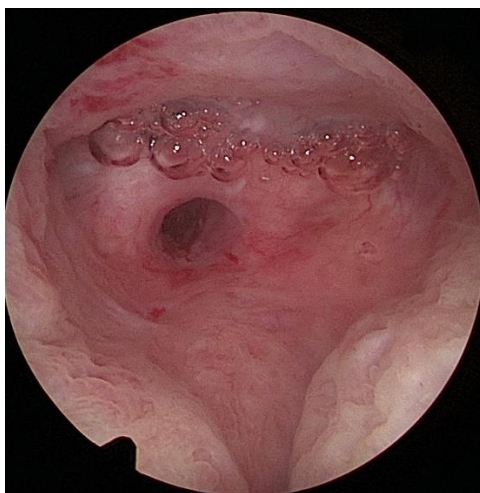
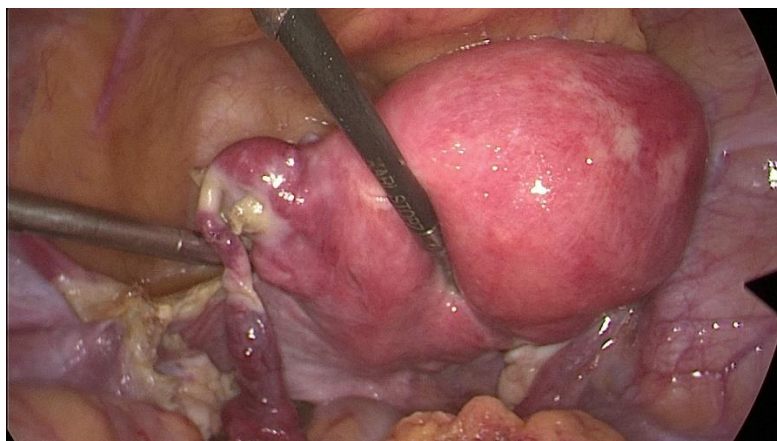




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Dear friends and readers,

It goes without saying that we, as a gynaecological community, are committed to women. However, we need to broaden our view beyond the pure gynaecological problems. To date, the development of drugs and diagnostic regimens in particular has been oriented towards men. For example, the body's own enzyme "CYP3A4", which is responsible for the metabolism of more than half of all prescribed drugs, may be more active in women than in men. With other enzymes of the "CYP family", on the other hand, it can behave exactly the opposite way – with correspondingly different effects on the active levels in the body!

On average, women with a heart attack arrive at the emergency room one hour later than men. Why? Because women do not have the typical symptoms of a heart attack, such as chest pain or tingling in the arm, but are more prone to nausea and back pain, for example. However, since general society, and thus also medically, is usually thought of in normatively male terms, many people are not aware of this.

For example, drugs are still tested almost exclusively on men, which means that they can often be not only ineffective for women, but in the worst case even dangerous. Women are not "little men". The metabolism in organs and cells is often controlled by much more complex hormonal influences. The pharmaceutical industry prefers men because they cannot fail due to pregnancies and are not subject to a hormonal cycle, which significantly reduces costs but can ultimately be fatal for women.

In every medical textbook, unless it is explicitly about female anatomy, there are almost exclusively depictions of male bodies. And the teaching of psychology is also often about normatively masculine structures and patterns. The movement of gender-equitable medicine tries to uncover and remedy precisely these grievances in order to ensure differentiated medicine in the future. For this reason, education on the topic of gender-specific medical differences must already be taken up during the course of study, and both prospective physicians and anyone else interested must be able to contribute to a holistic approach to medical problems in the future.

As gynaecologists, we have to know about it on the one hand and pass on this knowledge on the other. On the one hand, it is a question of gender equality, and on the other hand, it is a medical duty.

In this issue we have compiled a special case-reports for you, but also original works from Africa. I hope you enjoy reading it.

Best wishes

Guenter Noé

Editor in Chief

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Guenter Noé

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The frontpage shows: 1) rudimental Horn on the left 2) large niche



Comparison between the use of a single dose of 400 µg rectal misoprostol and a peri cervical tourniquet to decrease blood loss during myomectomy by laparotomy at the CHRACERH

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Abstract

Myomectomy is a surgery at risks for per operative hemorrhage. Intra rectal misoprostol administered the day before the operation and the use of a peri cervical tourniquet per operative are both methods used to reduce peri operative blood loss. In order to be able to compare the two methods, a randomized, controlled study was carried out at our institute. 48 patients were enrolled in the study and followed up and the data analyzed. Both methods proved to be equally effective and both can be used routinely.

Key words: CRACERH; misoprostol; peri cervical; tourniquet; per operative blood loss; myomectomy; laparotomy

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Introduction:

Uterine myoma are considered to be the most frequent benign tumours in female patients both in reproductive age and menopause. 80% of African women are diagnosed with myoma before the age of 50 years (1,2). The treatment of choice in women with a desire to procreate is the operative myomectomy by laparoscopy or laparotomy. The myoma surgery is associated with blood loss due to the enucleation of the myoma. The blood loss gives rise to blood transfusion and a possible conversion to hysterectomy when the bleeding becomes uncontrollable (3,4). The use of a peri cervical tourniquet is the widest spread method to prevent incontrollable blood loss in the countries with limited resources in view of its efficacy, simplicity and low costs (5). On the other hand, studies have proven that the use of misoprostol, due to its contractile effect on the myometrium, is also a good method to prevent excessive blood loss during myomectomy (6,7). This treatment could become an alternative to the peri cervical tourniquet in the low-income countries as it is a simple method also with low costs but at this moment in time the method is scarcely used in these countries. This study has been set up to compare the efficacy of a single, preoperative doses of 400 µg of intra-rectal administered misoprostol and the haemostatic peri cervical

tourniquet used during the laparotomic surgery for myomectomy.

Material Method:

At the CHRACERH a Randomised Controlled Trial (RCT) single blinded has been set up over a period of nine months from February 2022 onwards. All patients needing a laparotomic myomectomy have been included in the trial after giving consent. All patients presenting with symptomatic myomata, documented by pelvic medical imaging over the last 12 months, all patients aged over 18 years of age and all patients who did sign a consent form who were in need of a laparotomic myomectomy have been included in the study. Patients with coagulation disorders have not been included in the study. Further have been excluded from the study all cases where other surgical acts and every other method to reduce blood loss had been used. Also excluded have been the patients where the administration of misoprostol was contraindicated and in the group of the peri cervical tourniquet all cases presenting with difficulties to apply the tourniquet. The sample has been built on a consecutive, random and comprehensive basis. Patients have been assigned to each group (group I =misoprostol, group II=tourniquet) on the principle of assignation by lot after selection of the patient for one or the other techniques. The study did

use the formula of Charan&Biswas to find out the number needed to diagnose:

$$n = [(Z_{1-\alpha/2} + Z_{1-\beta})^2 \times \{2(\sigma)^2\}] / (\mu_1 - \mu_2)^2 \quad [8]$$

Based on this formula and on the data of a prior study where the mean of the blood loss had been 230,66 ml in the misoprostol group and 322,39 in the control group, the number needed to diagnose has been defined on 19 patients per group (9). This implies that the total sample has to be 38 patients.

Practically the patient of the misoprostol group – group I - did receive a single dose of 400 µg of intra rectal misoprostol two hours before surgery. The patients of group II were treated with the placement of a Foley urinary catheter n° 18 as peri cervical tourniquet, placed through the round ligaments, during the surgery. The tourniquet was released within the hour after its application. The factors registered were: the characteristics of the myoma, the peroperative blood loss, the necessity for blood transfusion and postoperative AUB and eventual conversion to hysterectomy. As far as the measurement of the per operative blood loss is concerned these have been measured in both groups with the same technique: blood has been aspirated with an aspiration cannula into a bag and further by weighing the pads, uniforms worn and operation field drapes. Estimation have been made on the equation that one gram to be equivalent to one milliliter blood.

To interpret the results the following programs have been used C's Pro and SPSS 26.0. Qualitative variables have been represented by the real events and the frequencies of the latter. The quantitative variables have been described by the mean +/- put aside principle. The association between quantitative and qualitative variables has been evidenced by the Chi-square test when the theoretical events have been equal or higher than five, or the Fisher Exact test when at least one event scored less than 5. The means have then be subjected to the Student T test. The P<0.05 has been considered as statistically significative.

Results

A total of 51 patients have been assigned to the study. Three patients have been excluded because of pelvic adhesions not allowing for the placement of the peri cervical tourniquet. Finally, 48 women did participate to the study, 24 in each group. The median of age has been comparable in both groups, 38,3+/-6,4 years in the misoprostol group versus 41,3+/-5,6 in the tourniquet group (P=0,096) (Tab 1) The frequency of patients with a scared uterine surface was comparable in both groups 50 % in the misoprostol group versus 41,7% in the tourniquet group (P=1,000) (Tab 1). Infertility has been the main complaint to seek advice in both

groups with 83,3% in the misoprostol group and 79,2% in the tourniquet group (Tab 1).

Table 1: Clinical characteristics

Variables	total	Group I n (%) N=24	Group II n (%) N=24	RR (ICà95%)	value p
Age range (yrs)					
26-30	4(8,3)	2(8,3)	2(8,3)	1(0,36-2,8)	1,000
31-35	8(16,7)	6(25)	2(8,3)	1,7(0,98-2,8)	0,245
36-40	8(16,7)	6(25)	2(8,3)	1,7(0,98-2,8)	0,245
≥41	28(58,3)	10(41,7)	18(75)	0,5(1,04-4,42)	0,019
mean ± DS	39,8 ± 6,1	38,3 ± 6,4	41,3 ± 5,6	//	0,096
Min-max	26-50	26-48	30-50		
Past surgical history					
Scared abdominal wall	22(45,8)	12(50)	10(41,7)	1,2(0,7-2,1)	1,000
Myomectomy	10(20,8)	8(33,3)	2(8,3)	1,9(1,2-3)	0,033
caesarean section	6(12,5)	2(8,3)	4(16,7)	0,6(0,2-2)	0,666
Salpingectomy	4(8,3)	2(8,3)	2(8,3)	1(0,3-2,8)	1,000
Ovarian cyst	2(4,2)	0	2(8,3)	2,1(2,5-2,8)	0,489
Presenting complaint					
Infertility	39(81,3)	20(83,3)	19(79,2)	1,2(0,5-2,5)	1,000
Menorrhagia	14(29,2)	6(25)	8(33,3)	0,8(0,4-2,33)	0,525

AUB	8(16,7)	6(25)	2(8,3)		0,245
Pressure symptoms	7(14,6)	4(16,7)	3(12,5)	1,4(0,3-7)	0,683
Abdominal bloating	3(6,3)	0	3(12,5)	2,1(1,6-2,9)	0,234
Repeated miscarriage	3(6,3)	3(12,5)	0	2,1(1,6-3)	0,234
Dysmenorrhea	2(4,2)	2(8,3)	0	2,1(1,5-2,8)	0,489
Constipation	2(4,2)	0	2(8,3)	2,1(1,6-2,9)	0,489
Pollakiuria	1(2,1)	0	1(4,2)	2(1,5-2,7)	1,000

The mean size of the uteri was equal in both groups 18,25+/-4,7 pregnancy weeks in the misoprostol group versus 18,7+/-5,5 pregnancy week in the tourniquet group (Tab2). The most prominent feature has been intra mural myoma

present in 100% in the misoprostol group and in 95,8% in the tourniquet group (Tab2). The total number of myomata has been 9,7+/-5,9 in the misoprostol group versus 10,2+/-6,8 in group II (Tab2).

