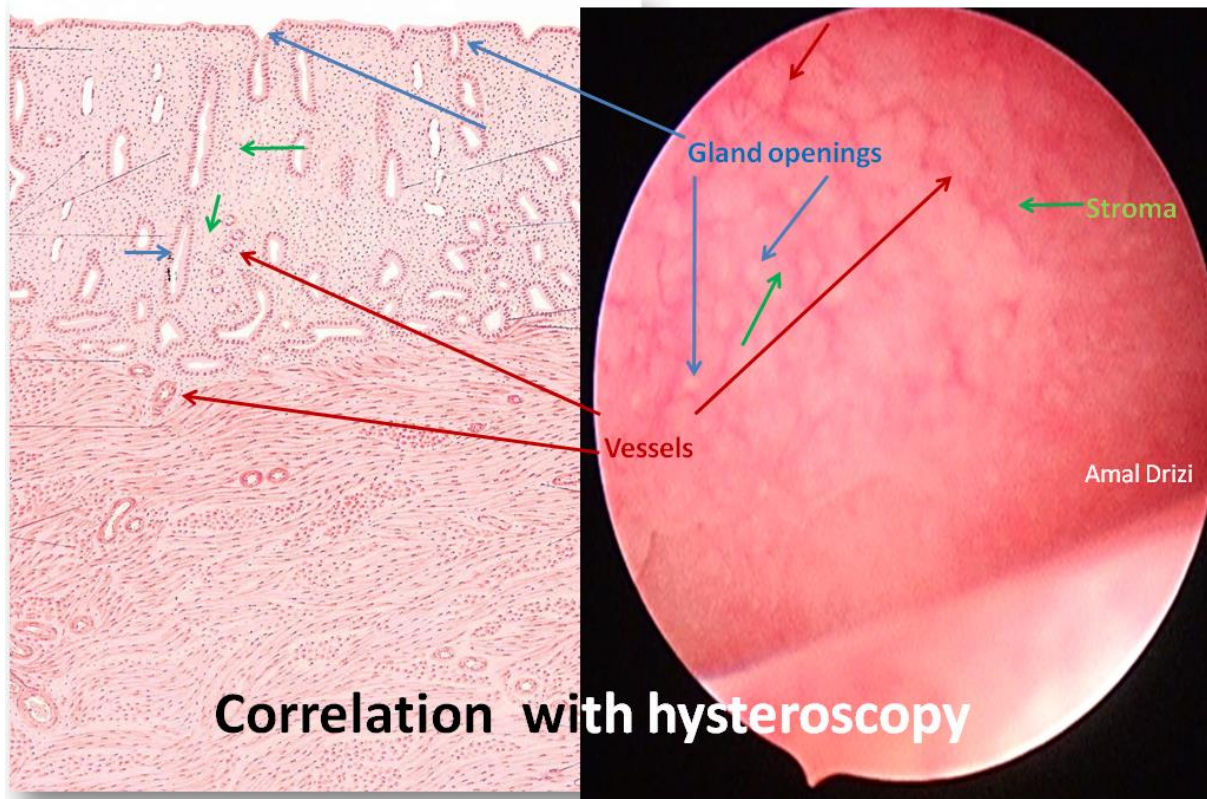


The endometrium

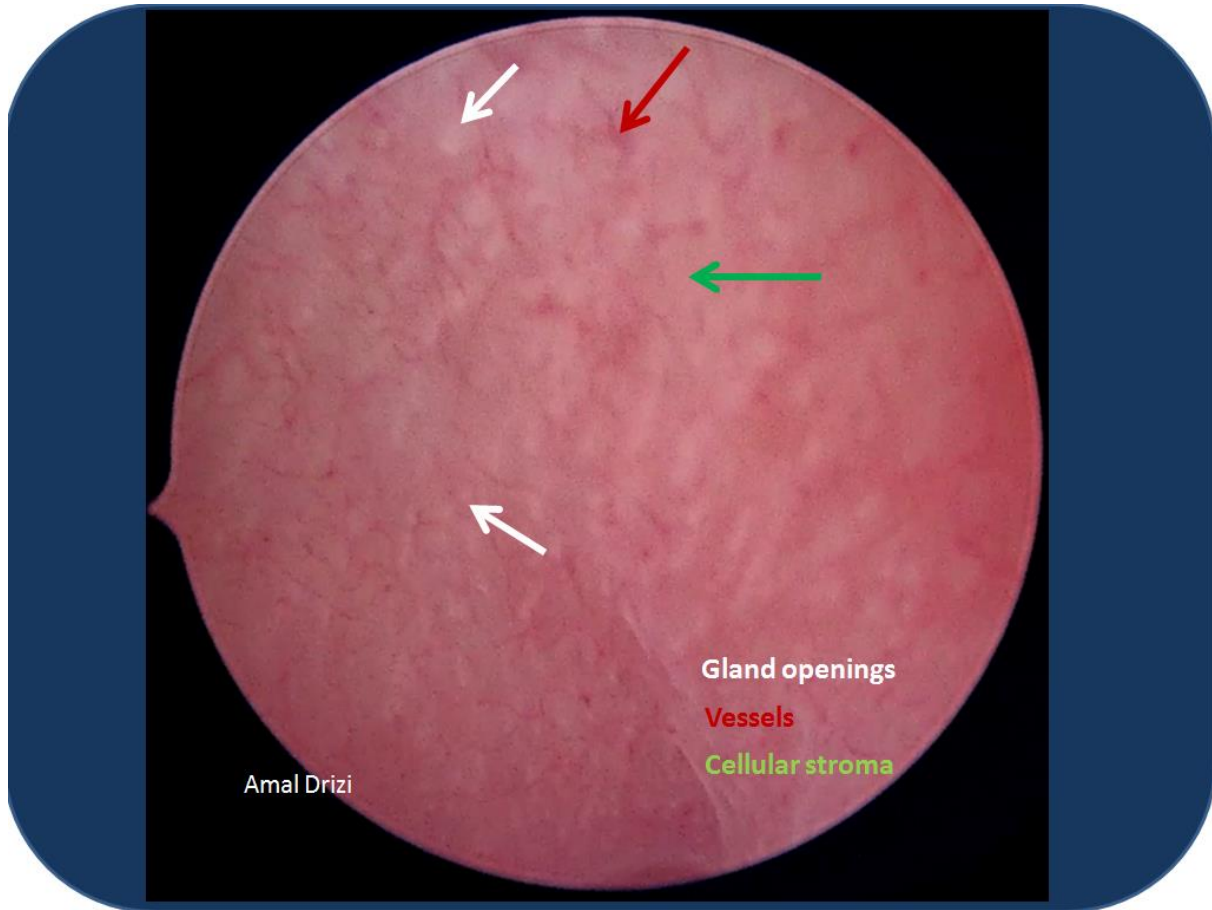
The mucosa lining the inside of uterine cavity, on top of the myometrium

