



Original Article

Value of the STEPW Classification in Predicting Second Look Hysteroscopy of Submucosal Myomas in Underprivileged Areas (Yaoundé-Cameroon)

Valeur de la Classification STEPW dans la Prédiction du Second Look Hystéroscopique des Myomes Sous Muqueux en Milieu Défavorisé (Yaoundé-Cameroun)

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RÉSUMÉ

Introduction. Hysteroscopic treatment is the best therapeutic option for the management of submucosal myomas in women with a desire to become pregnant. Given the complexity of some huge myomas, a second look is often performed. **Objective.** Assessing the benefit of pre-surgical STEPW classification in predicting a second look hysteroscopy. **Methodology.** We carried out a descriptive cross-sectional study with retrospective data collection from January 2021 to February 2023. **Results.** Out of 74 hysteroscopic resections of myomas, 28 underwent a second look hysteroscopy, representing a prevalence of 37.8%. The average age of participants was 43.9± 6,26 years and average number of submucosal myomas was 2.2± 10.6 with a minimum of 1 and maximum of 5 myomas. Long operating time (more than one hour) was the reason for the second look hysteroscopy in 18 patients (60.7%), in six others mirror myomas (21.4%) and finally five others had presented signs of fluid overload (17.9%). Each myoma measured on average 42.7± 10.6 mm with sizes varying between 30 mm and 60 mm. According to the STEPW classification, all our patients operated were in groups II and III in 64.3% (n=18) and 35.7% (n=10), respectively. **Conclusion.** Using the pre-surgical STEPW classification from the outset, would have made it possible to predict 100% of the second look hysteroscopy and allow discussion for operative feasibility.

ABSTRACT

Introduction. Le traitement hystéroscopique est la meilleure option thérapeutique pour le traitement des myomes sous muqueux chez la femme avec désir de maternité. Devant la complexité de certains myomes encore plus marqué, un second look est souvent réalisé. **Objectif.** Évaluer l'intérêt la classification pré-chirurgicale de STEPW dans la prédiction de la réalisation d'un second look hystéroscopique. **Méthodologie.** Nous avons réalisé une étude transversale descriptive avec collecte de données rétrospectives allant de Janvier 2021 à Février 2023. **Résultats.** Sur 74 résections hystéroscopiques de myomes, 28 avaient réalisé un second look hystéroscopique soit une prévalence de 37.8%. L'âge moyen était de 43,9± 6,26 ans; Le nombre moyen de myomes sous muqueux était de 2.2± 10,6 mm avec minimum de 1 et maximum de 5 myomes; le temps opératoire long était le motif du second look hystéroscopique chez 18 patientes (60,7%), chez six autres des myomes en miroir (21,4%) et enfin cinq autres avaient présenté des signes de surcharge hydrique (17,9%) chaque myome mesurait en moyenne 42,7± 10,6 mm avec des tailles variant entre 30 et 60 mm; Selon la STEPW classification, toutes nos patientes opérées étaient du groupe II et du groupe III dans respectivement 64.3% (n=18) et 35,7% (n=10). **Conclusion.** La classification pré-chirurgicale STEPW si elle avait été utilisée d'emblée aurait permis de prédire 100% des 2nd look hystéroscopiques et même de discuter de la faisabilité opératoire.

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INTRODUCTION

Leiomyomas are the most common benign tumours in women of childbearing age (1). Neuwirth et Amin (2) in 1976 performed a hysteroscopic myomectomy for the first

time and since then the procedure has become the treatment of choice for leiomyomas types 0, 1 and 2 (3,4). Aggressive surgery for complex submucosal myomas could lead to increased complications.

HIGHLIGHTS

What is already known on this topic

The STEPW (Size, Topography, Extension, Penetration and Wall) classification is well correlated with surgical outcomes of submucosal fibroids in western countries.

What question this study addressed

Benefit of pre-surgical STEPW classification in predicting a second look hysteroscopy in underprivileged areas (Yaoundé-Cameroon)

What this study adds to our knowledge

The STEPW classification could enable to predict at 100% the second look hysteroscopies if the preoperative sonographic evaluation is adequately done.