Table 2 : Characteristics of myoma

Variables	total	Group I n (%) N=24	Group II n (%) N=24	RR (ICà95%)	value p
Uterine size (wks)		n(%)	n(%)		
8-12	4(8,3)	2(8,3)	2(8,3)	1(0,4-2,8)	1,000
14-18	28(58,3)	14(58,3)	14(58,3)	1(0,6-1,8)	1,000
20-24	10(20,8)	6(25)	4(16,7)	1,3(0,7-2,3)	0,477
26-30	6(12,5)	2(8,3)	4(16,7)	0,6(0,2-2,05)	0666

≥32	0	0	0	//	//
Mean +DS		18,25±4,7	18,7 ± 5,5	//	0,779
Localisation of myoma					
Intra mural	47(97,9)	24(100)	23(95,8)	0,5(0,4-0,7)	1,000
Subserosal	38(79,2)	18(75)	20(83,3)	0,8(0,4-1,45)	0,477
Submucosal	26(54,2)	16(66,7)	10(41,7)	1,7(0,9-3,2)	0,082
Average number of myoma ±DS					
- Intramural	6,4 ±4,7	6,6 ±4,5	6,3 ± 4,8	//	0,831
- Subserosal	2,98 ±3,4	3,1 ±3,4	2,9 ±3,4	//	0,833
- Submucosal	1,2 ±1,3	1,3±1,2	1,04 ±1,4	//	0,455
- All localisations	10 ±6,29	9,7 ± 5,9	10,2 ± 6,8	//	0,786
- Min-max All localisations	3-26	4-24	3-26		
Average diameter of largest myoma ±DS	82,8± 25,1	82,1 ± 21,4	83,6 ± 28,7	//	0,839
Average diameter of smallest myoma ±DS	17,3± 7,4	18,5 ± 7,7	16 ± 7,07	//	0,248

Blood loss has been comparable between both groups 495,8+/-260 ml in group I versus 483,33+/-245 in group 2 (Tab 3). Blood

transfusions have been administered equally between both groups 25% in group I and 16,7% in group II (Tab3).

Table 3 : Blood loss and blood transfusion rate

Variables	Total	Group I n(%) N=24	Group II n(%) N=24	RR (IC)95%	P value
Blood loss					
<500	20(41,7)	10(41,7)	10(41,7)	1(0,32 –3,2)	1,000
500-1000	28(58,3)	14(58,3)	14(58,3)		
>1000	0	0	0	//	//
Mean ±DS	489,6±250,5	495,8 ± 260	483,33 ± 245	//	0,865
Min-max	100-950	100-950	150-900		
Number of blood transfusions					
Total number of transfusions	10(20,8)	6(25)	4(16,7)	1,7(0,4-6,9)	0,477
- Per operation	8(16,7)	6(25)	2(8,3)	1,7(0,7-20,4)	0,245
- Post-operation	5(10,4)	3(12,5)	2(8,3)	1,2(0,24-10,4)	1,000
Number of units of blood transfused					
Total number of units transfused	18	14	4	//	0,106
En per operation					
1	7(87,5)	5(83,3)	2(100)	0,7(0,4-1,14)	1,000
2	1(12,5)	1(16,7)	0		
En post operation					
1	2(40)	2(66,7)	0	3(0,6-14,7)	0,136
2	3(60)	1(33,3)	2(100)		
Hb level pre-operation (g/dl)	11,3 ± 1,21	11,2 ± 1,1	11,44 ± 1,4	//	0,497

Hb level post-operation (g/dl)	9,96 ± 1,4	9,97 ± 1	9,95 ± 1,6	//	0,951
Variation en Hb	1,4 ± 0,8	1,22 ± 0,6	1,5 ± 1	//	0,225

There has been no conversion to hysterectomy in the study. Complications: a haemorrhage, that could be managed, has been noted after the tourniquet had been released in two cases.

Discussion

Uterine myomata are the most frequent benign tumours in women of reproductive age. Age seems to be the most important factor and the prevalence of myomata increases with age up to the menopause. In this study the mean age of the patients was 38,3+/-6,4 years in the misoprostol group and 41,3+/-5,6 in the tourniquet group. These results are comparable with the data from Sharami 2020 (39,34+/-6,38 in the misoprostol group and 38,00+/-4,89 in the control group) or the results of Abdel 2015 (40,7+/-5,1 in the misoprostol group and 40,7+/-5,5 in the control group (10-11).

Although most of the uterine myomata are asymptomatic some 20-40% are symptomatic with symptoms including AUB, anaemia, dyspareunia, pollakisuria, abdominal discomfort and heaviness, constipation and reproductive dysfunction (miscarriages, infertility) that impair the quality of life of the patients and hence have

to be treated. In the CHRACERH study the patients did present with the following complaints in decreasing order: first infertility (83,3% in group I versus 79,2% in group II), followed by menorrhagia (25% in group I versus 33,3% in group II) and AUB (25% in group I and 8,3% in group II) finally other complaints including feeling of weight in the pelvic area, abdominal bloating, repeated miscarriages, dysmenorrhea, constipation and pollakisuria. These results differ from the findings of Ali 2019 and Elourdighi 2012 both authors state that the principal complaint to be haemorrhage (14-15). The difference could be explained by the fact the CHRACERH is a center focused on the treatment of infertility.

The treatment of myomata in women with the desire to preserve their fertility is an myomectomy. Myomectomies are often complicated by per operative haemorrhages. There are multiple strategies to counter these haemorrhages, mechanical, surgical and pharmaceutical. Placing a Foley catheter as a mechanical peri cervical tourniquet is frequently used to reduce per operative haemorrhages. One arm of this study did look at its use. The misoprostol does act by causing contraction of

the myometrial muscle fibres. The second arm of this study did look into this effect. Misoprostol can be administered by rectal or vaginal way or by mouth even sublingual some hours before the actual myomectomy. When misoprostol is administered by rectal way its peak plasmatic level is detected after two hours after administration and maintained for four hours. The side effects of misoprostol are minimal and reversible when compared to the other routes of administration. In the CHRACERH study the intra rectal misoprostol was administered two hours before the myomectomy.

The haemorrhages during myomectomy are conditioned by the characteristics of the myomata, especially the volume of the uterus, the number of myomata and their location. More important haemorrhages are to be expected if the myomata are large, if their number is important and if the location is intramural, within the myometrial wall. In the CHRACERH the measurements of the myomata were comparable in both groups 18,25 \pm 4,7 pregnancy weeks in group I and 18,7 \pm 5,5 pregnancy weeks in group II. These results are different from Celik 2003 (15,7 \pm 2,6 pregnancy weeks in his misoprostol group and 15,5 \pm 2,8 pregnancy weeks in his tourniquet group) (16). This fact can be explained as myomata tend to be larger in size in women of the black race. In our study, the total number of myomata has been 9,7 \pm 5,9 in the misoprostol group versus 10,2 \pm 6,8

in group II. Celik reported comparable number of myomata in both his groups 9,7 \pm 5,9 in the misoprostol group versus 10,2 \pm 6,8 in the tourniquet group. Finally, the intra mural myomata revealed to be 100% in the misoprostol group versus 95,8% in the tourniquet group. The findings concerning the per operative haemorrhages are different from the findings of Afolabi 2019 (931,89 \pm 602,13 ml in the misoprostol group versus 848,40 \pm 588,85ml in the tourniquet group P=0,532) (17). Here the volume of the uteri and the number of the myomata found in the CHRACERH were smaller than the one found in the study of Afolabi what can explain the differences.

However, the results are much worse in the studies where no measures had been taken to reduce the volume of the per operative haemorrhages. This is the case in the studies of Celik 2003 (621 \pm 121 ml in the placebo group) and of Niroomand 2015 (696 \pm 411 ml in the placebo group) (16-18). In the CHRACERH study the number of blood transfusions in both groups are comparable (25% group I and 16,7% group II). These results compare favourably with the study of Afolabi 2019 (60% in the misoprostol group and 55% in the tourniquet group) (17). The variation of the haemoglobin in the CHRACERH study have been comparable in both groups (1,22 \pm 0,6 g/dL in group I versus 1,5 \pm 1 g/dL in group II). In the Abdel 2015 study the results are 1,7 \pm 0,4g/dL in his misoprostol group and 2,1 \pm 0,6g/dL in his tourniquet group.

0,5g/dL in his control group (11). These results can be explained by the fact that the peroperative blood loss was lesser in the CHRACERH study.

The only side effect of the misoprostol in our study has been one case of raised temperature. This finding is different from the Celik study (raised temperature in 38,4% of patients). This difference can be explained by the route of administration rectal in the CHRACERH study and vaginal in the Celik study.

Conclusion:

In the CHRACERH study the haemorrhages are comparable in both the groups. The use of blood transfusion is the same in both groups. No conversion to hysterectomy was necessary. The side effects of misoprostol by intra rectal administration are minimal.

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Total laparoscopic hysterectomy for benign gynecological pathologies: initial experience of Yaounde Gyneco-Obstetric and Pediatric Hospital, Cameroon

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Abstract

Introduction: Since described by Harry Reich in 1989, laparoscopic hysterectomy is increasingly practiced worldwide with little data in African publications.

Objective: we aim to review the epidemiological, clinical, and therapeutic aspects of patients who underwent first laparoscopic hysterectomy in a tertiary hospital in Yaoundé, Cameroon.

Materials and Methods: A descriptive cross-sectional study with retrospective data collection over a period of 3.5 years from January 1, 2019, to July 31, 2022, has been conducted. It included 32 patients who underwent laparoscopic hysterectomy for benign disease from the Gynecological Surgery Department of Yaoundé Gyneco-Obstetric and Pediatric Hospital (YGOPH). Gynecological malignancies

managed by laparoscopy have been excluded. Data were collected from the surgical registers and patients' files and analyzed with SPSS 26.0 software. A P value less than 0.05 was considered statistically significant.