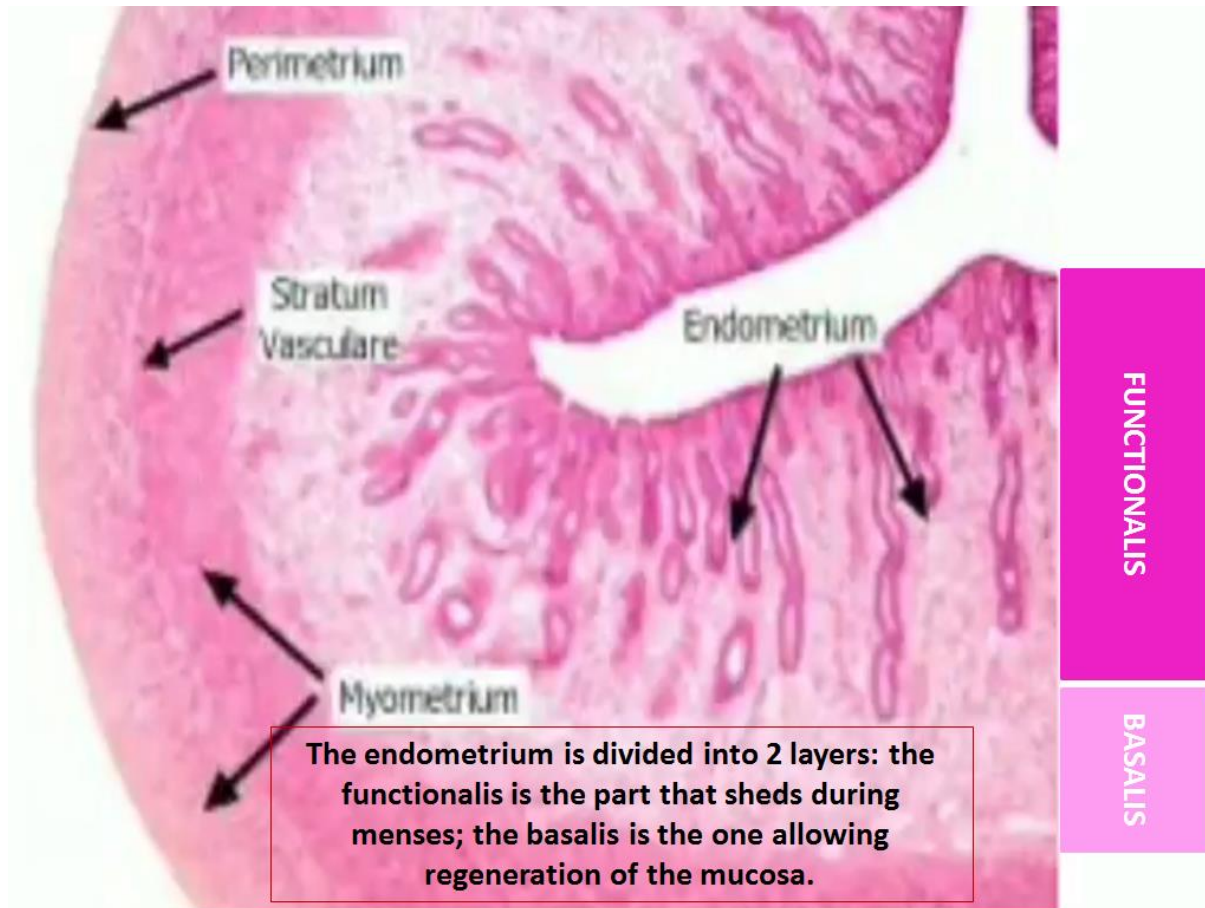
The myometrium





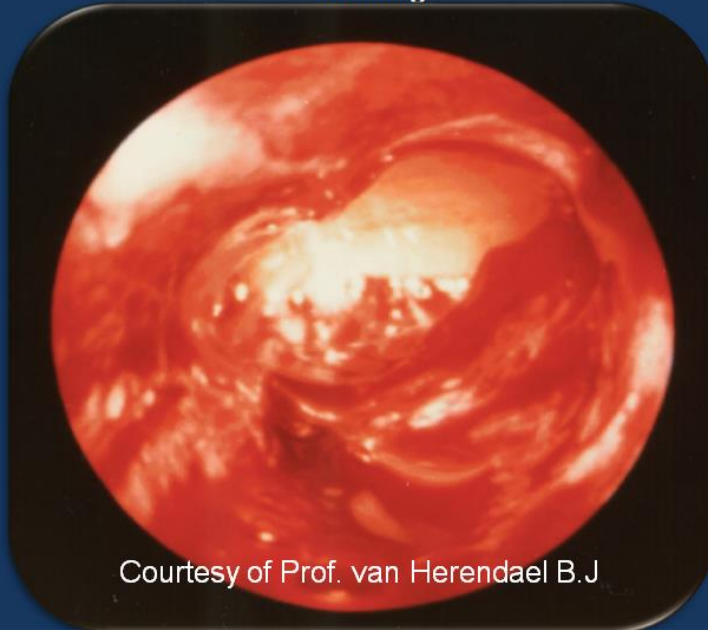
van Herendaël B.J., Stevens M.J., Flakiewicz-Kula A.,
 Haensch Ch., "Dating of the Endometrium by
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Menstruation

Thin endometrium, no gland ostia due to desquamation of the superficial endometrial layers during menstruation. Vascular and endometrial disorganization, petechiae and bleeding

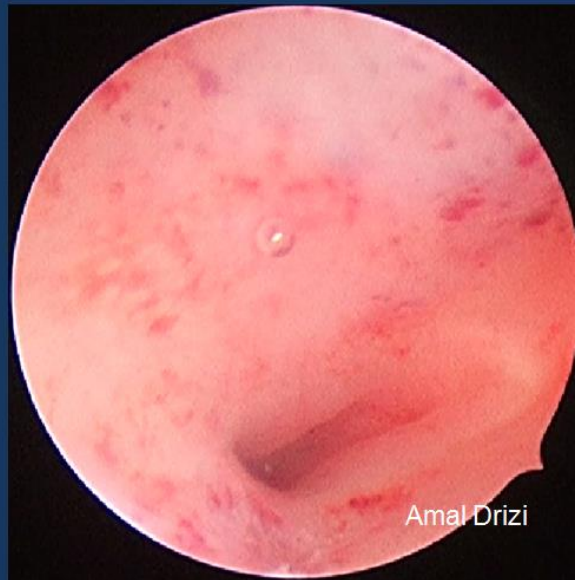


Courtesy of Prof. van Herendael B.J

EARLY PROLIFERATIVE ENDOMETRIUM

Right after menstruation: begins the regenerative phase. The endometrium is still thin, with no or few gland orifices. The underlying vessels are visible, as well as petechiae

The endometrium is still disorganized : desquamated in places and regenerating in others.



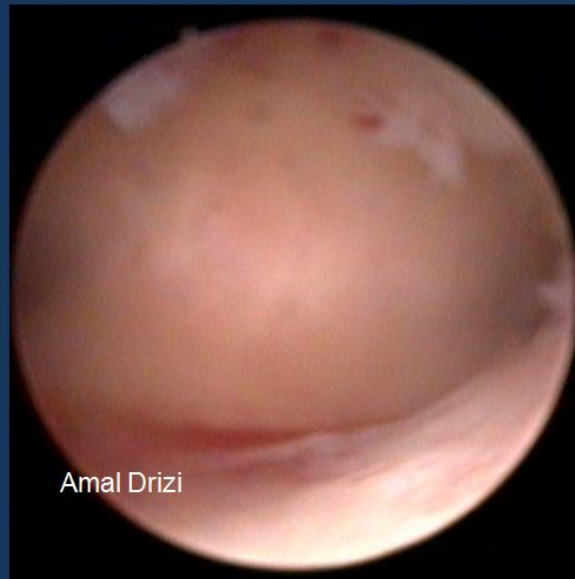
Amal Drizi

Normal endometrium
at day 6 of the
menstrual cycle

EARLY PROLIFERATIVE ENDOMETRIUM

Right after menstruation: begins the regenerative phase. The endometrium is still thin, with no or few gland orifices. The underlying vessels are visible, as well as petechiae

The endometrium is still disorganized : desquamated in places and regenerating in others.



Amal Drizi

Normal endometrium
at day 7 of the
menstrual cycle

EARLY PROLIFERATIVE ENDOMETRIUM

Right after menstruation: begins the regenerative phase. The endometrium is still thin, with no or few gland orifices. The underlying vessels are visible, as well as petechiae

The endometrium is still disorganized : desquamated in places and regenerating in others.



Amal Drizi

Normal endometrium
at day 6 of the
menstrual cycle

LATE PROLIFERATIVE ENDOMETRIUM

Under the influence of estrogens, the endometrium becomes thicker: regeneration of regularly spaced glands and vessels.

The endometrium takes yellowish-pinkish color.

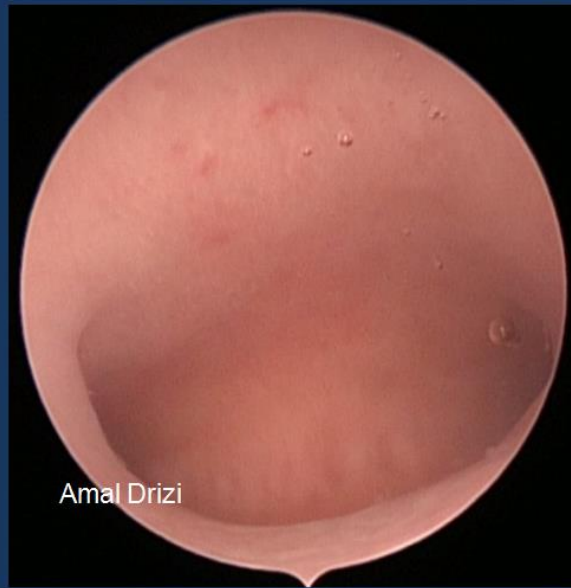


Normal endometrium
at day 12 of the
menstrual cycle

LATE PROLIFERATIVE ENDOMETRIUM

Under the influence of estrogens, the endometrium becomes thicker: regeneration of regularly spaced glands and vessels.

The endometrium takes yellowish-pinkish color.