How this is relevant to practice, policy or further research.

To implement the STEPW classification in our department and therefore a better description of myomas according to the parameters of this classification in mutual agreement between sonographers and surgeons.

For safety reasons, a “second look” hysteroscopy may be recommended. However, several operations can cause physical and mental stress for patients. Thus, in 1993, faced with the surgical complexity posed by certain deeply penetrating submucosal fibroids, Wamsteker et al.(5) proposed a classification system for submucosal fibroids to help predict the degree of difficulty of the surgical intervention, depending on the degree of penetration of the myoma. Wamsteker's classification was subsequently adopted by the European Society of Gynaecological Endoscopy (ESGE). Although the ESGE classification is effective in separating cases of low complexity (type 0) and high complexity (type 2), it is less effective if fibroid penetration is <50% (type 1). As a result, in 2005, Lasmar et al. developed the “STEPW” classification of submucosal myomas using five parameters: size, topography, extension of the base in relation to the uterine wall and penetration into the myometrium (6). They also demonstrated that the STEPW classification had a greater correlation with surgical outcomes than the ESGE system (7). A major advantage of this classification is its ability to group submucosal fibroids by score, identifying one group in which 100% of myomectomies will be completed and another group in which some myomectomies will be incomplete. This will allow the surgeon to plan and better prepare the surgical intervention, to better inform the patient before consenting to the intervention and to guide the allocation of cases with the aim of teaching the surgical technique to students and interns depending on their level of experience. Hence the interest in studying the applicability of this classification at the Hospital Centre for Research and Application in Endoscopic Surgery and Human Reproduction (CHRACERH), which is a training centre in endoscopic gynaecology. This study entails, specifically to determine the sociodemographic characteristics of patients who have had a second look hysteroscopy indicated for submucosal myomas, determine the characteristics of these myomas, and finally do a retrospective classification of these myomas according to stepW classification.

METHODS

Setting

The study was carried out at the Gynaecological endoscopic and human reproductive teaching hospital (CHRACERH.), which is an endoscopic surgical training center, accredited by the International Society of Gynaecological Endoscopic Surgery (ISGE)

Study design and population:

After obtaining administrative authorisation from the various competent authorities, we carried out a descriptive cross-sectional study with retrospective data collection. Our target population was made up of patients who underwent an operative hysteroscopy for submucosal myoma, also we then included those in whom we carried out a second look hysteroscopy for which the videos of the first hysteroscopies as well as their medical records were available.

Variables

Socio-demographic and clinical information of patients were collected using medical records. Information regarding submucosal fibroids were size (dimensions according to measurements obtained by ultrasound or hysterosonography, wall penetration (ultrasound/hysterosonography, and obtained by hysteroscopy), topography, extension of the base and lateral vs anterior or posterior wall. Data on the surgical intervention were obtained from the operative registers and the recordings of the videos of the surgical procedures provided complete characteristics of the myomas such as the penetration (greater or less than 50%) or an extension of the base of myomas. A spreadsheet was created to enter the necessary parameters into the database to establish the STEPW classification score calculated automatically in the spreadsheet. The five STEPW parameters were as follows:

- Size (S):** the largest diameter found by any of the imaging methods. When the myoma is ≤ 2 cm, it is rated 0; if it measures 2.1 cm to 5 cm, it is rated 1; and > 5 cm obtains a score of 2.
- Topography (T):** If it is in the lower third, middle third, or upper third, the score is 0, 1 and 2, respectively.
- Extension of the base of the myoma (E):** when the fibroid covers one third or less of the wall, it receives a score of 0; when the base of the nodule occupies between one and two thirds of the wall, the score is 1; and when it touches more than two thirds of the wall, the score is 2.
- Penetration of the nodule into the myometrium (P):** when the fibroid is completely inside the uterine cavity, it scores 0; if its largest part is in the uterine cavity, it is given grade 1; and when it has its largest part in the myometrium, it obtains a grade of 2.
- Wall (W):** when the fibroid is on the side wall, 1 additional point is added regardless of the third one affected (Fig. 1).