Results: The frequency of laparoscopic hysterectomies compared to all cases of hysterectomies was 15.71% (44/280); among them 32 laparoscopic hysterectomies for benign disease (11.42%). The frequency of abdominal hysterectomy was 81.78% (229 cases) and vaginal hysterectomy was 2.5% (7 cases). The patient's median age was 49 (34-67) years. 96.87% of patients (31 cases) were above 40 years of age (y/a) and 59.37% (19 cases) were pauciparous. 46.87% (15 cases) of them were postmenopausal. 25% (8 cases) of patients had a history of abdominal surgery, 50% of which were a cesarean section. Half of our patients had a BMI ≥ 30 kg/m². The size of the uterus varied from 6 weeks to 15 weeks and was less than 8 weeks in 20 cases (62.5%). Cervical dysplasia was the main indication for surgery in 16 cases (50%), followed by symptomatic myomas in 12 (37,5%). The average operative time was 98.72 ± 49.42 minutes (55min – 240min), the average blood loss was 173 ± 99 cc and the postoperative length of stay was 2.80 ± 1.38 days. There was no conversion to laparotomy but two patients presented urogenital fistulas secondary to ureteral lesions which were successfully treated by the urologists.

Conclusion: At the YGOPH laparoscopic hysterectomy for benign gynecological pathologies represented 15.71% of all hysterectomies. Approximately 60% of patients are at least 40 years of age. The two main indications for surgery were respectively cervical dysplasia and symptomatic myomas. Complications are rare but are severe.

Key words: Benign gynecology; Cameroon; Gynecology operation; Hysterectomy; Laparoscopy

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Introduction:

In Women, after cesarean section, hysterectomy is the most performed surgery in the world (1–3). It is defined as the surgical removal of the uterus. In 90% of cases, it is performed for benign indications, including uterine fibroids, abnormal uterine bleeding, endometriosis, and precancerous lesions of the cervix (4). Several approaches are known today, including the vaginal and laparoscopic routes which are considered to be minimally invasive procedures. The latter are increasingly used in developed countries. Indeed, several learned societies currently recommend the vaginal route in the management of benign pathologies and in the event of a relative or absolute contraindication to the latter, they recommend the laparoscopic route (5). Since the choice of approach is not standardized, these societies have developed decision-making algorithms to help practitioners. These take into consideration the size of the uterus, the vaginal access, and the type of pathology. Also, factors such as physician preferences (training, experience) and availability of resources (facility, equipment, support) are important for decision-making (6). In Finland, 32% of hysterectomies are now performed laparoscopically (7). Similarly, a study carried out in the United Kingdom in 2017 showed that the percentage of hysterectomies performed by laparoscopy had increased from 20.2% in 2011 to 47.2% in 2017 (8). In Africa, the laparoscopic route is still poorly practiced (3.92%) (9–11). Indeed, it was in the 2000s that Cameroon embarked on the practice of laparoscopic hysterectomies (12). At Yaoundé Gyneco-Obstetrics and Pediatric Hospital (YGOPH), the first laparoscopic hysterectomy was performed in 2019. Given the advent of this method in our environment, the current study was conducted with the aim of knowing what were the epidemiological and clinical profiles of

patients undergoing laparoscopic hysterectomy for benign gynecological pathology.

Material Method:

This is a descriptive cross-sectional study with retrospective data collection over a period of 3.5 years from January 1, 2019, to July 31, 2022, in the gynecology department of YGOPH. It included patients of any age, with a benign gynecological pathology in whom a total hysterectomy by laparoscopy had been performed and whose medical file was complete. It excluded patients who had undergone a subtotal hysterectomy and those whose anatomopathological examination of the surgical specimen returned with the diagnosis of cancer.

For each file, the socio-demographic, clinical, and paraclinical data of the patients have been collected. The primary endpoints were age, parity, menopausal status, history of abdominal surgery, and surgical indication. The size of the uterus was estimated on ultrasound in centimeters. The secondary endpoints were the duration of the operation, the volume of intraoperative blood loss, the postoperative length of stay, the intraoperative complications, and complications during the first 3 postoperative months. Pre and perioperative characteristics have also been recorded. Operative time was defined as the period from incision to complete closure, excluding room and anesthesia time. Blood loss was estimated by suction container contents with irrigation fluid subtracted.

Data were recorded and analyzed with SPSS 26.0 software. Means (\pm SD), frequencies (%), and ranges were used to describe population characteristics and outcomes. A $p < 0.05$ value was considered statistically significant. The

research ethics committee of Yaoundé Gyneco-Obstetric and Pediatric Hospital (YGOPH) approved the study protocol (N° 317/CIERSH/DM/2022).

Results:

During the study period, 280 hysterectomies have been recorded, of which 44 were

performed by laparoscopy with 32 cases for benign pathologies, giving a frequency of 15,71% (**Figure 1**).

The pre operative and peri operative characteristics of the women who underwent total laparoscopic hysterectomy (TLH) are presented respectively in **Table 1** and **Table 2**.

TABLE 1: PREOPERATIVE CHARACTERISTICS

Variables	N=32	percentage (%)
Age		
Group		
[30 – 35[	1	3.1
[35 – 40[	0	0
[40 – 45[	9	28.1
[45 – 50[	7	21.9
≥ 50	15	46.9
Mean	50.15 ± 8.71 (34 – 67)	
Median	49	
Parity		
[0 – 1]	9	28.12
[2 – 4]	13	40.63
[5 – 10]	10	31.25
Postmenopausal		
Yes	15	46.9
No	17	53.1
Previous surgery		
Yes	8	25
No	24	75
Comorbidity		
No	13	40.63
Hypertension	8	25
HIV	3	9.37
Obesity*	8	25
Uterine size (cm)		
< 8	15	46.88
[8 – 12[	14	43.75
[12- 16[	3	9.37
Hysterectomy indication		

Cervical dysplasia	16	50
Symptomatic myoma	12	37.5
Endometrial hypertrophy	1	3.1
Adenomyosis	1	3.1
Endometrial polyp	1	3.1
Uterine prolapse	1	3.1

*IMC \geq 30kg/m²

TABLE 2: PERIOPERATIVE CHARACTERISTICS

Variables	N=32
Estimated blood loss (mL)	173 \pm 99 (100 – 0)
Duration of surgery (min)	98 \pm 49 (55 – 240)
Additional procedures	1
Mc Call	1
culdoplasty	1
Rectal endometriosis	
Shaving	
Umbilical hernia repair	
Blood transfusion	0
Complication	0
Ureteral lesion	2
Length of hospitalization (days)	2.8 \pm 1.38 (2 – 4)

The median age of patients was 49 (34-67) years. In 96.87% of cases, patient's age was at least 40 y/o. 46.9% of them were postmenopausal (Table 1).

25% of operated patients had a history of abdominal surgery and in half of the cases, it was

a history of caesarean section. 25% of our patients had a BMI \geq 30kg/m². 53.12% of patients had a uterine size greater or equal to 8 cm among which three cases (9.37%) greater or equal to 12 cm.

The main indications for hysterectomy were precancerous lesions (50%) followed by symptomatic myomas (29%) (Table 2). Abnormal uterine Bleeding was the leading symptom representing 46,87% of cases (leiomyomas, endometrial hypertrophy and polyps, adenomyosis).

The mean estimated blood loss and postoperative hospital length of stay were respectively 173 \pm 99mL and 2.80 \pm 1.38 days. The procedure lasted 98 \pm 49 minutes on average.

Two patients were readmitted for watery vaginal discharge, which revealed to be ureteral lesion after dye test. Both lesions were in the right side. Thus, the total rate of complication was 6.25% (2 patients)

The follow-up of the patients during the three months after the operation was unremarkable.

Discussion:

With advances in medical technology, equipment, and training, the practice of

hysterectomy has been revolutionized by laparoscopy. In our study, 280 hysterectomies were performed, of which 81.78% were abdominal, 15.71% laparoscopically (11.42% for benign disease), and 2.5% by vaginal route. The trend observed in Cameroon (13), South Africa (14), Hong Kong (15), China (16) and India (17) showed that laparoscopy was the third surgical route after the abdominal and vaginal route. According to the Canadian Society of Obstetricians and Gynecologists and other authors, in case of benign conditions, the vaginal route should be recommended and preferred whenever possible followed by laparoscopy because of morbidity associated with the abdominal route including longer recovery time, longer hospital stay, higher per operative blood loss, more pain and postoperative infection (5-18-19-20). Due to the lack of a national hysterectomy registry or a nationwide analysis of hysterectomies, it is difficult to assess the trend in the practice of laparoscopic hysterectomy in Cameroon. But it would seem that since the first cases of hysterectomy published by Belley (12), the practice has been on the rise.

In our study, the mean age of the patient was 50.15 ± 8.71 years, which correlated with other studies: 47 ± 6.7 years; 49.1 ± 9.0 years; 48 ± 9.9 years (12-13-17). This mean age can be explained by the fact that it represents a perimenopausal period, in that age group surgeons generally propose a radical treatment for the management of benign pathology. A younger average age of 34 y/o was found by Shekar in India (21). He did attribute this to the fact that in the cultural environment, women often self-select to get rid of their health problems after they have had the desired number of children, all of whom have survived to a certain age.

In our study, 71.88% of women had at least two children. This result is similar to that of

Aboufotouh et al in Qatar and Sudhev et al in Thailand who also found a majority of pauciparous in their study (22 - 23).

In the current study, the main indication of hysterectomy was severe cervical dysplasia in 50% of cases, followed by symptomatic leiomyoma in 37.5% of cases. The predominance of cervical dysplasia can be explained by the opening of a gynecological oncology service in our hospital and daily cervical cancer screening during the study period. This result is in contrast with most studies that find that leiomyomas are the main indication for laparoscopic hysterectomy (12, 13, 16, 17, 24). In Germany, Stang showed that the treatment of myomas was a hysterectomy in 60% of cases (25). We think that this attitude should only be considered for symptomatic myomas in a woman who no longer wishes to have children and for whom other therapeutic options have failed. In cases of myoma or other pathologies such as adenomyosis, the excess uterine volume represented a limit to the laparoscopic approach. In addition, since the warning statement of the FDA on the use of power morcellation in the case of myomectomy and hysterectomy, patient must be carefully selected (26).