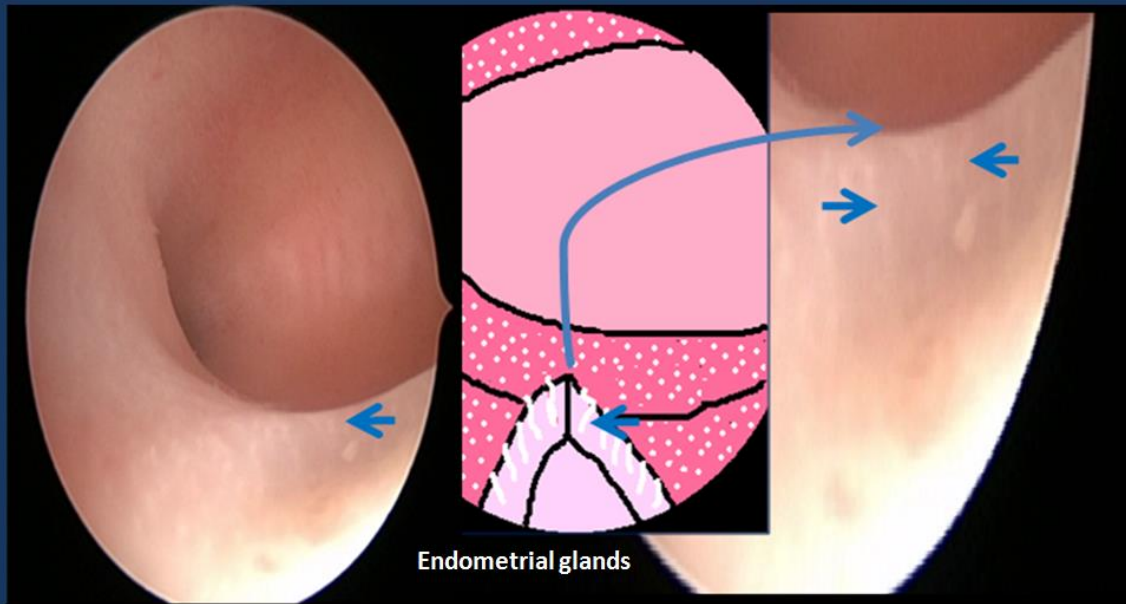
Amal Drizi

Normal endometrium
at day 9 of the
menstrual cycle

LATE PROLIFERATIVE ENDOMETRIUM

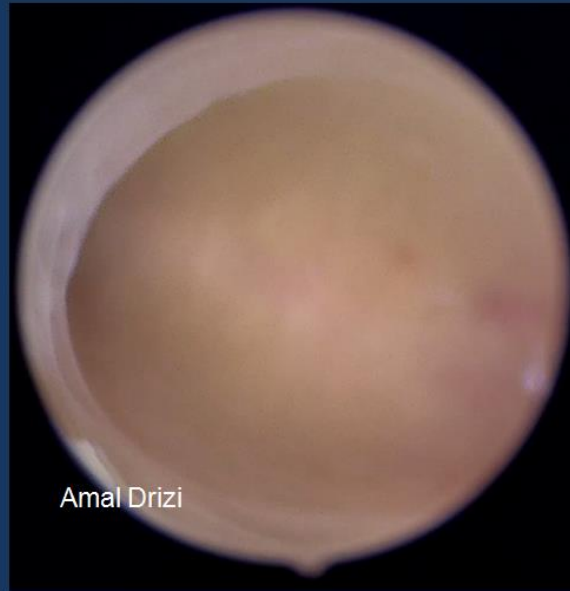
Under the influence of estrogens, the endometrium becomes thicker: regeneration of regularly spaced glands and vessels.

The endometrium takes yellowish-pinkish color.



EARLY SECRETORY ENDOMETRIUM

Under the effect of estrogen and progesterone: the endometrium becomes thicker and thicker, giving the appearance of undulations (or little waves) to the endometrial surface. Stromal edema gets maximum around day 21/23. Vascularization is more developed.

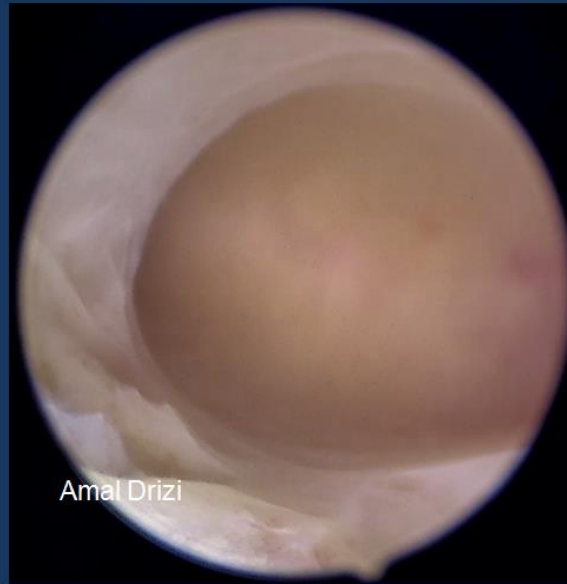


Amal Drizi

Normal endometrium
at day 21 of the
menstrual cycle

EARLY SECRETORY ENDOMETRIUM

Under the effect of estrogen and progesterone: the endometrium becomes thicker and thicker, giving the appearance of undulations (or little waves) to the endometrial surface. Stromal edema gets maximum around day 21/23. Vascularization is more developed.

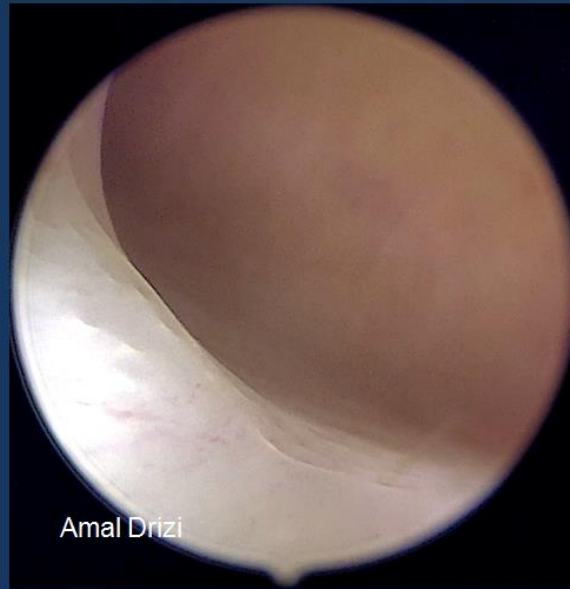


Amal Drizi

Normal endometrium
at day 21 of the
menstrual cycle

EARLY SECRETORY ENDOMETRIUM

Under the effect of estrogen and progesterone: the endometrium becomes thicker and thicker, giving the appearance of undulations (or little waves) to the endometrial surface. Stromal edema gets maximum around day 21/23. Vascularization is more developed.

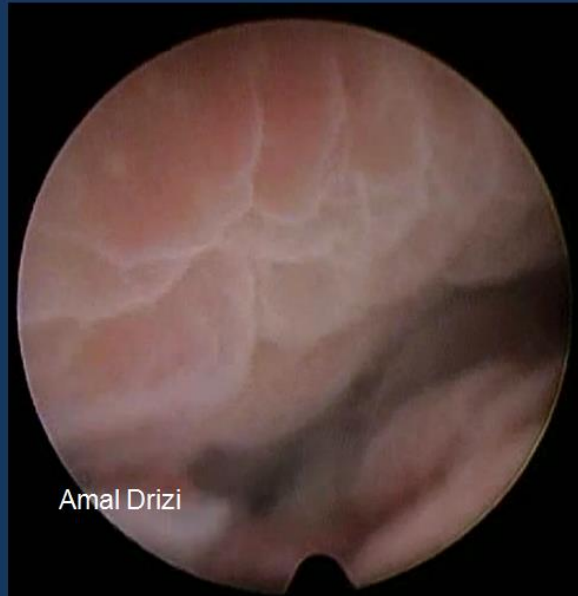


Amal Drizi

Normal endometrium
at day 21 of the
menstrual cycle

LATE SECRETORY ENDOMETRIUM

At the end of the luteal phase, the endometrium is so thick that it needs to form big foldings to adjust to the cavity. At this phase of the cycle, this phenomenon is physiological and should not be confused with an endometrial hyperplasia.

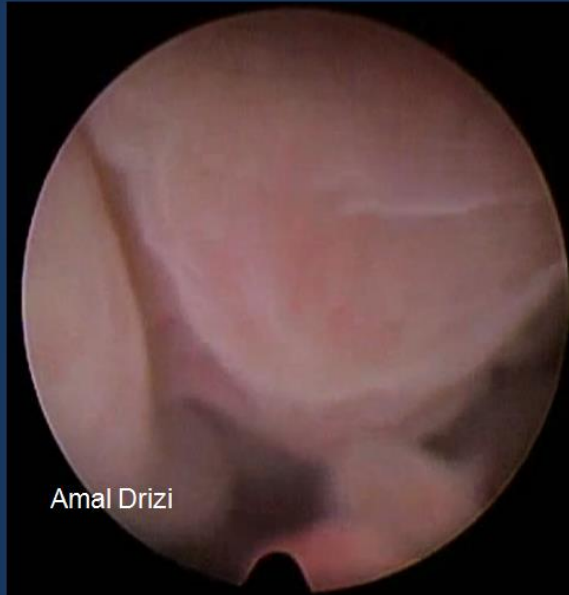


Amal Drizi

Normal endometrium
at day 26 of the
menstrual cycle.
Big foldings.

