

Hysteroscopic Resection of Submucous Fibroids in Abidjan: A 10-Year Retrospective Cohort Study

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Abstract

Objective: The objective of this study is to report our experience with the hysteroscopic management of submucous fibroids in Abidjan (Côte d'Ivoire).

Materials and Methods: This is a retrospective descriptive cohort study conducted in Abidjan at a private medical clinic over a 10-year period, involving a series of 80 patients who underwent hysteroscopic resection of submucous fibroids. **Results:** The mean age of our patients was 38.4 years, with a mean gravidity of 1.9 and an average parity of 0.7. Our patients presented with abnormal uterine bleeding (AUB) in 57.5% of cases and were infertile in 63.8% of cases. Diagnostic hysteroscopy revealed 102 fibroids, which were single in 75% of cases and located predominantly anteriorly (38.3%) and posteriorly (26.5%). The average size of the fibroids was 24.7 mm, and most were type 1 (47.1%). The average resection time was 38.2 minutes, and the complication rate was 3.75%. The length of hospital stay was less than 24 hours in 90% of cases. A second-look hysteroscopy, which was performed in 60% of patients, revealed a normal uterine cavity in 93.8% of cases. Abnormal uterine bleeding was corrected in 70.2% of cases. We observed 15 pregnancies following operative hysteroscopy in infertile patients, representing a pregnancy rate of 29.4%. **Conclusion:** Operative hysteroscopy is a simple, safe, effective, and reproducible minimally invasive technique for the resection of submucous fibroids. It allows for satisfactory anatomical and functional results.

Keywords

Submucous Fibroid-Hysteroscopy-Infertility-AUB-Resection

1. Introduction

Leiomyoma, commonly known as fibroid, is the most frequent benign tumor in women of reproductive age (20% to 45% of premenopausal patients) [1]. This high incidence makes fibroid disease a significant public health issue [2]. The standard treatment for symptomatic fibroids remains hysterectomy or myomectomy via laparotomy. Myomectomies are primarily performed on women of reproductive age whose fibroids are symptomatic: menorrhagia or menometrorrhagia, pelvic pain, and signs of compression of adjacent organs. These uterine fibroids can also cause infertility, but this etiology should only be considered after all other factors of infertility have been excluded through a complete check-up [3]. A high frequency of these symptoms is caused by submucous fibroids (5% to 10%) [4]. Hysteroscopy is the examination that allows visualization of the uterine cavity using an optical instrument called a hysteroscope of variable diameter, which requires the presence of a fluid to distend the uterine cavity. Over the last thirty years, this technique has become the standard approach for managing submucous fibroids. It has replaced the abdominal approach, allowing for less invasive surgery, without the risk of adhesions, and with significantly reduced peri- and postoperative morbidity [5]. The absence of a uterine scar and the avoidance of systematic opening of the endometrial cavity helps to preserve the integrity of the uterus as much as possible, particularly in cases of fertility problems. In sub-Saharan Africa, including in Côte d'Ivoire, hysteroscopy is little known and rarely performed by gynecologists. Access to hysteroscopy is limited to a few referral centers where the cost is often very high. Furthermore, there are virtually no studies in French-speaking sub-Saharan Africa on the hysteroscopic treatment of uterine fibroids. For all these reasons, it seemed appropriate to report our experience with hysteroscopic resection of uterine fibroids in Abidjan in order to improve the surgical management of African patients with submucous fibroids.

2. Materials and Methods

Our study was conducted at the Fatima Medical Clinic, located in Abidjan, Ivory Coast. This medical facility specializes in the management of both benign and malignant gynecological conditions. This was a retrospective descriptive cohort study conducted over a 10-year period, from 2010 to 2019. The study population consisted of patients of all ages with submucous fibroids who underwent hysteroscopic resection. Patients with symptomatic submucous fibroids and/or those with submucous fibroids discovered during infertility assessment were included. Patients lost to follow-up or those with incomplete records were excluded. Records were considered incomplete if the operative report could not be located. Our sample consisted of a consecutive, non-randomized series of 80 patients. Initially, 92 records were collected. After applying exclusion criteria, 12 records were excluded. Eight patients were lost to follow-up and four patients had incomplete records. All patients admitted to the clinic for hysteroscopic myomectomy signed an informed consent form upon admission, authorizing the clinic to use their