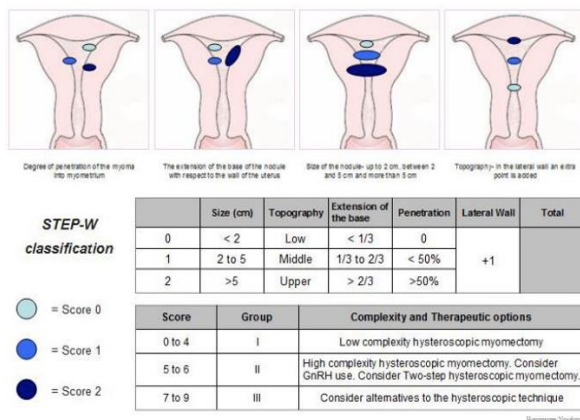


Figure 1 : Classification of submucosal myomas according to Lasmar

Data collection and analysis

We identified in the surgical register patients who underwent a second look hysteroscopy for myoma resection from January 1st, 2021 to February 28th, 2023. Hysteroscopic resections were carried out in the centre by surgeons approved in endoscopic gynaecology, using a STORZ brand rectoscope equipped with 12-degree optics, using 9/1000 saline as a distension medium with maximum pressure of 150 mmHg. Bipolar energy was used for the resection (see Figure 2).

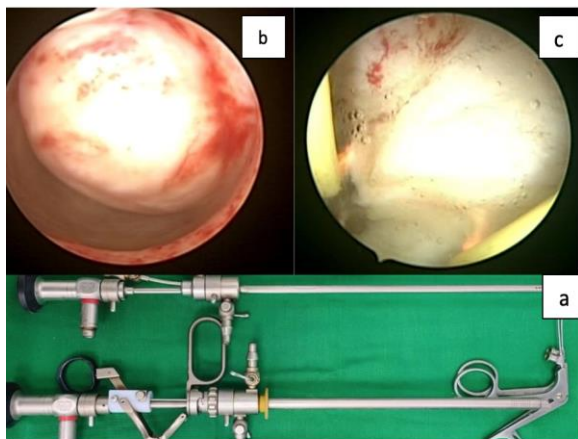


Figure 2: hysteroscopic myomectomy: hysteroscopic myomectomy involves the use of an endoscope placed through the cervix to remove fibroids intruding into the endometrial cavity (a). The procedure is conducted by means of direct visualization typically with the use of a camera (b). The wire loop of the resectoscope uses bipolar energy and physical extension of the loop to resect the tissue (c).

The Quantitative variables were expressed as means with standard deviations and qualitative variables were expressed as numbers with their percentages. The data was analysed using Cs Pro 7.0 and SPSS 23.0;

RESULTS

The average age of the patients was 43.93±6.26 years ranging from 34 to 59 years. The most frequent reason for

consultation was the desire to conceive in 24 patients (82.8%), four patients came to consult for menorrhagia. The indications for a second look hysteroscopy were a long operating time in 17 patients (60.7%), followed by mirror myomas in six patients and signs of fluid overload in 5 patients (17.9%). The average number of submucosal myomas was 2.21 myomas varying from 1 to 5; each myoma measured on average 42.77 mm with extremes ranging from 30 mm to 60 mm

Table I: Clinical and paraclinical profile of patients

Variables	N (%)	Mean ±DS	Min-Max
Age (years)		43,93±6,26	34-59
Hysteroscopy indication			
• Desire to conceive	24(82,8)	/	
• Menorrhagia n(%)	4(13,8)	/	
Indications 2nd look			
• Long operating time	17 (60,7)	/	
• Fluid overload	5 (17,9)	/	
• Mirror myomas	6 (21,4)	/	
Size of myomas (mm)		42,7±10,6	30-60
Number of myomas (median)	2		1-5

All patients who benefited from a second look had myoma sizes greater than 30 mm, located in 64.3% (n=18) in the upper part of the uterus, the extension of the base of which is at least 1/3 to 2/3 in 24 patients (85.7%). More than half of these myomas had more than 50% myometrial penetration. According to the STEPW classification, all our patients operated upon would have been in group II and group III in 64.3% (n=18) and 35.7% (n=10), respectively.