LATE SECRETORY ENDOMETRIUM

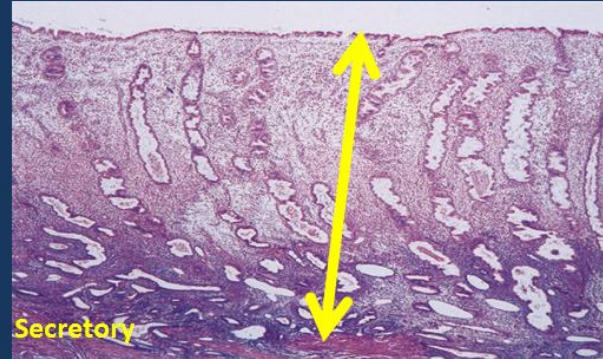
At the end of the luteal phase, the endometrium is so thick that it needs to form big foldings to adjust to the cavity. At this phase of the cycle, this phenomenon is physiological and should not be confused with an endometrial hyperplasia.



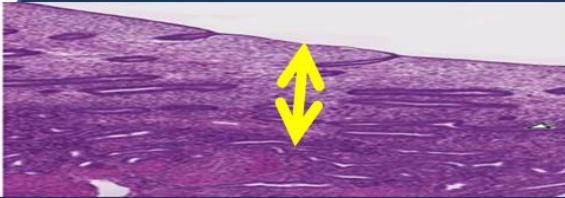
Amal Drizi

Normal endometrium
at day 26 of the
menstrual cycle.
Big foldings.

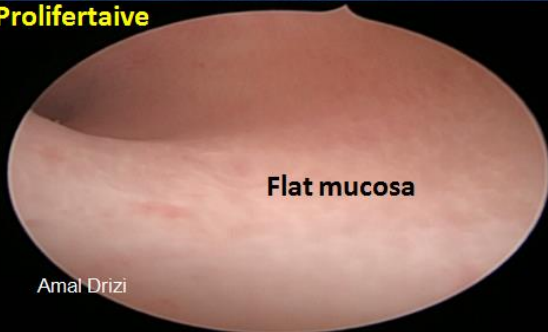
**The difference between proliferative and secretory endometrium:
proliferative mucosa = half the thickness of the secretory one**



Thin mucosa (proliferative phase) Vs thick mucosa (secretory phase)



Proliferative

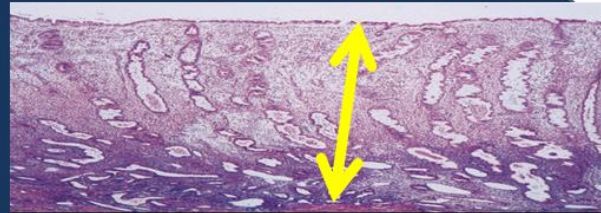


Amal Drizi



Amal Drizi

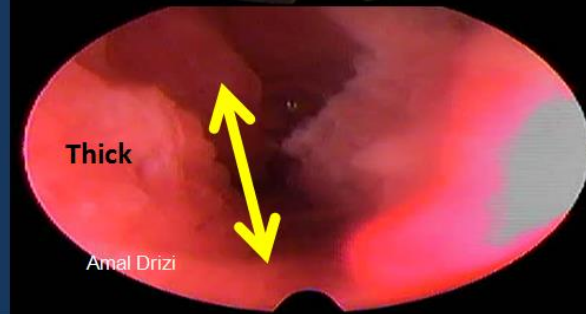
Thin



Secretory



Amal Drizi



Thick

Amal Drizi

**Endometrium = responsive to
hormones**

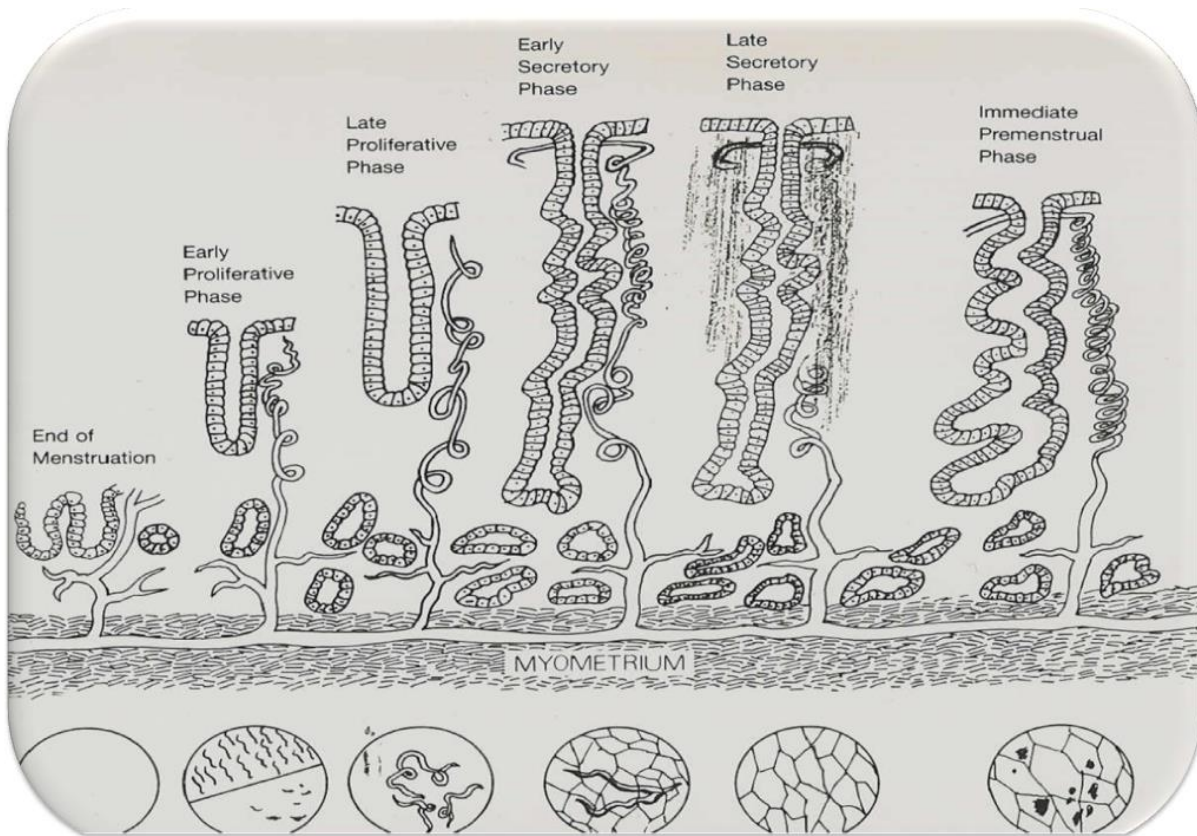
**The date of the last menses must be
specified+++++**

The first questions before entering a uterine cavity: what day of the menstrual cycle is it? Is the patient under hormone therapy?

Vessels

Small spiral arteries and thin-walled venules are present at proliferative phase: less coiled and do not reach superficial parts of the endometrium.

Secretory phase: More coiled. Do reach superficial parts of the endometrium



van Herendael B.J., Stevens M.J., Flakiewicz-Kula A., Haensch Ch." Dating of the Endometrium by Microhysteroscopy." Gynecol.obstet.Invest.1987; 24:114-18