medical records for potential research. Furthermore, the study was approved by the institution's review board. The preoperative assessment included a transvaginal ultrasound to map the fibroid(s) and determine the size and type of fibroid to be treated. This assessment was supplemented by a systematic diagnostic hysteroscopy performed at the end of the first half of the menstrual cycle, which confirmed whether the fibroid was submucous and easily accessible for hysteroscopic resection. Fibroids were classified according to the 2011 FIGO-PALM-COEIN classification [6]. All resections were performed by two surgeons qualified for this procedure. The surgical protocol was as follows: General or regional anesthesia was administered, and after positioning the patient in the lithotomy position, cervical dilation was performed using Hegar dilators up to size 9. Hysteroscopic resection of the myomas was performed using monopolar energy with the Storz® brand 26 F resectoscope. Uterine cavity distension was achieved using glycine via an irrigation pump (endomat®). Once cervical dilation was complete, the resectoscope was inserted under hysteroscopic guidance, allowing immediate confirmation of the fibroid type. With the resectoscope in the cavity, the free edge of the fibroid was resected to reach the healthy endometrium. The resection fragments were removed either with the resection loop or a curette. Fibroid resection was considered incomplete when it was not possible to resect the entire fibroid. An electrolyte panel was performed postoperatively when the procedure lasted more than one hour. Two months after the procedure, a second-look hysteroscopic was performed on the patients. This examination allowed for assessment of the anatomical results obtained after the procedure. The long-term anatomical results were considered satisfactory when the complete disappearance of the myomas was observed with the absence of postoperative synechiae. The functional outcome was assessed by evaluating, at the postoperative consultation two to three months after the procedure, the persistence or disappearance of the abnormal uterus bleeding (metrorrhagia, menorrhagia, menometrorrhagia) that led to the consultation. The fertility prognosis was evaluated by monitoring the occurrence or absence of pregnancy up to five years after the procedure in patients who consulted for infertility. These infertile patients, apart from the presence of submucosal fibroids, had no other causes of infertility. In these patients, the workup performed, including hysterosalpingography, ovulation monitoring, and the partner's sperm analysis, came back normal. All data were collected from patient records, including operative reports and postoperative follow-up. Data analysis was performed using Epi Info 3.5.3 statistical software. We conducted a comprehensive description of the patients' sociodemographic and clinical characteristics. Qualitative variables were described in terms of median and interquartile range (IQR). Quantitative variables were described in terms of weighted frequencies rounded to the nearest whole number along with their percentages.

3. Results

The epidemiological characteristics of the patients and the characteristics of the submucous fibroids are reported in **Table 1** and **Table 2**. Patients aged between

35 and 40 years represented 36.3% of our study population. 43% of the patients were paucigravida, and 50.6% were nulliparous. Abnormal uterine bleeding (AUB) was present in 57.5% of cases. This bleeding consisted of menorrhagia (44.4%), menometrorrhagia (31.1%), and metrorrhagia (22.2%). Infertility was found in 63.8% of cases, and it was secondary infertility in 60% of cases. Pelvic pain was present in 13.8% of cases. Diagnostic hysteroscopy revealed a total of 102 submucous fibroids. The average fibroid size in our study was 24.7 mm. Twenty-six patients had an associated anomaly with the fibroids during hysteroscopy. These included adenomyosis (10), polyps (11), and synechiae (5). The operative data and prognosis of the patients are reported in **Table 3**. The average duration of the procedure was 38.2 minutes, with a range from 10 to 111 minutes. Myoma resection was complete in 92.5% (74/80) with a normal uterine cavity at the end of the procedure. We observed 3 cases of complications (3.75%): 2 cases of cervical tear and one case of metabolic complication (TURP syndrome). A second-look hysteroscopy, which was performed in 60% of patients (48/80), revealed a normal uterine cavity in 93.8% of cases (45/48). Synechiae were found in 3 patients, one with uterine synechiae and the other two with cervical synechiae. Abnormal uterine bleeding was corrected in 70.2% of cases (33/47). We observed 15 pregnancies after operative hysteroscopy in infertile patients, representing a pregnancy rate of 29.4% (15/51). Pregnancy occurred spontaneously in 66.7% of cases (10 cases), and 4 pregnancies were achieved after IVF and 1 after artificial insemination. The average time to pregnancy after fibroid resection was 17.6 months, with 10 pregnancies occurring within one year. Pregnancies resulted in a full-term delivery in 46.8% of cases. We recorded 5 cases of spontaneous miscarriage, 2 cases of premature birth, and 1 case of ectopic pregnancy.

Table 1. Maternal epidemiological characteristics.

Maternal epidemiological characteristics	n (%)
Average age	38.4
Average gravidity	1.9
Average parity	0.7
History of miscarriages	21 (26.25)
History of myomectomy	27 (33.8)
Abnormal uterine bleeding	47 (57.5)
Infertile patient	51 (63.8)

Table 2. Characteristics of submucosal fibromas.