More recently, numerous studies have shown that obesity, previous surgery, and a large uterus are no longer limiting factors for laparoscopic hysterectomy (27, 28, 29). There is no consensus definition of a large uterus. The American College of Obstetricians and Gynecologists (ACOG) considers 280g or 12 Weeks as a cut-off value for definition (30). Our study found a history of a cesarian section in 12.5% of cases, obesity in 25% of cases, and only 3 patients (9,37%) had a uterus size greater than 12 weeks. However, for young gynecologists starting laparoscopic hysterectomy in low-resource income as in our case, all the above limiting factors must be taken

into account due to the fact that we are almost lacking adequate resources and sometimes additional procedures have to be carried out; this may extend the duration of the operation and lead to complications.

Total laparoscopic hysterectomy is well known to be safe and effective with a complication rate of 0.52% to 6.2% (31,32, 33, 34, 35). This is in line with the current study, where we found a total rate of complications at 6.25%. In contrast, some studies showed a high complication rate of around 11.1% and the inexperience of surgeons was the main explanation (36). To decrease the complication rate, Garry and Twijnstra suggested that surgeons need to perform 25 cases to complete the learning curve (37). For Terzi, the learning curve can also be measured by the reduction in operating time, even if some factors can affect the difficulty of the surgery, such as a large uterus, previous pelvic surgery, and high body mass index (35). In low-income countries, inadequate or defective surgical equipment can affect the learning curve. The two cases of ureteral injury in the current study did occur respectively in the third and fifth cases of total laparoscopic hysterectomy. Both patients were successfully surgically managed by the urologic surgeons. We did not have any conversion to laparotomy; however, the rate of conversion can reach 6.6% and is most often found at the Total laparoscopic hysterectomy is increasingly being performed in our department representing 15.71% of all hysterectomies. The current study presents our initial experience with 32 cases of benign pathologies. Approximately 60% of patients are at least 40 years old. The two main indications for surgery are respectively cervical dysplasia and symptomatic myomas. All patients

beginning of the learning phase even if it is not rare to find it after having completed the learning curve (34, 38).

The mean operating time in our study was 98 minutes (55-240 minutes) which correlated with other studies (35, 39). But it may be longer if there is an additional procedure or factors that may affect the difficulty of the surgery. We performed three additional procedures: rectal endometrial shaving, an umbilical hernia repair, and a McCall culdoplasty for uterine prolapse.

The advantages of the laparoscopic approach are less blood loss, lower transfusion rates, better cosmetic results, lower rates of adynamic ileus, faster return of bowel function, and overall faster recovery (40). In the current study, the average length of hospitalization was 2.8 ± 1.38 days (2-4 days) and the average blood loss was estimated at 173 ml (100-250). A recent report also featured the safety and feasibility of outpatient total laparoscopic hysterectomy options for carefully selected patients even in the presence of obesity, leiomyomas, severe adhesions, or endometriosis (41, 42, 43).

The major limitation of our study was the retrospective design.

Conclusion:

underwent total laparoscopic hysterectomy with a complication rate of 6.25%. This study demonstrates that even if it requires a learning curve, laparoscopic hysterectomy is a feasible and safe procedure in low-resource income settings where surgical instruments are frequently inadequate.

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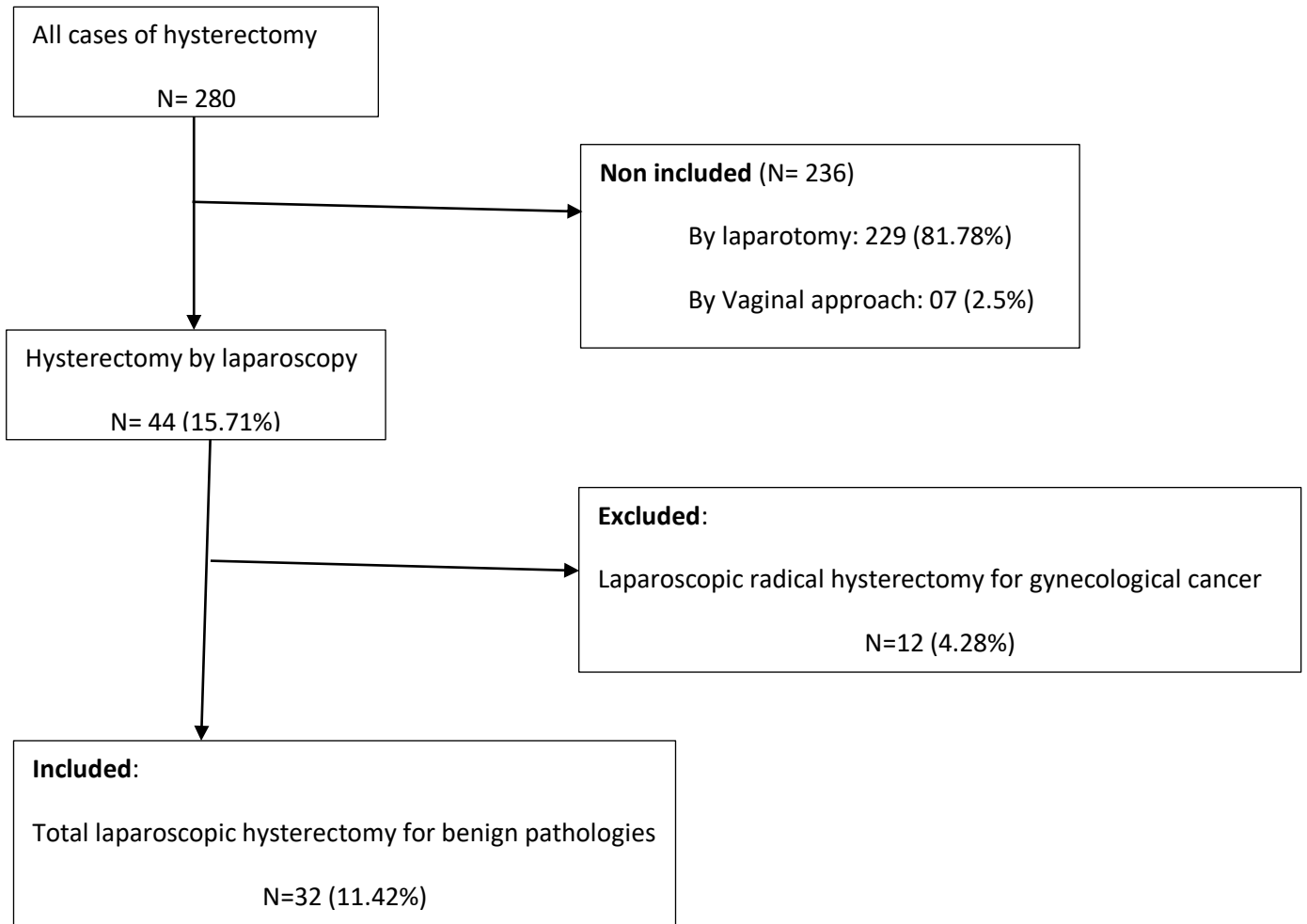


Figure 1: Distribution of all cases of Hysterectomies



Laparoscopic approach in the management of interstitial ectopic pregnancies: A report of four challenging cases in Yaounde Gynaeco-Obstetric and Pediatric Hospital, CAMEROON

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Abstract

Introduction: Interstitial ectopic pregnancy is a rare form of ectopic pregnancy, representing 2 to 4% of ectopic pregnancies. It occurs when the embryo implants in the intramural portion of the fallopian tube. There are no current guidelines to decide between medical or surgical approach. Due to the high vascularity of the interstitial portion and thus the risk of cataclysmic hemorrhage, it is recommended to surgeons with little experience in laparoscopic surgery to perform laparotomy, although there is a debate on which route to choose between laparoscopy and laparotomy.

Objective: we present five cases of interstitial pregnancies, successfully managed by laparoscopic cornual resection with good control of hemostasis achieved by intracorporeal encircling suture around the cornual mass.

Cases presentation: Four cases of interstitial pregnancies were successfully managed by laparoscopy. None of ultrasonographic features was clearly in favor of interstitial pregnancy. Gestational ages were between 7 and 11 weeks. The average duration of surgery was 55 minutes. Cornual resection was performed in all cases after intracorporeal purse-string suture around the cornual mass acting like a tourniquet. Blood loss related to the procedure was on average 125 ml.

Conclusion: Interstitial pregnancy is a challenge for clinicians to make accurate diagnosis and adequate treatment. Laparoscopic approach with purse-string suture technique to control bleeding is suitable alternative to laparotomy and is ideal for surgeons skilled with principles of laparoscopic surgery and suturing.

Key words: Ectopic pregnancy; interstitial pregnancy; laparoscopy; purse-string suture; cornual resection.

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Introduction:

The implantation of embryo outside the normal endometrial cavity is described as ectopic pregnancy. When this occurs in the intramural portion of the fallopian tube, it is called interstitial pregnancy; this condition accounts for 2 to 4% of ectopic pregnancies (1,2). However, the exact incidence of interstitial pregnancy is difficult to assess due to its rarity and varying definitions used in the literature.

The term cornual pregnancy is often used interchangeably with interstitial pregnancy by some clinicians (3). However, the term cornual pregnancy should be reserved for pregnancy occurring in a congenitally abnormal uterus. The list of such malformations includes rudimentary uterine horn, bicornuate uterus, unicornuate uterus, the cornual region of a septate uterus or a uterus didelphys (2,4). Interstitial pregnancy sometimes is mistakenly referred to as angular pregnancy which is pregnancy where the embryo implants in one of the lateral angles of the uterine cavity, medial to the utero-tubal junction but outside the fallopian tube.

Interstitial ectopic pregnancy is a high-risk situation which can be life threatening. In fact, because of a large vascular network in this region, in the event of rupture the bleeding can be cataclysmic. The diagnosis must therefore be early done for an adequate management. Traditionally, laparoscopy was the gold standard for the diagnosis of ectopic pregnancy (5). However, currently, the widespread availability of transvaginal ultrasound and rapid assays for serum β -hCG has largely made the use of laparoscopy for diagnostic purposes an obsolete practice. There are no current guidelines to decide between medical or surgical approach. But when it is decided to do the surgery, laparoscopic approach seems to be ideal for surgeons skilled in laparoscopic knotting

techniques. We present the Yaounde Gynaeco-Obstetric and Pediatric Hospital's experience in laparoscopic management of four cases below.

Material Method:

Four patients were diagnosed with ectopic pregnancy and underwent laparoscopic surgery for their management. All of the operations were performed by experienced surgeon under general anesthesia with endotracheal intubation, in lithotomy position with continuous vital signs monitoring.

In all cases, direct entry with trocar was performed and the abdomen was inflated with CO₂. To control the hemostasis, we performed systematically intracorporeal purse-string suture around the cornual mass with Vicryl 1 before the dissection. For cornual resection, blunt and sharp dissection of the cornua was performed with either a monopolar hook or scissors. In some case, we used bipolar energy to reinforce hemostasis. After cornual resection, the uterus was sutured with 2 to 4 simple stitches depending on the length. The operative part was introduced into an endobag, then divided into it by scissor before being extracted through a 12 mm trocar. Blood was extracted into an external reservoir to allow its quantification.