Early Proliferative Phase : EPP 03-08/28

Late Proliferative Phase : LPP 09-13/28

Ovulation Phase : OP 14-16/28

Early Secretory Phase : ESP 17-22/28

Late Secretory Phase : LSP 23-25/28

Premenstrual-Menstrual : PMMP 26-28

Early
Secretory
Phase

Late
Secretory
Phase

Immediate
Premenstrual
Phase

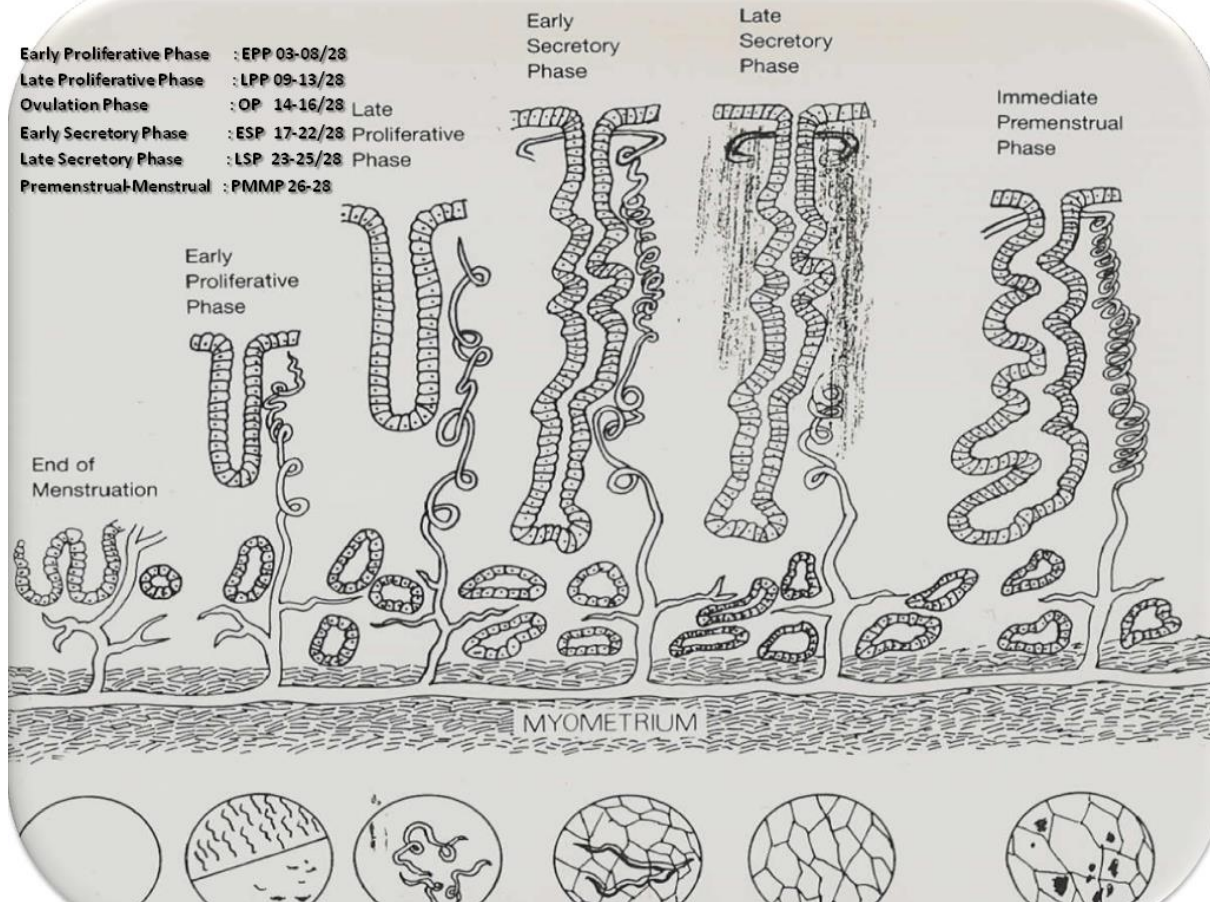
Late

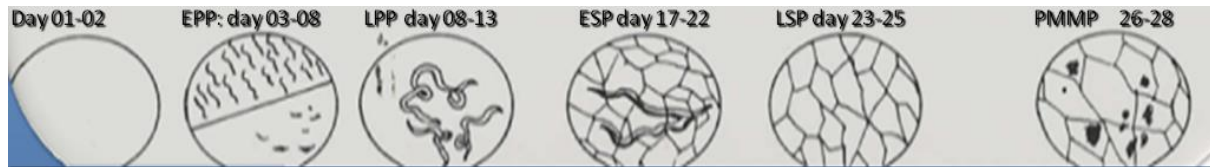
Proliferative

Phase

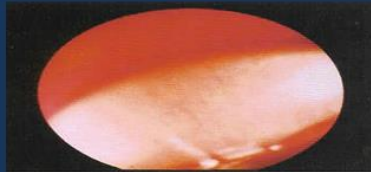
Early
Proliferative
Phase

End of
Menstruation





Day 01-02



EPP day 03-08



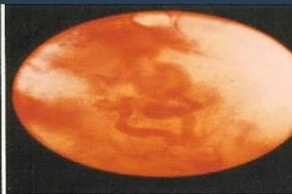
ESP day 17-22



PMMP 26-28



LPP day 08-13



LSP day 23-25



Courtesy of Prof Bruno van Herendael

Conclusion

The histological features of the endometrium are correlated with hysteroscopy and have to be screened during diagnostic procedures.

The final diagnosis belongs to histology

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Cesarean Scar Pregnancy: Case reports

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Abstract

Objective: This case report covers three incidences of Caesarean Scar Pregnancy (CSP). Description of the diagnostic modalities and treatment in the specific cases is given whilst a literature search with MeSH terms Caesarean Scar and Pregnancy has been carried out on PubMed.

Background: CSP is a rather exceptional, but potentially severe form of ectopic pregnancy where the implantation is situated in the Caesarean Scar tissues after a previous Caesarean Section (C/S). Left untreated CSP can cause severe complications, i.e., severe haemorrhage and uterine rupture necessitating surgical intervention and possible emergency hysterectomy. The first case of CSP has been reported in 1978 by Larsen and Solomon and the incidence increases due to the increasing percentage of C/S and the improvement of the Diagnostic Ultrasound (DU) techniques. Due to the increasing incidence of CSP it becomes important to report more cases and to review the treatment options and results.

Methods: the articles describe the treatment under direct view by hysteroscopy combined with ultrasonic guidance by trans abdominal probe over a filled bladder and in one case the treatment by laparoscopy of a complication occurring during hysteroscopic removal of retained products of conception (RPOC).

Conclusions: CSP is a rare form of ectopic pregnancy this explains the fact that there is not yet a consensus on the ideal method of treatment. In view of the increasing numbers of C/S the incidence of SCP will definitively increase leading to more reports on the diagnosis and the treatment of this form of ectopic pregnancy. A number of medical and surgical approaches to this condition have been tried with the aim to eliminate the pregnancy and to preserve future fertility. In the reported cases, the preferred method of treatment has been an ultrasound guided operative hysteroscopy

Key words: Caesarean Scar Pregnancy (CSP), Hysteroscopy, Laparoscopy, Treatment, RPOC.

corresponding author: Adel Sedrati

DOI: 10.36205/trocar1.2022005

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Introduction:

CSP is a rather exceptional, but potentially severe form of ectopic pregnancy where the implantation is situated in the Caesarean Scar tissues after a previous Caesarean Section (C/S) (1). Left untreated CSP can cause severe complications, i.e., severe haemorrhage and uterine rupture necessitating surgical intervention and possible emergency hysterectomy (2-3). The first case of CSP has been reported in 1978 by Larsen and Solomon and the incidence increases due to the increasing percentage of C/S and the improvement of the Diagnostic Ultrasound (DU) techniques (4,5,6,7). There are two types of CSP: Type 1 (endogenic) with progression to the cervicoisthmic space or uterine cavity and Type 2 (exogenic) progressing towards the bladder and the abdominal cavity (8). Due to the increasing incidence of CSP it becomes important to report more cases and to review the treatment options and results (9).

Case Reports: The first case concerns a 43-year-old woman, G3P2A0, having a C/S in her obstetrical history. The patient decided to terminate this third pregnancy as the pregnancy was an unwanted one. Lab test did show a β -hCG of 1172 mIU/ml. Trans Vaginal Ultrasound (TVS) (Fig 1^a) did reveal a pregnancy with an embryo but no heartbeat, on the anterior side of the uterus at the level of the C/S scar with a diameter of 20 mm conform with the amenorrhoea of six weeks and six days (6 2/7). These findings did lead to the diagnosis of CSP. As treatment the choice was made to use a surgical management by hysteroscopy. The patient was submitted to a series of TVU with Doppler flow (Fig 1^b) Patient was brought under general anaesthesia followed by an ultrasound guided hysteroscopic evacuation (Fig 2) of the CSP.



Fig 1a first case described TVS shows an ectopic pregnancy in the lower segment of the anterior uterine wall and an empty cervical canal and uterine cavity (Type 1 CSP).

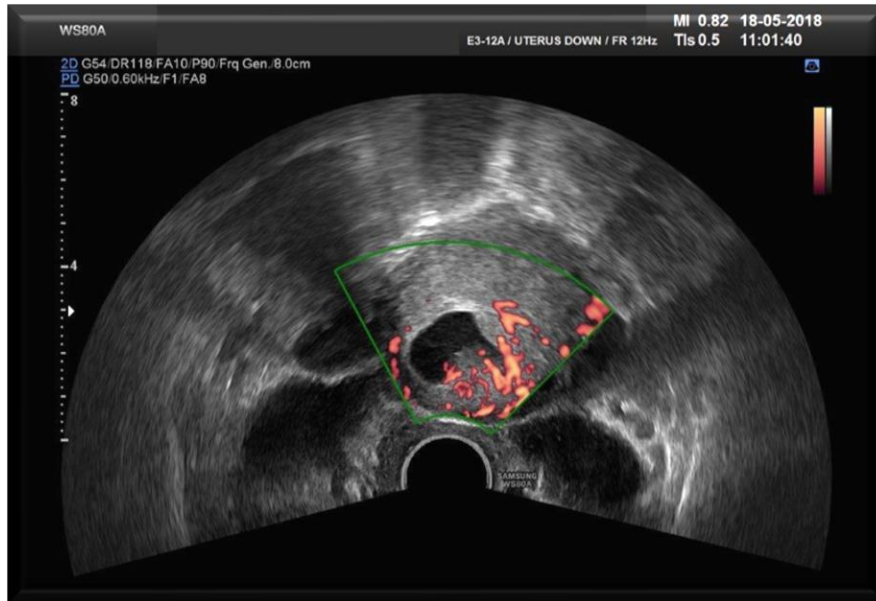


Fig 1b first case described on transverse scan the diagnosis of an implantation of the placenta right cranial – to the cervical canal – to fundal - towards the uterine cavity – on the longitudinal axis can be made easier by Doppler imaging (Type 1 CSP).