	Characteristics	Effective	Percentage
Number of fibroids	1	60	75
	2	18	22.5
	3	2	2.5

Continued

Dimensions (mm)	0 - 19	36	35.3
	20 - 39	55	53.9
	≥40	11	10.8
Type of fibroids	0	22	21.5
	1	48	47.1
	2	32	31.4
Location of fibroids	Anterior	39	38.3
	Posterior	27	26.5
	Fundus	13	12.7
	Lateral	18	17.6
	Isthmic	5	4.9

Table 3. Operative data and prognosis.

Operative data and prognosis	n (%)
Average operative time (min)	38.2
Complete resection	74 (92.5)
Complications	3 (3.75)
Hospital stay < 24h	72 (90)
Second-look hysteroscopy	48 (60)
Normal uterine cavity at follow-up	45 (93.8)
Stop of abnormal uterine bleeding	33 (70.2)
Pregnancy	15 (29.4)

4. Discussion

The average age of our patients was 38.4 years, with a range of 25 to 49 years. The most represented age group was 35 to 40 years. Our results are similar to those of Ahdad-Yata [7], whose average age was 38.4 years, with a range of 27 to 47 years. In contrast, in the studies by Roy [8] and Goldenberg [9], the average age of the patients was 29 and 32.5 years, respectively. This slightly higher average age in our study could be explained by the fact that most of our patients had consulted or were referred for infertility after a lengthy course of treatment, some having consulted numerous practitioners without success.

The majority of our patients were paucigravida (40.3%), with an average parity of 0.7. The difference between gravidity and parity could be explained by the fact that fibroids are a cause of infertility. Indeed, the prevalence of infertility in the general population is estimated to be between 10% and 15% [10]. This rate could be increased with the presence of submucous fibroids, reaching up to 27% according to Buttram [11] or even 40% according to Rubin [12]. Our patients also had

at least one previous miscarriage in 26.9% of cases.

In our study, the most frequent surgical history was myomectomy (33.8%). Submucous fibroids are often associated with other locations, and they also have a tendency to recur. Our patients presented with abnormal uterine bleeding in 57.5% of cases. Our results are similar to those of Ahdad-Yata [7] and Chelli [13], who found abnormal uterine bleeding in 61.9% and 66.9% of cases, respectively. Higher proportions were found in the study by Cravello [14] and that of Rhorir in Morocco [15], with 82% and 75%, respectively. Submucous fibroids are responsible for bleeding disorders, which sometimes represent the revealing sign of the presence of a submucous fibroid. Infertility was found in 63.8% of our patients; in most cases (60%), it was secondary infertility. Our results are higher than those found in the literature [1] [4].

This could be explained by the fact that the facility where recruitment took place specializes in infertility management, and therefore most patients had already seen other practitioners who had referred them specifically for endoscopic management. All our patients had undergone diagnostic hysteroscopy. Our results are consistent with those of Polena [16]. Hysterosonography, hysteroscopy, and MRI are the best diagnostic techniques for submucous fibroids [17]. Indeed, diagnostic hysteroscopy has now become essential in the exploration of the uterine cavity for intracavitary pathologies. It allows confirmation of the presence of the fibroid, but also assessment of their number, size, location, and relationship to the uterine cavity and associated intracavitary lesions [18]. Diagnostic hysteroscopy is a useful complement to the preoperative assessment and is becoming standard practice before any operative hysteroscopy [19] [20]. In our study, diagnostic hysteroscopy revealed a total of 102 myomas in 80 patients, with a single fibroid in 75% of cases. The literature also reports a predominance of single fibroids in most patients [21]. These results are similar to those of Fernandez [22] and Polena [16], who reported 66.5% and 74.5% of patients with single fibroids, respectively. In our series, the fibroids were located anteriorly in 38.3% of cases and posteriorly in 26.5% of cases. The same predominantly anterior and posterior locations were observed in the studies by Fernandez [22] and Chelli [13]. The average fibroid size in our study was 24.7 mm. These results are similar to those of Rhorir [15] and Jayakrishnan [23], with averages of 21.4 mm and 21 mm, respectively. Type 1 fibroids were the most common in our series (47.1%). This type was also the most common in the studies by Chelli [13] and Rhorir [15]. In the literature, submucous fibroids resected by hysteroscopy are often type 0 or 1 and are frequently less than 3 cm in size, ranging from 25 to 40 mm depending on the series [22]. Fibroids larger than 50 mm in diameter are difficult to treat by hysteroscopy. These situations represent the limitations or contraindications of hysteroscopy for submucous fibroids [24] [25]. The mean resection time in our study was 38.2 minutes. The mean time reported in the literature varies between 37.8 and 50 minutes [13] [22]. Resection was complete in 74 of the 80 patients in our series (92.5%). Our results are close to those of Chelli [13] with 84.4%. Despite the low morbidity associated with op-