Results:

Case 1

A 30-year-old patient with one previous pregnancy ended by miscarriage and past history of pelvic inflammatory disease and chronic use of morning after pill, was admitted to the emergency unit with acute lower abdominal pain without any other associated symptoms in a context of seven weeks of amenorrhea. She presented with blood pressure of 118/84 mmHg

and good general state. Abdominal and pelvic examination did not revealed signs of peritoneal irritation. At vaginal examination, there was mild cervical tenderness. Emergency ultrasound revealed right adnexal mass, an empty uterus and no fluid collection in the pouch of Douglas. Laboratory test showed serum β -hCG level of 17 832.71 mUI/ml.

We suspected an unruptured ectopic pregnancy and the patient underwent an emergency laparoscopic surgery, showing an unruptured right interstitial pregnancy of 4cm (Figure 1).



Figure 1: Laparoscopic view of right unruptured interstitial ectopic pregnancy with encircling suture around the mass

We performed a right cornual resection according to the operating procedures described above. The blood loss associated with cornual resection was estimated at 50 ml.

The duration of the intervention was 55 minutes. the patient was discharged after 24 hours of hospitalization. the postoperative period was unremarkable. She had a twin pregnancy 7 months after the surgery and gave birth by cesarean section at 37 weeks.

Case 2

A 20-year-old patient, who was experiencing her first pregnancy, was referred to the emergency obstetric department with acute pelvic pain in the past 24 hours, at 10 weeks of gestation without any other associated symptoms. Her past history was unremarkable.

Her assessment on arrival showed blood pressure of 90/50 mmHg, pulse of 140 ppm and mild pallor; abdominal and pelvic examination revealed guarding and tenderness while vaginal examination showed cervical tenderness with fullness in posterior fornix. Culdocentesis brought back non-clotting blood. Because the patient conditions were worsening, ultrasound was not performed and we did not wait for the results of laboratory before entering the operation room. The resuscitation measures (Crystalloids, plasma expanders and blood transfusion) were immediately initiated by the anesthetists to stabilize the patient and this allowed us to perform an emergency laparoscopy. We found 2000 ml of hemoperitoneum and after aspirating it with a 10 mm canula, we discovered an actively bleeding left ruptured interstitial ectopic pregnancy. Cornual resection was perform according to the operating procedures described above (Figure 2).



Figure 2: left ruptured interstitial ectopic pregnancy while controlling hemostasis with suture around the mass

The blood loss associated with cornual resection was estimated at 100 ml.

The duration of the intervention was 92 minutes. The patient was discharged after 72 hours of hospitalization with hemoglobin level of 9.8 g/dl after she received 1500 ml of blood. She could not follow serum β -hCG level due to financial problems. The postoperative period was unremarkable.

Case 3

A 32-year-old patient, gravida 4, para 3 with three normal vaginal deliveries and past history of regular morning-after pill use, was admitted in the emergency unit for acute lower abdominal pain and vaginal bleeding in the past 24 hours. She presented 10 weeks of amenorrhea with a positive urine pregnancy test.

On arrival, the clinical examination was unremarkable apart from pain when the cervix was mobilized on vaginal examination. Transvaginal ultrasound was immediately performed and revealed a non-pregnant uterus with a left adnexal mass of 43mm suggesting an unruptured ectopic pregnancy of 9 weeks 6 days. Laboratory tests showed a serum β -hCG level at 20 893,87mUI/ml, which confirmed an ectopic pregnancy. The patient underwent emergency laparoscopy with cornual resection (Figure 3 and Figure 4).

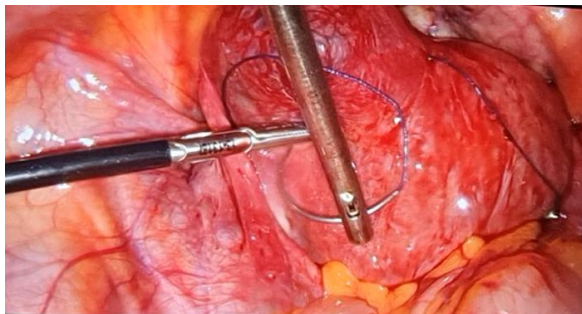


Figure 3: Controlling hemostasis with suture around the mass before cornual resection of a left unruptured interstitial ectopic pregnancy

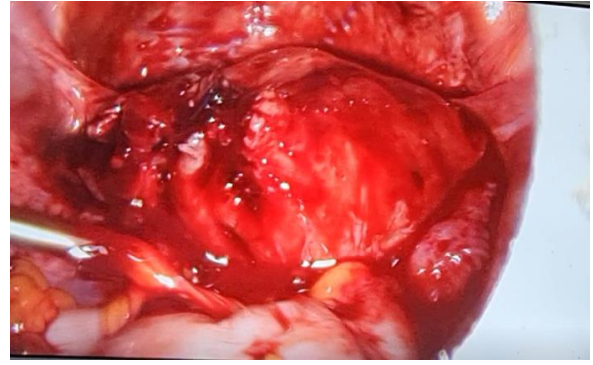


Figure 4: Final view after cornual resection and ipsilateral salpingectomy

The operation lasted 1 hour and the blood loss associated with the cornual resection was evaluated at 250 ml. she was discharged after 48 hours and the postoperative period was uneventful. β -hCG levels showed a decreasing trend and became negative after 2 weeks.

Case 4

A 21-year-old woman, gravida 2, para 1, 10 weeks 3 days amenorrhea, was addressed by her gynecologist for laparoscopic management of an unruptured ectopic pregnancy. She presented to him with vaginal bleeding in the past 2 days with amenorrhea. Transvaginal ultrasound showed a right non-ruptured tubal ectopic pregnancy (Figure 5) and β -hCG level was at 7 375,65 mUI/ml.

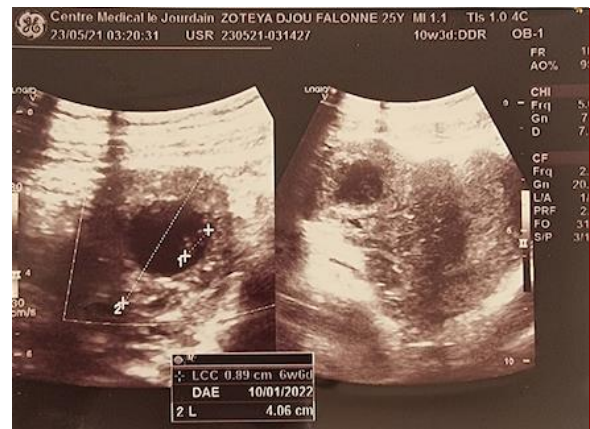


Figure 5: Ultrasonographic view

Her Fernandez score was assessed at 13, indicating the necessity of surgery for her management. She underwent laparoscopic surgery and we found unruptured right interstitial pregnancy which required cornual resection and ipsilateral salpingectomy according to our protocol (Figure 6). The surgery lasted 65 minutes and blood loss was 100 ml. she was discharged after 24 hours.



Figure 6: Laparoscopic view of suture surrounding the mass

Discussion:

Interstitial pregnancy occurs in the intra mural portion of the fallopian tube, being 0.7mm wide and 1 to 2 cm long (1). The vascularization network of this area is rich, originating both from ovarian vessels and uterine artery. Even if it is thought that rupture occurs usually as late as after 12 weeks (1), this can happen earlier. In the presented data, rupture presented at 6 weeks in case number 2 with 2000 ml of hemoperitoneum, although the fact that myometrial distensibility tends to allow this pregnancy to present late. Because of cataclysmic hemorrhage, maternal mortality rate associated with ruptured interstitial pregnancy is 2 to 3% (6).

Ipsilateral salpingectomy appears to be the risk factor that is unique to interstitial pregnancy (7).

Other risk factor includes uterine anomalies, past pelvic inflammatory disease, previous tubal and pelvic surgery, the use of assisted reproductive techniques and ipsilateral salpingectomy. In our case, risk factors found were Pelvic inflammatory disease (case 1), the use of morning after pills in two patients (case 1 and 3).

No risk factor was found in two cases. The diagnosis of interstitial pregnancy is a dilemma with many pitfalls. The difference between an interstitial pregnancy and an eccentrically located intrauterine pregnancy can be ambiguous (8). The use of transabdominal and transvaginal ultrasound to identify an empty uterus, a gestational sac seen less than 1 cm from the lateral edge of the uterine cavity, a thin myometrial layer surrounding the sac, and the presence of the interstitial line sign has been reported to improve the rate of diagnosis (9). The interstitial line has 80% sensitivity and 98% specificity for sonographic diagnosis of interstitial pregnancy. This important ultrasound diagnostic criterion is described as an echogenic line that extends into the upper regions of the uterine horn and borders the margin of the intramural gestational sac (8). Mapping of location of the pregnancy with three dimensional multiplanar sonography is a recent technique with more accuracy because it can more clearly delineate the intramural portion of the fallopian tube as it traverses the myometrium (10). Although much more accurate in the diagnosis of an early interstitial pregnancy than other imaging modalities, the higher cost of MRI makes it most appropriate for evaluation of cases in which ultrasound scans have been inconclusive (11). In our series, ultrasound was applied in 3 cases and none of them clearly demonstrated interstitial pregnancy. This highlights the difficulty to diagnose interstitial pregnancy in our setting and the fact that radiologists have to be trained in an attempt to improve diagnostic accuracy. In our

experience, laparoscopy is still reliable diagnostic tool, because it corrected the ultrasound diagnosis in all cases.

There are various medical and surgical treatment modalities for interstitial pregnancy. Although treatment with methotrexate requires a certain period of time with a potential risk of uterine rupture, the success rate of medical treatment varies from 70% to 90% according to some authors (12, 13, 14). It seems that gestational sac with a diameter greater than 2 centimeter is associated significantly with failure of non-surgical treatment (12) which is contraindicated in cases of heterotopic pregnancy with intrauterine pregnancy and interstitial pregnancy (15).

Traditionally, surgical treatment was performed by laparotomy with cornual resection or hysterectomy. Today, laparoscopy is the gold standard for treatment in ectopic pregnancy. In case of interstitial pregnancy, laparoscopic techniques involve cornuostomy as conservative method and cornual wedge resection plus salpingectomy for radical treatment (16). According to Tulandi (17), cornuostomy is appropriate for gestational sac diameter less than 3.5 cm, whereas Grobman and Milad (18)

Interstitial pregnancy is a life threaten situation which is fortunately a rare event. It poses a real diagnostic and therapeutic challenge. Control of the bleeding and removal of the ectopic pregnancy are the most important surgical principles. Laparoscopic approach with purse-

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recommended cornual wedge resection when this diameter is more than 4 cm.