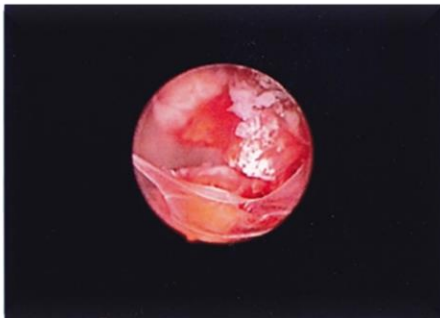


Fig 2a first case described Hysteroscopic image of the CSP confirming the diagnosis of the TVU Placentation cranial to the right (left of the patient).

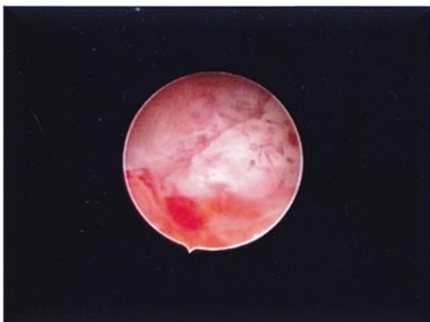


Fig 2b first case described Detail of the placental tissues.

The technique used was abdominal ultrasound over a distended bladder (6) (Fig 3^a – 3^b). The advantage of a bladder filled over the fundus of the uterus is twofold: the uterus is stretched over its longitudinal axis whilst the hysteroscope and the mechanical instruments are clearly delineated by the abdominal ultrasound technique in relation to the surrounding uterine tissues. This allows for objective measurements of the latter during the intervention (10). The uterine cervix has been mechanically dilated up to Hegar 9. The whole of the uterine cavity has

been visualised by the abdominal ultrasound and the location of the decidual tissue mass confirmed. The pregnancy has been removed by hysteroscopy using mechanical graspers and terminated by curettage under ultrasound guidance. Control hysteroscopy has been performed; haemostasis secured by bipolar needle technique. The hysteroscope used was a rigid scope with 5 mm outer diameter and a 5 French operating channel. The distention medium used was physiologic solution of 9% Na.



Fig 3 a first case described: Image of the technique described the balloon of the Foley catheter and the amnion sac are clearly visible.



Fig 3 b first case described: Detail of the amnion sac.

The second case relates to a 37-year-old patient G3P2 with two Cesarean Sections in her history referred by her consultant with the diagnosis of CSP at 6 weeks of pregnancy with a β HCG of 1124 mIU/ml and on ultrasound suspicion of a cervical pregnancy. A hysteroscopic removal under general anaesthesia using a 26 French classical resectoscope with a 6 mm loop with was chosen for. The loop was used as a cold loop for the removal of the RPOC. An ultrasound follow-up was performed the day after the hysteroscopy and 10 days later (Video 1)

The third case is one where hysteroscopic removal of RPOC created a complication This case relates to a woman of 33 years old G3 P2

who had undergone two previous CS. The first one in 2015 and the second in 2017. The two babies are alive without any problems. The patient did not present any symptoms after her two CS. The patient did not have any other medical or surgical history. She was referred to explore a chronic pelvic pain associated with an amenorrhea of 14 weeks and 4 days. Her medical exam was negative except for a small vaginal bleeding. VU showed an echoic heterogenous formation of 6 mm in diameter just at the level of the scar of her previous CS no measurable residual myometrium behind the bladder (Fig 4^a-4^b). The doppler signal was poor. A β HCG was positive at 2500 mIU/ml.

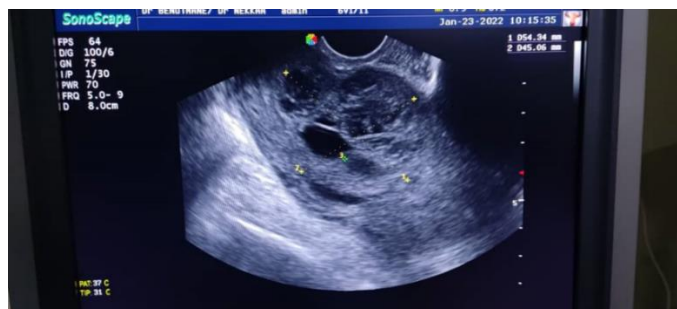


Fig 4 A third case described: VUS 1* cervical canal, partially dilated by the pregnancy in the upper part, with the pregnancy extending towards the bladder type 2 CSP.



Fig. 4 B third case described: Saline Infused Sonography (SIS) Abdominal US with filled bladder. The uterine cavity is clearly seen at the right-hand side of the picture with in the lower part of the image the pregnancy extending towards the bladder no residual tissue can be made out between bladder and CSP (Type 2 CSP).

After a thorough discussion with the couple, hysteroscopy has been chosen as the technique to start to diagnose and try to retrieve the RPOC. Furthermore, all the possible situations and complications were well documented and discussed.

During hysteroscopy under spinal anaesthesia and ultrasound (US) guidance the hysteroscopy did reveal a CSP. The uterine cavity was empty at Saline Infusion Sonography (SIS) at hysteroscopy a clear vision of both ostia was obtained the endometrium appeared to be normal confirming it to be a Type 2 CSP. (Video 2)

As a second step a dilation of the cervix up to Hegar 10 was performed under spinal anaesthesia and a bipolar 26 French with a 30-degree fore oblique lens and a loop of 4 mm was introduced in order to separate mechanically the trophoblastic tissue. This manoeuvre was possible but difficult because of the volume and the deep insertion of the RPOC. (Video 3)

During the mechanical separation a niche perforation at the right lateral side was clearly seen. At that moment it was decided to end the vaginal procedure and to convert to laparoscopy under general anaesthesia. During the laparoscopy there was a lot of liquid inside of the abdominal cavity confirming the perforation, after the aspiration RPOC were found and at the right lateral side of the isthmus a possible perforation was suspected just under the bladder

(Fig 5). A cystoscopy was performed and confirmed the bladder to be intact. The intraabdominal liquid was aspirated and the RPOC were extracted with a bag. The bladder was dissected and the defect was sutured by Vicryl 1 using 4 separated stitches. A drain was inserted in the Douglas. Postoperatively the patient did not present problems, the drain was removed and patient could be discharged on day four.

Discussion:

Clinical Symptoms: One third of the patients are asymptomatic. Vaginal bleeding and abdominal discomfort are key symptoms. The latter being the reason that diagnosis CSP is often confused with other conditions like spontaneous abortion or cervico-isthmic pregnancy. It is mandatory to make an early diagnosis of CSP to prevent severe complications (11,12,13).

Diagnosis

The preferential method of diagnosing is the positive pregnancy test (positive level of β -hCG) followed by a TVS evaluating the development of the embryonic sac and the presence of the placentation in or close to the S/C scar, an empty uterine cavity and cervical canal and a measurement of the tissue bridge between the embryonic sac and the bladder. At colour Doppler exam it becomes possible to evaluate the vessels around the embryonic entity (14).

Prognosis

A normal pregnancy of a SCP is extremely rare. A total hysterectomy is often necessary due to the enhanced risk of placenta praevia or accreta followed by massive bleeding. Literature suggests to counsel for active interruption of the pregnancy in view of the above-mentioned complications (12). However, when heartbeat is absent an expectant management can be adopted as here the course is more often one of a spontaneous abortion without severe maternal complications (9).

Treatment

As the incidence of SCP is rare there is no consensus on a standard of care (15,16,17). If an active management is opted for the consensus is to treat the earliest possible in view to prevent the potential severe complications (18). There are many medical (foetocide medication by systemic or local administration of methotrexate) (19) and surgical (Dilatation & Curettage -D&C, hysteroscopy, laparoscopy, laparotomy or hysterectomy) treatments all with the aim to eliminate the pregnancy with or without preservation of the future fertility (5,11,12,14, 20,21)

Treatment by hysteroscopy under ultrasound guidance is a minimal invasive technique with lots of advantages (16). The definitive diagnosis is made under direct visualisation. The treatment by aspiration of the pregnancy tissues and the

meticulous coagulation of the bleeders is also made under direct visualisation. The main advantage being: fast recovery and faster return to normal fertility. The main risk consists of perforation of the scar tissue with possible damage to the bladder wall when the distance of the anterior wall of the uterus as measured by ultrasound reveals to be very thin (17). Consensus in the literature suggest that an intervention by operative hysteroscopy and hence an intra-uterine approach is safe when the thickness of the myometrial tissue at the location of the SCP is > 2 mm and the implantation surface of the pregnancy is of < 3 cm or when pregnancy evolves towards the cervico-isthmic portion of the uterine cavity (type 2). Several successful cases of the intrauterine approach have been described in literature (12,14,17).

Conclusion

SCP is a rare form of ectopic pregnancy this explains the fact that there is not yet a consensus on the ideal method of treatment. In view of the increasing numbers of C/S the incidence of SCP will definitively increase leading to more reports on the diagnosis and the treatment of this form of ectopic pregnancy. A number of medical and surgical approaches to this condition have been tried with the aim to eliminate the pregnancy and to preserve future fertility (9,15,16,19,20,21). In this report in the cases presented the preferred method of treatment

has been an ultrasound guided operative hysteroscopy (Fig 3).