Table II: Intraoperative characteristics of myomas

Variables	N (%)
Measurements (cm)	
<2	0
2-5	18 (64,3)
>5	10 (35,7)
Topography	
Low	4 (14,3)
Middle	6 (21,4)
High	18 (64,3)
Base extension	
<1/3	4 (14,3)
1/3-2/3	14(50,0)
>2/3	10 (35,7)
Penetration	
<50	8 (28,6)
>50	20(71,4)
StepW classification	
Group I	0
Group II	18 (64,3)
Group III	10 (35,7)

DISCUSSION

Complications associated with hysteroscopic myomectomy include perforation, excessive bleeding, fluid intravasation, and long-term uterine synechiae (4). The second look hysteroscopy is considered to limit these complications. In our series, the indications for a second look hysteroscopy were a long operating time (more than 1 hour) in 60.7% of cases, followed by multiple mirror

myomas in six patients and signs of fluid overload (cough, lung congestion).

The signs of fluid overload are due to intravasation which corresponds to the absorption of fluid under pressure in the uterine vessels, this occurs more when the intrauterine pressure becomes higher than the average arterial pressure (8). However, for reasons of visibility, the surgeon may have to increase these pressures. The factors influencing this intravasation of fluids are the duration of surgery and the depth of the myoma.

Regarding the duration of the surgery, it would be closely linked to the characteristics of the myoma (size, number, depth, location) and especially to the experience of the surgeon. Hence the usefulness of the STEPW classification which takes into account the degree of penetration and the size of the myoma, its location, and its extension on the wall (6)(7). The strong relationship between intramural extension of the myoma and fluid loss can be explained by studies of vascular morphometry of the myometrium with or without the presence of myomas (8). Deeper in the myometrium, the number of vessels decreases but their size increases. Duffy found an average frequency of a vessel varying from 3.98/mm² at 2 mm in the myometrium to 1.67/mm² at 8 mm and, in contrast, an average vessel area varying from 0.75 mm² at 2 mm at 4.06 mm² to 8 mm. Therefore, in a patient with a myoma with deep intramural extension, intravasation will increase due to damage to larger vessels and probably also due to the higher intrauterine pressure required to achieve clear visualization following a bleeding.

Taskin et al.(9) found up to 45% of synechiae after resection of multiple myomas, which justifies in our study the performance of a second look in the case of several myomas, especially when the latter were in mirror image. It should therefore be noted that if the Stepwise classification had been evaluated optimally, it would have made it possible to predict 100% of second looks, and to adapt the surgical skill to the types of myomas.

However, it should be noted in our work that the STEPW classification was made a posteriori, after adjusting parameters such as depth, location of myomas, their extensions and sometimes even their sizes. This raised the issue of preoperative evaluation of myomas. According to data from the American literature, transvaginal ultrasound is more effective than magnetic resonance imaging in detecting the presence of a myoma, but its ability to accurately map myomas is lower than that of magnetic resonance imaging, particularly in large uteri (> 375 ml) with multiple myomas (10)(11). These last assertions raise two essential problems in the African environment; the first being the prevalence of larger and more numerous myomas and a more rapid growth of these myomas (time elapsed between the mapping and the performance of the surgery especially when the myoma is not symptomatic); the second problem is financial accessibility. Ultrasound and hysterosonography are nevertheless more used in our context due to their accessibility and relatively low cost, although criticized for their inter-operator variability (10)(12). At the end of this work, it may be recommended the implementation of the STEPW classification in our department and therefore a better description of myomas

according to the parameters of this classification in mutual agreement between sonographers and surgeons.

Limitations of the study: This study doesn't evaluate the echographic performance in the preoperative description of submucosal myomas in our context which is a crucial step in the STEPW classification.

CONCLUSION

The STEPW classification could enable us to predict at 100% the second look hysteroscopies if the preoperative echographic evaluation is adequately done.

It would be of primary interest to the surgeon and patient, as it will allow preoperative assessment on an individual basis for the feasibility of the hysteroscopic approach, possible difficulties and the provision of a "second look".

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