In our series, all patient underwent laparoscopic wedge resection and retrograde ipsilateral salpingectomy instead of conservative technique. Rupture occurred in two patients, so it was reasonable for us to be radical. For the three remaining unruptured cases, remaining conservative would require monitoring of Beta HCG while patients are economically limited, with a non-negligible failure rate given the size of the gestational sac. Even in women with significant hemoperitoneum, laparoscopic surgery can be safely conducted by experienced laparoscopic surgeons if hemodynamic stability is achieved by preoperative management (19). In our series, Laparoscopy lasted an average of 64.4 ± 16 minutes and purse-string suture around the mass was performed in all cases and blood lost due to this procedure was 130 ± 75 ml. Several hemostasis techniques using expensive equipment have been described in the literature (20, 21, 22). With a simple suture and skill in laparoscopic suturing principles, surgeons can realize purse-string suture to control the hemostasis, making the procedure becoming near bloodless.

Conclusion:

string suture technique to control bleeding is suitable alternative to laparotomy and is ideal for surgeons skilled with principles of laparoscopic surgery and suturing.

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A Rare Case of *En Bloc* Endometrium Shedding

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Abstract

The human endometrium is a unique tissue capable of repeated degradation, loss and self-repair in response to fluctuating levels of sex steroids, in a tightly regulated process. It takes place hundreds of times in a woman's lifetime, manifesting as vaginal expulsion of blood mixed with cellular debris for a period of several days. The aim of this work is to present a case of *en bloc* endometrial desquamation in a teenage patient using combined oral contraception. Several mechanisms are proposed, although further studies are needed to better understand this extremely rare phenomenon.

Key words: *en bloc* endometrial desquamation, endometrial physiology, endometrial self-repair, endometrium, menstruation.

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Introduction:

Endometrial renewal, as part of the menstrual cycle or following transient withdrawal of exogenous hormones, is a complex and finely tuned process that ensues in response to a decline in serum progesterone and estrogen levels. Under the influence of several cell types, proteolytic enzymes and their mediators, focal tissue degradation and loss precede scar-free regeneration of the outer functional endometrium from basal layer stem cells [1,2]. Desquamation and repair is thought to occur in a discontinuous manner, with areas of shed endometrium coexisting with intact tissue as well as completely repaired epithelium, allowing for a gradual regeneration of the uterine lining over several days [3]. As far as the authors are aware, no cases of *en bloc* endometrial shedding had been reported until now.

Case Report:

A healthy, 18-year-old nulliparous woman anxiously presented to the Emergency Unit after light vaginal bleeding followed by uterine cramping and passage of a pinkish tissue per vagina, which she believed to be an embryo. Despite reporting correct usage of a low dose combined oral contraceptive (in a 21-day regimen) coupled with a barrier method, her monthly withdrawal bleeding was 7 days late. She denied other symptoms or ongoing medication. On examination, the uterus was not enlarged or tender, and there were no palpable masses. Light uterine bleeding was noted on speculum examination. Transvaginal ultrasound revealed a normal uterus with empty cavity and maximal endometrial thickness of 4 mm, as well as normal ovaries with no evidence of pathological adnexal masses. Her serum beta-human chorionic gonadotropin level was <0,6 mUI/mL. On closer inspection, the expelled tissue appeared triangular, similar in size to the uterine cavity, consistent with an entire endometrial leaflet extending from both cornua uteri (*) down to the isthmus (+) [Figure 1]. The pathology report described it as regular decidualized secretory endometrium with

interstitial haemorrhage, without gestational components or Arias-Stella reaction. The patient resumed regular withdrawal bleeding the following month, with no recurrences since.

Discussion:

The mechanisms and implications of *en bloc* endometrial shedding are unclear. It is well established that menstruation is the shedding of cellular debris and uterine bleeding that occurs following the degradation and breakdown of the functional layer of the endometrium in response to the decline in progesterone and oestrogen at the end of the menstrual cycle, or a result of withdrawal of exogenous hormones in combined oral contraceptive users [1].

Immediately before menstruation occurs, the endometrium is composed of two layers: an outer *functionalis* layer — formed by a superficial, compact columnar epithelium (*stratum compactum*) overlying a multicellular stroma (*stratum spongiosum*) composed of loose connective tissue, fibroblasts, leukocytes, glands, and spiral arterioles — and a deeper basalis layer, containing networks of glands, vessels and epithelial and mesenchymal stem-cells needed for endometrial regeneration and repair [2,4]. When serum progesterone levels drop, upregulation of NF- κ B transcription factor in stromal cells leads to the release of proinflammatory cytokines and chemokines and the production of matrix metalloproteinases (MMPs) by recruited leukocytes and stromal cells [4]. The MMPs have a critical role in the menstruation process by degrading cellular membranes and other components of the extracellular matrix, and their actions are kept in check by the presence of TIMPs (inhibitors of metalloproteinases) [5]. In addition, lysosomal enzymes released by stromal cells also contribute to the damage of cellular membranes and intercellular cadherins [6]. The MMP deregulation or impaired function of lysosomal enzymes could hypothetically lead to an abnormal destruction of the extracellular matrix with an intact *stratum compactum*, resulting in

the pattern of delayed, *en bloc* shedding that occurred in our patient.

Moreover, progressive breakdown of the *functionalis* layer is usually accompanied by disruption of the arteriolar vascular system at the natural cleavage plane between the basal layer and the *stratum spongiosum*, leading to subepithelial interstitial haemorrhage and eventual collapse and shedding of the stroma. This process has been shown to happen in a piecemeal manner across the endometrial cavity, with completely denuded areas coexisting with unshed endometrium as well as newly repaired surface epithelium, as described by Garry *et al.* in an enlightening hysteroscopic study of the stages of menstruation [3]. This staged shedding appears to confer a survival advantage by limiting the extent of exposed endometrium at any one time, and consequently minimizing the risk of infection and preventing excessive blood loss. One proposed mechanism for this focal endometrial degradation is attributed to endometrial mast cells. These cells, which are spread throughout the *functionalis* layer, seem to upregulate MMP production by stromal cells and transform precursor MMPs into their active form through the action of tryptase [1], providing a local microenvironment propitious to focal shedding. Sudden and widespread interstitial bleeding at the cleavage plane between the endometrial basal layer and a

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practically intact *functionalis* layer (before significant degradation of its extracellular matrix has taken place) could potentially result in the entire shedding of the posterior or anterior endometrial surface. Another possible mechanism for this could reside in the absence or inactivity of endometrial mast cells, precluding focal degradation of the endometrium. Interestingly, the only regions of the endometrial cavity which never shed during menses are the isthmus and the areas around the tubal ostia, which appear to contribute to endometrial reepithelization [7]. These were also the limits of the endometrial tissue presented in our case, as marked by the "*" and "+" symbols. Finally, altered endometrial haemostasis has been associated with abnormal placentation, which is strongly linked to first trimester bleeding, abruption, and preterm birth [8]. It is unclear if our patient's isolated event would incur an increased risk of the above obstetrical complications in a future pregnancy.

Conclusion:

Further clinical and scientific experience are needed to shed light on the rare phenomenon of *en bloc* endometrial shedding, in order to clarify the possible mechanism behind it and the implications, if any, for these patients' reproductive health.

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Figure 1. Complete fragment of normal secretory endometrium shedded *en bloc* in a combined hormonal contraceptive user. Cornua uteri (*), uterine isthmus (+).



Novel Use of a Laparoscopic Round Ligament Flap with uretero-neocystostomy in Urinary Tract Endometriosis (Video)

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Abstract

Deep endometriosis of the urinary tract has an incidence of up to almost 15% in women with endometriosis(1). Most cases involve the bladder in 85% of women and up to 23% affect the ureter. (1)The rate of fistula after endometriosis surgery has been reported by several authors to be between 0-4.4 %. (2)(3) High risk endometriosis cases put women at risk of complications such as the fistula which appear to be related to extent of surgery especially concomitant opening of the bladder, ureter, or rectum and vagina. This video shows an alternative flap using the round ligament as a vascularized proximal interpositional flap for prevention of such complications after extensive urinary tract endometriosis resection. A left parametrectomy, vaginal nodule resection, ureteroneocystostomy, and round ligament flap is performed with a good postoperative result at 6 months. Traditionally, strategies to prevent fistula in high-risk endometriosis cases have employed the use of omental flap (4). We describe a minimally invasive technique using a round ligament flap after ureteroneocystostomy and vaginal nodule resection as an effective and safe alternative to the omental flap in urinary tract endometriosis

Key words: Endometriosis, Laparoscopy, Reproductive Surgery, Pelvic pain, Chronic pelvic pain, Urinary tract endometriosis

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Disclosures:

The authors declare that they have no conflicts of interest and nothing to disclose. This manuscript meets criteria for IRB exemption. No funding was received for this paper.