Aknowledgements

The authors want to thank Bruno J van Herendael for his guidance and constructive criticism of their work.

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When The Virginity Does Matter: Vaginoscopy Using Hysteroscope for Foreign Body Extraction in Office Setting (Case Report)

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Abstract

Objective: A case report of using hysteroscope for the extraction of the vagina foreign body with an intact hymen.

Methods: Case Report

Results: A 36-year-old woman presented with discomfort after masturbating with a ballpoint, and the cap was left in her vagina. The gynecological examination revealed an intact hymen and vaginal discharge. Abdominal ultrasound revealed a foreign body in the vaginal cavity. The patient was given an analgesic suppository, and a vaginoscopy was performed using a hysteroscope. The ballpoint cap was found to be in a horizontal position in the anterior and clamped using a foreign body grasper by changing its position from horizontal to vertical position. It was successfully extracted, sized of 50 x 8 x 8 mm. The patient was discharged with the intact hymen. **Conclusion:** Vaginoscopy is an endoscopic observatory diagnostic procedure that is important in diagnosing and evaluating the presence of foreign bodies. In addition to maintaining the integrity of the hymen, vaginoscopy can improve visualization of the vaginal cavity and increase flexibility in obtaining samples and removing the foreign body.

Key words: Diagnostic Techniques, Obstetrical and Gynecological, Gynecologic Surgical Procedures, Hysteroscopy, Management, vaginoscopy

Introduction:

Gynecological problems do occur in children, adolescents, adults, and the elderly. Reports on the management of gynecological cases in children and women who are still virgins is limited. This is related to the fragile hymenal tissue, which is easily torn. The hymen is a very valuable anatomical entity for women because it poses as a sign related to a history of sexual activity or sexual violence. The integrity of the hymen is proof of a woman's virginity.¹ The status of a woman's virginity is very important, especially for unmarried women, due to the relation of the value of women's perceptions and self-esteem especially in the Muslim community.¹ Vaginoscopy is performed using a hysteroscope with a diameter of 5 mm, and the entire procedure is performed without compromising the anatomical integrity of the hymen, so it is considered an appropriate method to maintain hymenal integrity.²

Vaginoscopy is indicated for diagnosing and treatment related to bleeding and suspicion of a foreign body, neoplasm, or congenital anomalies. Vaginoscopy is considered a convenient, safe, fast and efficient method for diagnosis and management.^{3,4}

Currently, vaginoscopy can not only be done in hospitals requiring hospitalization but can also be done in private clinics in an office setting. In private clinical settings, vaginoscopy is reported to have many advantages as compared to the operating room vaginoscopy because it does not require hospitalization, preoperative examination, and general or regional anesthesia, and reduces postoperative recovery time and costs. Complications may occur, such as cervical tears and tubal rupture, due to distension fluid.⁴ However, there are also reports of failures related to vaginoscopy in the office setting due

to patient's discomfort including severe pain, anxiety and embarrassment.⁵

Anxiety can be managed by providing information to the patients about the procedure and all the steps that will be carried out, minimizing patient waiting time before the procedure, and maintaining constant verbal communication with the patient during the procedure (verbal anaesthesia).⁶ This kind of situation is not uncommon in gynecological practice in Europe and the solution there is to use office hysteroscopy with vaginoscopy. However, on the one hand this practice is still very rare in Indonesia, especially in Eastern Indonesia. Vaginoscopic access using a hysteroscope is still a rare and exclusive commodity in East Indonesia because the author's center is the only one who has the tools and access to office hysteroscopy due to the high price of the equipment. On the other hand virginity itself is still a taboo and sacred thing in Indonesia, so for unmarried women this is something extremely valuable.

Material Method:

The patient was given an analgesic suppository in an office setting. Vaginoscopy was performed with an Olympus hysteroscope with a working channel of 5 French.



Case:

A 36-year-old woman presented to the clinic with a complaint of abdominal discomfort and vaginal discharge from the vagina. The patient revealed that she masturbated using a ballpoint pen into her vagina in the morning and noticed that the ballpoint cap was left in her vagina.



Figure 1. Ultrasound results show foreign body inside vaginal introitus

The patient came to the Obstetrics and Gynecology Specialist Private Clinic in her village the same morning. The OB-GYN doctor in the village had tried to extract the pen cap using a Hartmann alligator forceps but failed and he decided to refer the patient to the office hysteroscopy unit where vaginoscopy can be performed. Physical examination showed normal vital signs. The gynecological examination revealed that the hymen was intact with a whitish discharge. A colposcopy was not used to evaluate the hymen. Abdominal ultrasound showed that the ballpoint cap was in a horizontal position in front of the cervical portio (Figure 1). The only investigation that can be done is abdominal ultrasound because

transvaginal ultrasonography cannot be performed considering the fact that the patient is still a virgin. The patient was given an analgesic suppository, and a vaginoscopy was performed to remove the ballpoint cap from the vagina. An Olympus hysteroscope with a working channel 5 French was used. The cap was stuck between vaginal walls in horizontal position. The cap's position was shifted from horizontal to vertical position to avoid damaging the hymen. It was a quite difficult procedure but the cap was successfully removed (Figure 2). The pen cap, measured 50 x 8 x 8 mm (figure 4). The patient was discharged after the procedure the hymen remained intact.

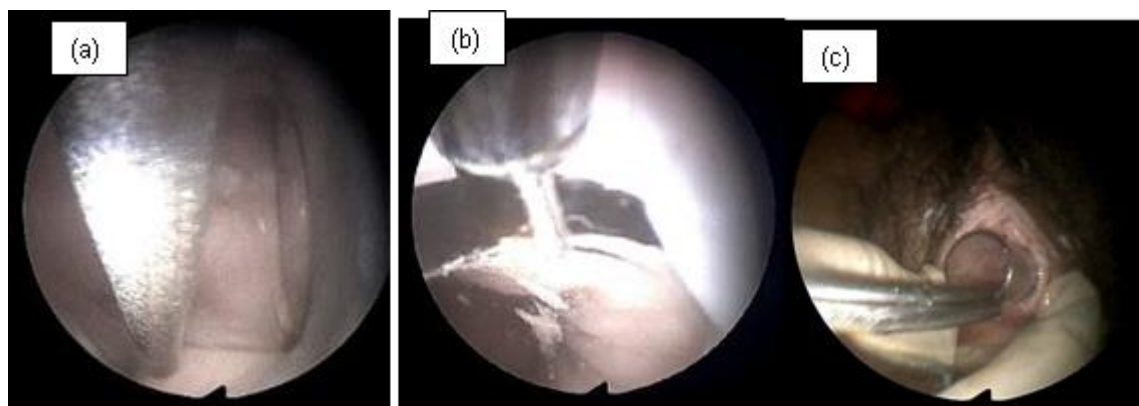


Figure 2. Vaginoscopy

- Ballpoint cap stuck between vagina wall in horizontal position
- The ballpoint cap was successfully shifted from a horizontal position to a vertical position
- The ballpoint cap was successfully removed



Figure 3. Ballpoint cap successfully extracted

Discussion:

Virginity is a sensitive personal matter. Maintaining virginity is a personal importance and also depends on age, ethnicity, status, culture, and religion. As medical professionals, we have to respect that. However, there are times when a vaginal examination is necessary, which limits a gynecologist in making a diagnosis and approaching treatment. Hysteroscope can be used to observe the vagina for a diagnosis in cases of virgin patients. Vaginal discharge is the most common symptom of the vagina foreign body.^{7,8} Vaginal discharge may be purulent or hemorrhagic. The effect varies depending on its nature and shape. The various forms of the foreign body found in the vagina include clumps of toilet paper, marbles, beads, paper clips, lead. Pencils, sponges, plastics, and fibrous materials from clothing are often found in children. Pads, broken condoms, and objects not commonly used for masturbation are common foreign bodies found in the vagina in adolescents and adults. The foreign body of the vagina, which is mostly found in the elderly, is a pessary.⁷ Patients may self report a foreign body or have a variety of symptoms, such as pelvic pain, vaginal

discharge, and vaginal bleeding. When evaluating a patient who is suspected of having a vaginal foreign body, the history should focus on the specifics surrounding the original occurrence, such as the timing, the suspected object, and abdominal, pelvic, and genital symptoms.^{2,8}

This foreign body can cause perforation, abrasion, pressure necrosis, and local vaginitis resulting in ulceration of the vaginal wall. These effects involve adjacent structures, causing urinary and fecal fistulas. In severe cases, it may also cause salpingitis and peritonitis. Neglected foreign bodies in the vagina might lead to severe ulceration of the posterior fornix and subsequently to carcinoma of the vagina. The diagnosis can be made by a detailed history, genital examination, pelvic ultrasound, pelvic radiography, and magnetic resonance imaging (MRI).^{10,11} MRI is considered the best technique for evaluating the vaginal foreign body, but it is not always available in the office setting. Vaginoscopy with a 5 mm hysteroscope is useful for detecting and treating the vaginal foreign body.¹⁰ The patient in our case was unmarried and still a virgin. The considerations for a

diagnosis and management should include the potential for hymenal tissue disruption. Vaginoscopy can be an appropriate diagnostic and management tool in this case.¹⁰