erative hysteroscopy, it does carry a risk of complications. In our series, we observed two cases of cervical tearing due to difficulties during cervical dilation and one case of metabolic complication related to a prolonged procedure (80 minutes) involving a 45 mm fibroid and an associated polyp. The overall complication rate varies between 2% and 6.5% in the literature and is predominantly uterine perforation [14] [16] [21]. Second-look hysteroscopy was performed in 60% of our patients. The time between the procedure and the procedure was one to three months in 45.5% of cases. In Polena's study [16], all patients underwent second-look hysteroscopy within one to two months. Second-look hysteroscopy may be useful 6 to 8 weeks after resection in patients desiring pregnancy [26]. The anatomical outcome was satisfactory, with a normal uterine cavity in 93.8% of cases. The anatomical results reported in the literature are satisfactory, with rates ranging from 51.7% to 88.4% [13] [14]. Anatomical results are assessed based on the total or partial restoration of a morphologically normal uterine cavity, evaluated not only at the end of operative hysteroscopy, but also during early second-look endoscopic (second-third month) or, in some cases, by postoperative hysterosalpingography. In our study, we observed the disappearance of abnormal uterine bleeding in 70.2% of cases after resection. In the literature, the resolution of abnormal uterine bleeding varies from 73% to 100% [4] [7] [8]. Among the factors studied in Cravello's study [27], those significantly associated with functional failure were incomplete resection and abnormal postoperative hysteroscopy. Furthermore, the causes of failure of hysteroscopic surgery in Fernandez's study [22] were: fibroid size (>5 cm), number of intracavitary fibroids (>3), uterine size (hysterometry > 12 cm), and fibroid location (myoma with a predominantly intramural component). Series with very high success rates (>90%) are most often those with very short patient follow-up, close to one year [28] [29]. Series with longer follow-up are significantly more informative. The risks of anatomical and/or functional recurrence increase as we move further away from the initial resection. Overall, however, it can be estimated that at 5 years, 70% to 85% of patients are successfully treated by operative hysteroscopy. The pregnancy rate after operative hysteroscopy was 29.4% in our study. Our results are close to those of Ahdad-Yata [7], who reported a pregnancy rate of 33.8% with patients in the same age range as those in our series, whose average age was 38.4 years. The overall pregnancy rate after hysteroscopic resection of submucous fibroids varies from 17% to 77% in the literature, with an average rate of 45% [30]. Garcia [31], in a series of abdominal myomectomies performed on infertile patients with isolated submucous fibroids of 5 cm or more, found a post-surgery pregnancy rate of 47%. Hysteroscopy therefore offers comparable results, but with significant advantages: very low morbidity, short hospital stay (and recovery time), and, most importantly, no hysterotomy. The improvement in pregnancy and embryo implantation rates after hysteroscopic myomectomy is highlighted by Pritts [32], who specifies that submucous fibroids appear to be the most significant cause of infertility and should therefore be treated. The latest French guidelines recommend hys-

oscopic resection of submucous fibroids in asymptomatic patients desiring a child (Grade A) [33]. Concurrently, studies indicate that a wait-and-see approach is no longer acceptable in women of childbearing age with small submucous fibroids, even if asymptomatic [34]. Like any clinical study, this one has limitations. It is a single-center retrospective study, with recruitment taking place in a clinic specializing in infertility, which introduced a selection bias. Another limitation of the study is that not all patients underwent a second-look hysteroscopy, which prevented us from obtaining complete anatomical results after hysteroscopic resection. Finally, some pregnancies were achieved after assisted reproductive technology (ART), which introduces a bias regarding the pregnancy prognosis after fibroid resection.

5. Conclusion

This study, like those of many authors, demonstrates that operative hysteroscopy is a simple, safe, effective, and reproducible minimally invasive technique for the resection of submucous fibroids. It allows for satisfactory anatomical and functional results. It most often leads to the cessation of abnormal uterine bleeding and the restoration of a normal uterine cavity, thus enabling infertile women to conceive. The hospital stay is short, complications are rare, and the success rate is high. It represents the gold standard for the treatment of submucous fibroids. This procedure should be taught and more frequently performed in our Obstetrics and Gynecology departments in sub-Saharan Africa, where many women with submucous fibroids are treated.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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