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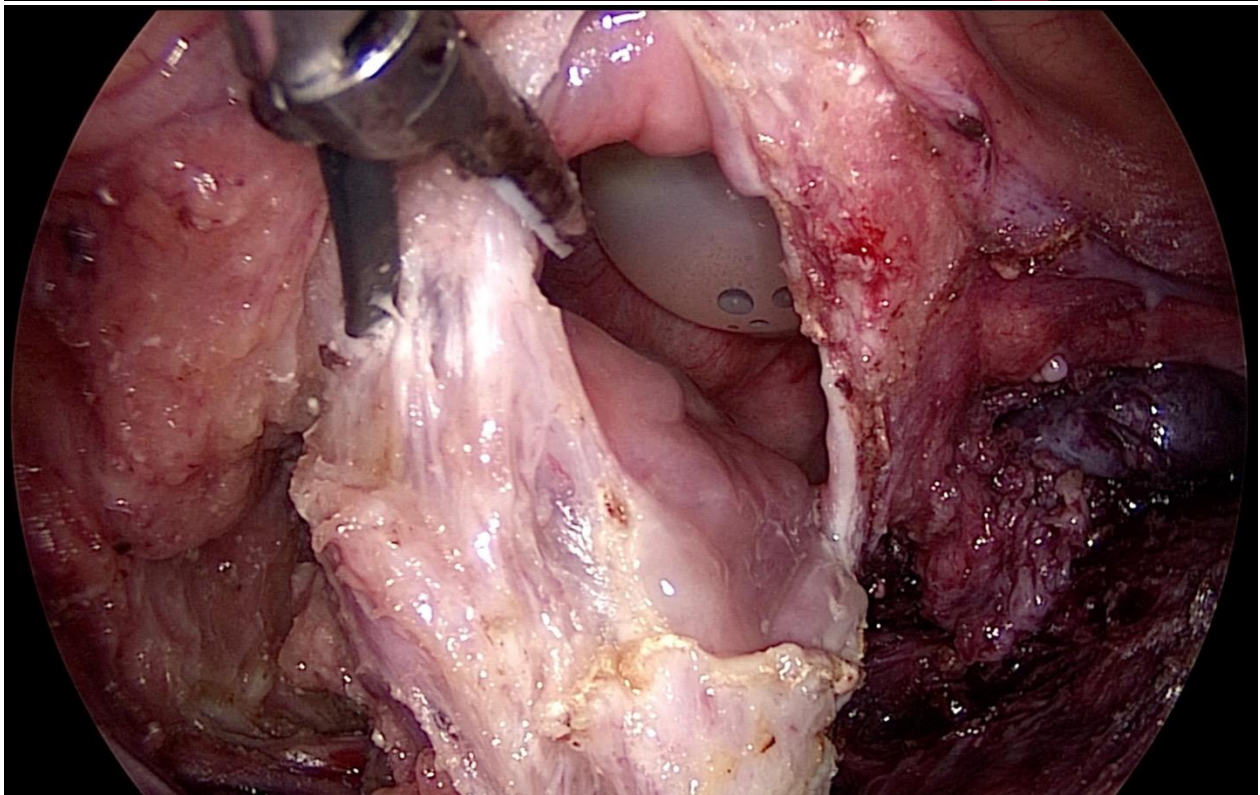
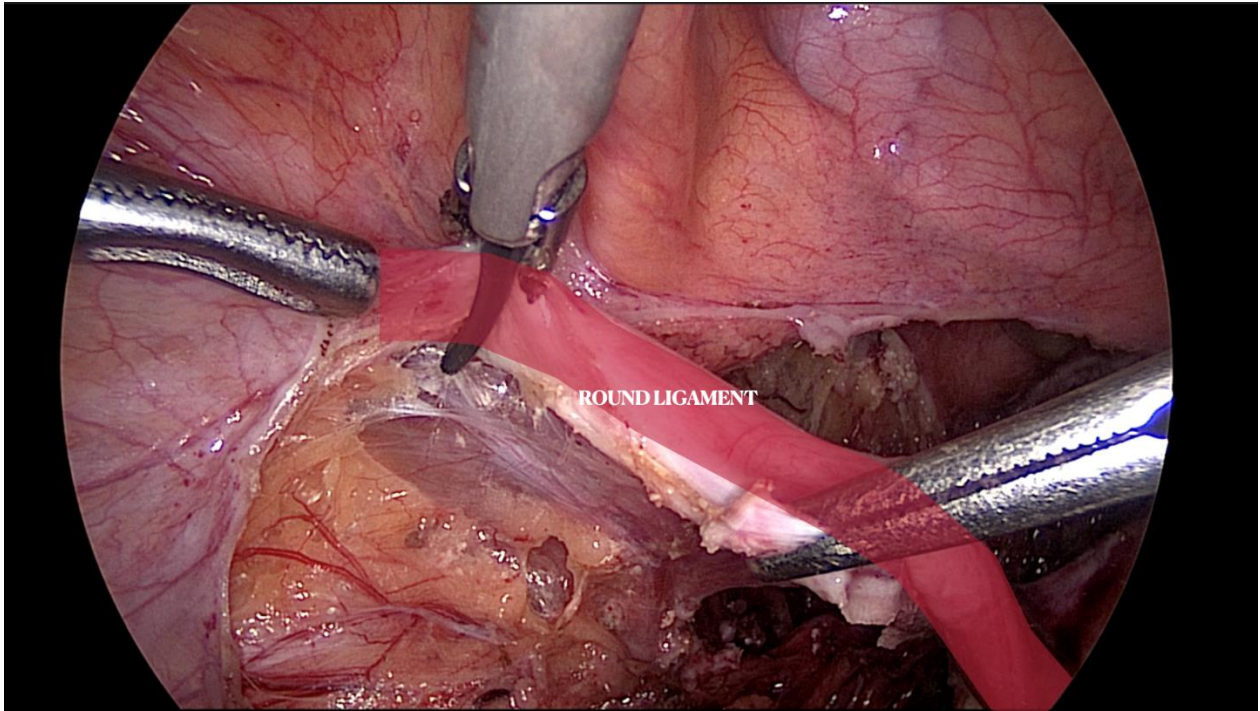
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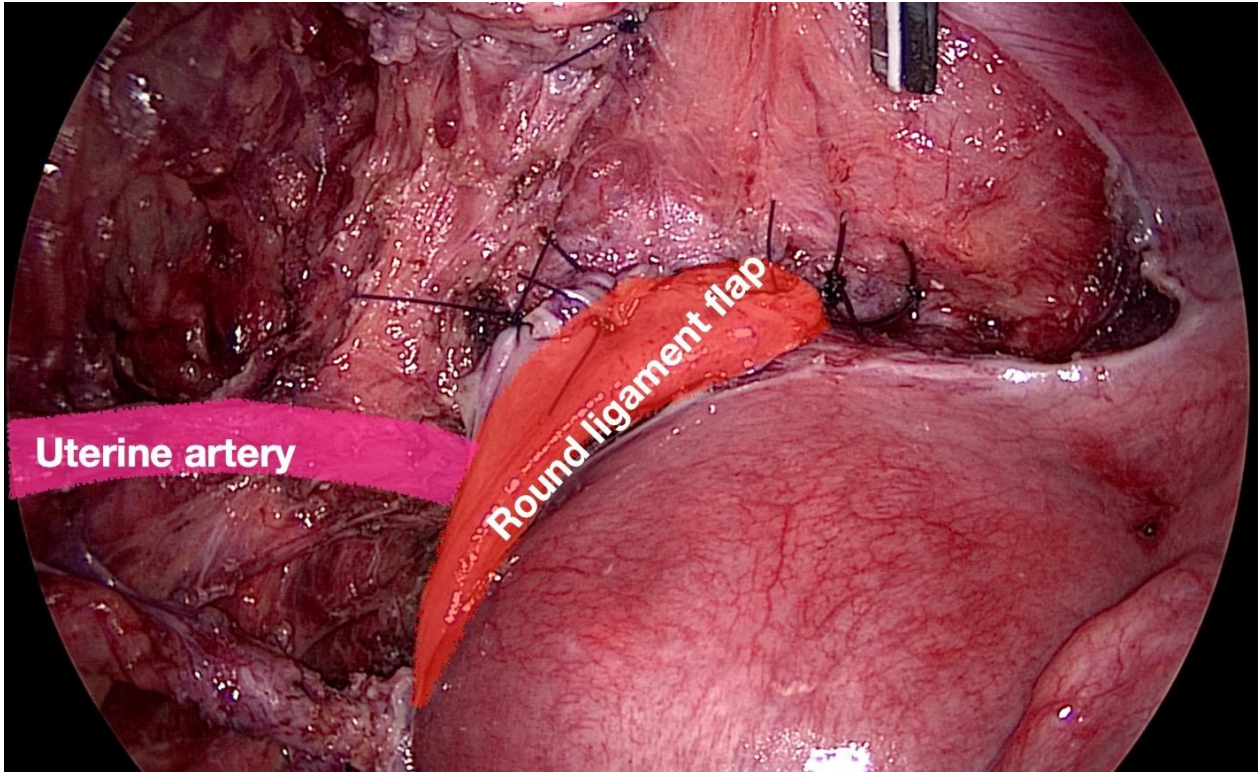
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Pictures:







Left ovarian vein thrombophlebitis in the postpartum period

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Abstract

Assessment of abdominal pain in puerperal women can be challenging given that physiological and often self-limited benign causes predominate in this clinical context, although the etiological spectrum is wide and includes serious and potentially fatal causes. The paper presents a case of left ovarian thrombophlebitis, clinically manifested from the fifth day of puerperium in a 30-year-old patient. Clinicians should have a high degree of suspicion of rare adnexal thromboembolic events in postpartum period when frequent symptoms (fever, pain) and analytical changes (leukocytosis, increased C-reactive protein) occur in association with the imaging findings of edematous ovary with vascular congestion, even if there are other possible explanations for such a clinical situation.

Key words: abdominal pain, left ovarian vein thrombophlebitis, ultrasonography, post-partum, puerperal complication

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Introduction:

Abdominal pain in puerperal women can be caused by common and self-limited causes, while a high degree of caution is required in order not to miss the diagnosis of conditions that occur during this period and can be life-threatening (1). Although it is important to consider that physiological changes occur and may mimic some pathological situations, the patient's complaints should not be lightly devalued and attributed to physiological changes alone without a detailed evaluation (1, 2).

Thromboembolic complications are more common in puerperal than in other apparently healthy women. Ovarian vein thrombosis (OVT), in particular may easily be overlooked, being infrequent clinical condition. The incidence of septic pelvic thrombophlebitis is estimated to be as low as 1/3000 deliveries (3, 4). This diagnosis should be considered when approaching a puerperal woman with abdominal pain. Although it has been more often reported on the right side, probably due to anatomical reasons, site variations cannot be ignored, as indicated by the even rarer cases of left-sided OVT presented here.

Case Report:

A 30-year-old G0P0 woman, with an unremarkable medical history and an uneventful pregnancy, had a spontaneous vaginal delivery at the gestational age of 40 weeks and 1 day, from which resulted a healthy male newborn, weighing 3750 g (Apgar score: 9 at the 1st and 10 at the 5th minute). During the first 4 days postpartum, the patient presented a normal evolution, but remained hospitalized to accompany the newborn submitted to phototherapy due to benign neonatal hyperbilirubinemia.

On the 5th postpartum day, she developed fever (maximum tympanic temperature of 39.8°C) and left pelvic pain. No other relevant symptoms or signs were identified. Laboratory assessment showed blood hemoglobin 9.7g/dL, leukocytosis ($16,06 \times 10^9/L$ with 88% neutrophils), elevated C-reactive protein (CRP; 157,5mg/L) and a urinary infection caused by *Streptococcus pyogenes* (sensitive to penicillin, clindamycin, and trimethoprim-sulfamethoxazole). Ultrasound revealed an endometrial cavity with non-vascularized 14-mm-thick amorphous content, edematous enlarged left ovary, apparently without pathological adnexal formations, and congested ovarian branches originating from left internal iliac artery (**Figure 1**). The mobilization of the left adnexa by ultrasound probe was very painful. There were no other relevant findings. Angio-CT visualized a vascular pathological process, interpreted as most likely a left ovarian vein thrombophlebitis with a partially permeable lumen (**Figure 2**). A diffuse densification and very little fluid involving the left ovarian vein (which had a reduced lumen caliber), in association with a small amount of free fluid on the left parietocolic gutter were observed. The left ovary was large and some reactive para-aortic and primitive iliac lymph nodes were identified (**Figure 2**).