The vaginoscopy approach with a hysteroscope provides a safe and non-traumatic method of assessing the reproductive organs because the hysteroscope can be inserted into the vagina without a speculum or tenaculum.^{2,5} Vaginal wall distention by distension media can provide a clear endoscopic view. These considerations make doctors choose this procedure in assessing the pathology of the vagina, cervical surface, cervical canal, intrauterine cavity, and other anomalies of the development of sex organs in pediatric, adolescent, or female patients who are still virgins. The entire procedure can be performed without compromising the integrity of the hymen, whereas traditional methods require the use of retractors which may compromise the integrity of the hymen.² However, unlike in developed countries, hysteroscopy procedures and hysteroscope instruments are still uncommon in Indonesia, especially in the East Indonesia region. In most developing countries, hysteroscope instruments are still considered a luxury and are not readily available in daily practice, even in private clinics or hospitals. Vaginoscopy is the recommended standard technique.⁵ Small diameter hysteroscopes together with vaginoscopy techniques have contributed to outpatient procedures in private clinics without the use of analgesics. The procedure is declared a proper and safe procedure to be applied in practice.¹² Any endoscope with irrigation properties can be used for vaginoscopy. A bronchoscope or urethroscope is ideal because of its short length; a laparoscope, cystoscope, nephroscope, or hysteroscope can also be used. A very small diameter hysteroscope is required for

gynecological examination in the case of young children.¹³ Vaginoscopy procedure is performed in the lithotomy position. Without using speculum, a small (5 mm) rigid or semi-rigid hysteroscope is inserted into the vaginal introitus. Normal saline is administered as a distension medium at a pressure of 150 mmHg. The labia minora are closed manually if necessary to accommodate the distension media. The cervix is visualized, and the hysteroscope is directed through the vaginal introitus to the anterior portion.⁹ The ideal management of the vaginal foreign is to remove it from the vaginal canal.¹⁴ The. Unlike the practices in the developed countries, removal by office hysteroscopy in Indonesia without damaging the hymen is still uncommon. Complication such as damaged hymen is still common in Indonesia. In this case, the foreign body was removed by vaginoscopy with hysteroscope and suppository analgesics. We shifted the position of the ballpoint cap from a horizontal to a vertical position to avoid damaging the hymen. It was then successfully removed without damaging the hymen. Analgesia is useful for reducing pain.⁶ Analgesic method is the key in performing vaginoscopy in a painless practice.¹⁵

The advantages of using office vaginoscopy over conventional vaginoscopy include a lower rate of pain, shorter examination time, and greater success rate.^{16,17} These advantages make vaginoscopy the technique of choice for outpatient hysteroscopy.¹⁷ The advantage of using vaginoscopy in the private clinic consists of reduced patient care costs, and reduced burden on health care budgets in general.¹⁸ Despite the advantages, vaginoscopy carries a risk of genital tract infection in patients undergoing vaginoscopy, which is associated with procedures without adequate pre-procedural disinfection.¹⁶ Without analgesia, the use of

vaginoscopy in the private clinics can cause excessive discomfort, severe pain, high anxiety, and shame for the patient, which may lead to failure of the procedure.⁵ The use of analgesia can relieve pain, and non-pharmacological methods can also be useful in reducing pain in private clinical settings vaginoscopy procedures such as reducing waiting times, and using music during procedures to reduce anxiety.¹⁵ The hymen's shape, size, and flexibility fluctuate dramatically throughout a woman's lifetime. The and hymenal suppleness increases. Additional alterations occur as a result of hormonal changes associated being "broken" are often assumed indications of virginity in cultures where female virginity before pale pink in color, there were no lacerations, clefts, perforations, blood. It happened due to elasticity of the hymen in accordance with the theory described, the type

of hymen in patients with annular shape (figure 4)



Figure 4. Appearance of vaginal hymen after extraction

Conclusion:

Vaginoscopy in a office setting without anesthesia is useful as a diagnostic method for managing the vaginal foreign body without damaging the hymen. Non-pharmacological methods can be considered to increase the success of the procedure by reducing pain and anxiety during the procedure.

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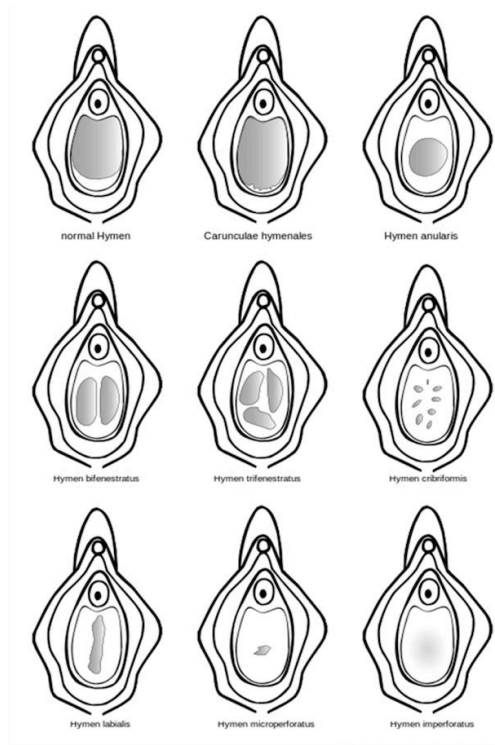
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Add.

Different configuration of hymen

Addendum

Different configuration of Hymen



Increasing trend of serum antimüllerian hormone level after long term follow up of endometrioma resection

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Abstract

Background: Endometriosis is a chronic disease mostly affecting women in their reproductive age. Some evidence suggests that surgery of ovarian endometrioma may have a detrimental effect on ovarian reserve. The aim of this study was to evaluate the changes of serum Anti Mullerian Hormone (AMH) levels in patients with endometrioma after cystectomy.

Methods: A prospective study was performed at Nikan hospital on 58 patients with endometrioma who underwent laparoscopic cystectomy. Of them, 30 had unilateral endometrioma and 28 had bilateral endometrioma. Complete excision was done, pelvic endometriotic implants as well as deep infiltrative endometriosis was resected. Sutures were performed for the closure of ovarian parenchyma and bleeding control. No use any hot energy devices such as cautery on ovaries for ablation, coagulation or resection of the endometrioma were used. Serum AMH levels were measured preoperatively at 3, 9, and 15 months postoperatively.

Results: Serum AMH levels decreased significantly from the preoperative sample (2.98 ± 2.47 ng/ml) to 3 months after laparoscopy (1.07 ± 1.06 ng/ml), then gradually increased 9 months (1.47 ± 1.16 ng/ml) and 15 months (1.95 ± 1.85 ng/ml) after surgery, without returning to the preoperative levels during the follow-up time of study.

Conclusion: There is a fluctuation pattern in AMH levels from preoperative to 15-month follow-up after endometrioma surgery using only sutures for ovarian hemostasis. Firstly, there is decline in AMH level 3 months after surgery, then an increasing trend was observed gradually up to 15 months after surgery. Controlled studies are needed to compare the effects of various cystectomy methods on the ovarian reserve after endometrioma surgery.

Keywords

Endometrioma, Anti Mullerian Hormone, laparoscopy, cystectomy, endometriosis, fertility preservation

Cervical Stenosis: In - office Hysteroscopy Treatment using Hysteroscopic Tissue Removal System (Video Article)

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Abstract

Objective: To demonstrate how cervical stenosis can be safely and successfully treated in-office hysteroscopy using a hysteroscopic tissue removal system (HTRS - Truclear 5C or Elite).

Design: A demonstration of the surgical technique using slides, pictures, and video.

Setting: Cervical stenosis (CS) is one of the limitations and causes of failure of in-office Hysteroscopy¹. Traditionally CS treatment is documented in the literature with the use of 5 Fr mechanical instruments, such as biopsy forceps, scissors, bipolar electrode needle or twizzle or versa point. ²

Interventions: This video shows an In-Office Hysteroscopy with HTRS for treating CS, in a stepwise approach to reduce patient discomfort and increase the success rate of in-office Hysteroscopy.

Key principles:

1. Vaginoscopy technique
2. Identification of the type of CS
3. Introduction of the 2.9 mm incisor TM with a 5mm cutting window through the channel of the Hysteroscopy

4. The window of the incisor TM is placed against the fibrotic part of the cervix
5. Keep the window always under the vision
6. Keep the internal os in the centre of the vision
7. Circumferential cutting by the incisor without moving the scope
8. Controlled Suction
9. Advance by moving forward the bevel of the scope
10. Enter the uterine cavity

Conclusion: The use of miniature instruments, vaginoscopy and the technique of circumferential cutting of the fibrosis in the cervix allows the hysteroscope to pass easily into the uterine cavity with minimal patient discomfort.

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Key words: office Hysteroscopy; Tissue Removal System; Cervical Stenosis