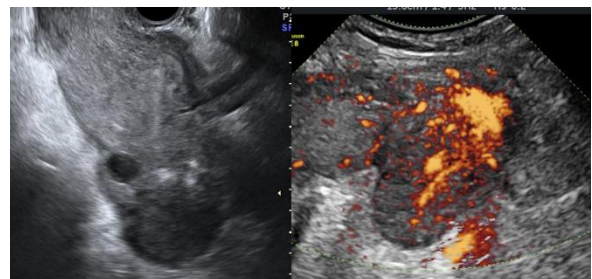


Figure 1. Sonographic gray-scale and power Doppler findings in patient with ovarian vein thrombosis. Gray-scale image of the left edematous ovary (*left*). Vascular engorgement (passive hyperemia) within left ovarian parenchyma visualized by power Doppler (*right*).



Figure 2. Computed tomography angiography scan of the pelvic region affected by left ovarian vein thrombosis. Axial section showing an enlarged left ovary, with prominent ipsilateral blood vessels (arrow); uterus (1); left ovary (2); right ovary (3).

The presumptive diagnosis of septic thrombophlebitis was accepted. The patient was medicated with low molecular weight heparin (LMWH; 60mg of enoxaparin every 12 hours) and intravenous antibiotics (ceftriaxone 1g once daily and metronidazole 500mg every eight hours). After 6 days, she was subjectively better while the fever had subsided. Blood cultures were negative. Antibiotics were suspended but LMWH was maintained. On the following day the patient was discharged, medicated with LMWH and acetylsalicylic acid 150mg/daily orally.

Additional ethological studies included searching for antiphospholipid syndrome, prothrombin and Leiden V factor anomalies, all of which were negative. From the autoimmune panel the only positive results were antinuclear antibodies (ANA) 1:160 and anti-extractable nuclear antigen (ENA) antibodies displaying a dense fine speckled pattern (DSF) 70.

The patient was counseled to stop the LMWH, but to keep taking acetylsalicylic acid and to maintain an active lifestyle. The patient's further evolution was favorable. Both ultrasound (**Figure 3**) and CT scans, performed 3 months later, demonstrated a complete resolution of the left ovarian vein thrombosis. She intended to move to another country, being advised to seek a medical appointment in the country she was moving to, in order to continue the etiological investigation and the follow-up.

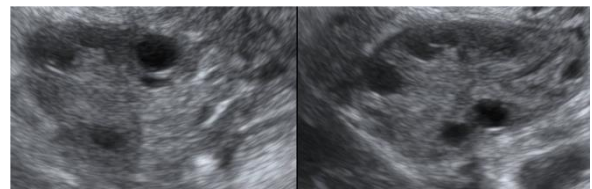


Figure 3. Ultrasound images of the left ovary (left) and right ovary (right), taken 4 months after ovarian vein thrombosis and showing normalization of the ovarian size and morphology.

Discussion:

Postpartum OVT is uncommon, occurring in 0.05% to 1.8% of vaginal deliveries and in 1 to 2% of cesarean sections (5, 6). Puerperal patients are physiologically in a prothrombotic state and so, their risk of thrombosis is significantly higher when compared to a non-pregnant patient. The relative risk for venous thromboembolism was 4,29 higher during pregnancy and postpartum in a 30-year population-based study conducted in the USA (7). Other populational study conducted in the United Kingdom estimates that the risk of venous thromboembolism (VTE) is increased by 22-fold in the postpartum period (8).

The increased levels of estrogen, coagulation factors, von Willebrand factor and platelet activating factors contribute to hypercoagulability. There is also greater chance of endothelial damage. If there is bacterial

contamination of the ovarian vein in the course of the delivery, a variant of OVT (*i.e.* septic thrombophlebitis) may arise, which can in turn make the OVT diagnosis even more challenging (9). Some risk factors have been postulated, such as maternal age higher than 35 years and black ethnicity; in these women, the risk is estimated to be increased by 38% and 64%, respectively (10). Other risk factors have been associated with thromboembolism, such as thrombophilia [the factor with the highest odds ratio, according to a national study conducted in the USA, OR 51.8 (38.7-69.2)], erythematosus lupus, heart disease, sickle cell disease, obesity, fluid and electrolyte imbalance, postpartum infection, and transfusion (10). Of these, only the urinary infection, could be considered in our patient. Apart from the hypercoagulable state, inherent to any pregnant or puerperal woman, other risk factors for OVT are multiparity and surgery, which were not present in this case.

OVT, a potentially life-threatening consequences, is a difficult diagnosis to make since its symptoms tend to be non-specific and mimic many common conditions. It occurs predominantly on the right side, presumably due to anatomical factors (uterine dextrarotation during pregnancy and inferior vena cava compression) (5, 9). Thus, often presenting symptom is the right-sided low abdominal pain, isolated or accompanied by other complaints. Systemic symptoms may also be present, such as fever, nausea and vomiting (5, 9, 11-13). Our patient presented abdominal pain on the left side, fever and chills 5 days after the delivery. Literature indicates that the OVT symptoms usually arise within the first 7 day postpartum, however, their onset can happen during 4 postpartum weeks (9, 13). Regarding the main presenting symptom, the abdominal pain, causes of acute abdomen should be excluded, namely appendicitis, endometritis, ovarian torsion and

tubo-ovarian abscess. Since our patient was also experiencing fever and chills, infection in the postpartum context was investigated (9).

Even though OVT arises mainly on the right side, the events on the left vein have been described and this possibility cannot be overlooked in patients with left-side symptoms and signs (14, 15). Since the clinical presentation is nonspecific, the diagnosis of ovarian vein thrombosis relies heavily on imaging studies [combined gray-scale and power or color Doppler study, computed tomography (CT) or magnetic resonance imaging (MRI)]; there is no consensus regarding the gold standard exam to be offered to the patients with suspected OTV (16).

After assuming the diagnosis of septic OVT (based on the fever, abdominal/pelvic pain, analytical signs of infection, in addition to the patient imaging presentation), therapy should be initiated. There are no guidelines regarding the optimal course of treatment for (septic) OVT. However, in the presence of a venous thromboembolic event, the mainstay of the treatment is anticoagulation for 3 to 6 months until the thrombus resolution, and broad-spectrum antibiotics for the septic cases (5, 9, 11-13, 17). LMWH and antibiotic therapy were prescribed to our patient with excellent clinical and analytical outcomes.

Importantly, since OVT may not be immediately suggested by imaging studies, if a symptomatic patient (in similar clinical situations) does not improve after instituted antibiotic therapy, clinicians should consider adding anticoagulant therapy, after excluding active hemorrhage. This might lead to the progressive resolution of the symptoms, allowing an *a posteriori* diagnosis of deep vein thrombosis. With modern treatment strategies, mortality has dropped significantly from nearly 50% at the beginning of the 20th

century to just over 4% at the end of the 1980s (18, 19).

To summarize, the rarity of adnexal thromboembolic events in the postpartum period requires clinicians to be aware of this complication, because only with a high degree of suspicion it is possible to make a correct and timely diagnosis. Clinical presentation is non-specific, including fever, low abdominal/pelvic pain and analytical changes that can occur in the setting of a normal postpartum (especially after a cesarean section) or with more common, benign and frequently self-limited pathologies.

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Conclusion:

The association of these signs and symptoms, analytical changes and imaging findings of edematous ovary with vascular congestion indicate that the diagnosis of OVT should be considered, confirmed or ruled out, and even treated empirically until it is ruled out, due to the high mortality rate in patients who are not adequately treated in time.

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Comment on “Recommendations for the application of laparoscopic surgery in gynaecology ISGE Gynaecology Task Force” by Fabio Ghezzi University of Varese Italy

Devaja et al. revised the current literature aimed to build evidence-based recommendations on the application of laparoscopic surgery in gynecologic oncology. The authors fully explored the available data, making the point on the three most common gynecological cancers. The role of minimally invasive surgery MIS in gynecologic oncology has been largely investigated over the last two decades; however, the need for further high-level evidence and properly conducted studies is warranted. Although the authors explored in depth the pros and cons of robotic and laparoscopic surgery compared to the open approach, some considerations could be made.

It is out of doubt that the reduced morbidity and the non-inferior oncological outcomes support the use of MIS for endometrial cancer staging. In the United States, the introduction of robotic surgery played a pivotal role in the replacement of open surgery for the treatment of early-stage disease. However, it has to be addressed the fact that the vast majority of patients with endometrial cancer in the USA are affected by morbid obesity, a condition which might support the use of the robotic instead of the laparoscopic approach. Conversely, European patients with endometrial cancer are much less likely to be affected by morbid obesity, thus mitigating the potential advantage, if any, of robotic surgery. Indeed, some considerations related to the healthcare economic aspects might be done, with particular regard to the higher cost-effectiveness of laparoscopy over robotics.

Concerning cervical cancer, the adoption of MIS remains proscribed, with the only

exception of microscopic tumors. Although the European of Gynecologic Oncology recently opened to minimally invasive surgery for the treatment of low-risk cases (e.g. prior conization and absence of residual cervical tumor), this approach should be confined to clinical trials, after adequate counseling. The results of the ongoing randomized trial will help to clarify the role of robotic surgery and more in general of MIS for the treatment of this malignancy.

Different reflections could be made for the treatment of ovarian cancer. Unfortunately, based on the relatively low chance to preoperatively detect patients with early-stage disease, the chance of designing prospective randomized trials in this setting is extremely unlikely. However, we fully agree with the need for case selection when ovarian cancer is suspected; this means not only selecting patients with a low risk of cyst rupture but also referring them to dedicated gynecologic oncology centers with high experience in minimally invasive techniques required to perform adequate staging via keyhole surgery. Patient selection is crucial also in advanced ovarian cancer. Over the last few years, laparoscopy has been proposed as an alternative option to open surgery to select patients for resectability. This approach should be preferred since gives the chance to avoid the morbidity of the open approach in those patients not suitable for primary debulking surgery. Conversely, in patients with advanced stage of disease and in those undergoing interval debulking surgery the role of laparoscopy is still under investigation and should be offered only as an experimental treatment.

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10.36205/trocar2.2023002	Total laparoscopic hysterectomy for benign gynecological pathologies: initial experience of Yaounde Gyneco-Obstetric and Pediatric Hospital, Cameroon
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10.36205/trocar2.2023005	Novel Use of a Laparoscopic Round Ligament Flap with uretero-neocystostomy in Urinary Tract Endometriosis
10.36205/trocar2.2023006	Left ovarian vein thrombophlebitis in the postpartum period

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