

Practice of Diagnostic Hysteroscopy in Ambulatory at The Institute of Social Hygiene (Ish) Hospital in Dakar, Senegal.

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ABSTRACT

Objectives: Specify the epidemiological profile of the patients, the indications, the results of diagnostic hysteroscopy and the factors that influence it at the Institute of Social Hygiene hospital of Dakar.

Materials and methods: That was a prospective, descriptive and analytical study on diagnostic hysteroscopies performed at the Institute of Social Hygiene hospital of Dakar over a 24 months period, from April 1st, 2019 to March 31st, 2021.

Results: During the study period, the practice of diagnostic hysteroscopy represented 0.7% of outpatient activity and 11.8% of surgical procedures. The epidemiological profile of the patients was a 40 years old woman on average, without a professional activity (40%), in a period of genital activity (75.2%), married (79.5%), nulliparous (43, 6%). The indications for diagnostic hysteroscopy were dominated by investigation of infertility (28.7%) followed by uterine myoma (23.6%). The lesions found were dominated by polyps (31%) followed by tubal (24.5%) and endometrial (21.8%) disease. No complications were recorded in our study. Pain score was mild pain in 51.8% of patients. Therapeutic management was performed in 63 patients (32.3%). Of these, thirty (47.6%) had undergone an operative hysteroscopy.

The comparison between the hysteroscopy and the vaginal ultrasound results found 16 false negatives and 13 false positives, giving the vaginal ultrasound a positive predictive value of 83% and a negative predictive value of 70.4%. A multivariate analysis allowed us to observe that intrauterine lesions were more frequent in infertile women ($p = 0.0029$) and endocavitary myomas were more common in nulliparous women ($p = 0.0012$); also, the pain felt at the time of the examination was more intense in nulliparous women ($p = 0.008$) and women in the period of genital activity ($p = 0.006$).

Conclusion: Diagnostic hysteroscopy is an easily performed outpatient examination. Its practice must be developed in our context, particularly in the exploration of female infertility and the screening of endometrial lesions.

Keywords: Diagnostic hysteroscopy - Intrauterine lesions - Infertility.

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INTRODUCTION

The means of exploration of the uterine cavity have long been limited to hystero-graphy and biopsy. Currently, the diagnosis of endo-uterine pathologies calls more and more on hysteroscopy which is a simple, rapid examination, carried

out on an outpatient basis without anesthesia with very few complications. It makes it possible to visualize the cervico-isthmic outlet, the endometrium and the tubal ostia, in order to detect any endocavitary pathologies and to carry out targeted biopsies if necessary. In our developing countries, this type of exploration is not yet available everywhere due to its

high cost. In Senegal, for several years, efforts have been made by the health authorities to provide many health structures with diagnostic endoscopy equipment. Thus, after two years of practice, we proposed to carry out this work, the objective of which was to take stock of diagnostic hysteroscopy activities in outpatient care at the Institute of Social Hygiene in Dakar.

MATERIALS AND METHODS

Type of study

This was a descriptive and analytical prospective study conducted over a period of 24 months, from April 1, 2019 to March 31, 2021. Our Service being a reference structure in hysteroscopy, the recruitment of patients was done either from external consultations or through patients referred for hysteroscopy by colleagues working in external structures.

Place of study

The patients were admitted to the Gynecology-Obstetrics Department three hours before the hysteroscopy. The examination was preferably carried out in the first phase of the menstrual cycle. Otherwise, a urine pregnancy test and/or an ultrasound were performed to rule out possible pregnancy. All the patients received analgesic premedication with ketoprofen 100 mg in the amount of one suppository 30 minutes before the procedure. Cervical preparation with 200 micrograms of intravaginal misoprostol was performed 1 hour before the procedure.

The hysteroscope was introduced into the vaginal cavity using the "no touch" technique after disinfection of the vagina and cervix. He successively explores the exocervix, the cervical canal, the internal os of the cervix, the uterine isthmus, the uterine cavity, the endometrial mucosa and the ostia-tubaires. At the end of the examination, the quantity of distension liquid used, the duration of the procedure and the report of the examination were recorded in the patient's medical file. Ketoprofen 100mg suppository was prescribed at the rate of one suppository every 8 hours for 24 hours.

Collection of data

We carried out a prospective collection of data from patient files, hysteroscopy reports and recorded them on a computerized file. The parameters studied were: socio-demographic characteristics, gynecological, obstetrical, medical and surgical history, clinical aspects, diagnostic hysteroscopy data, procedures associated with hysteroscopy, agreement between hysteroscopy results diagnosis and those of the ultrasound and the treatments instituted.

Data analysis

Data analysis was carried out using IBM SPSS version 20 software. Qualitative variables were described in number, percentage and quantitative variables as average with standard deviation and extremes. Concerning the analytical part of the study, the Chi2 test was used for the comparison of proportions. The difference was statistically significant when the p value was strictly less than 0.05.

RESULTS

Descriptive results

Frequency: During the study period, we performed 195 outpatient diagnostic hysteroscopies out of a total of 1,647 surgical procedures and 26,840 clients treated at the day hospital, i.e. a frequency of 0.7% of outpatient activity and 11.8 % of surgical procedures.

Socio-demographic characteristics

The epidemiological profile of the patients was that of a woman aged on average 40 years, in period of genital activity (75.4%), married (79.5%), nulliparous (43.6%) and residing outside of the South Health District of Dakar. The socio-demographic characteristics of the patients are summarized in Table I.

Pelvic ultrasound data: Ultrasound was performed in 172 patients (88.2%). It was normal in 20 cases (10.2%). The pathologies found were dominated by uterine myomas (33.1%) followed by endometrial polyps (27.4%).

Indications for hysteroscopy: Indications for diagnostic hysteroscopy were dominated by exploration of infertility (31.9%) followed by uterine myomatosis (21.7%) and postmenopausal metrorrhagia (19.4%) (Table 2).

Hysteroscopy procedure: At the time of the examination, 47 patients (24.1%) were in menopause. The rest of the sample (75.9%) was made up of women in reproductive activity, 47.8% of whom were in the first phase of the menstrual cycle. The duration of the intervention varied between one and six minutes with an average of 1 minute and 35 seconds. The quantity of the distension liquid used varied between 150 and 700 ml with an average of 370 ml. In the majority of cases (82%), it was less than 300 ml.

Summary of lesions found at diagnostic hysteroscopy: The lesions found in our series were dominated by polyps (31%) followed by tubal pathology (24.5%) (Table 3).

Complications of diagnostic hysteroscopy: No complications were recorded in our series. However, the passage of the internal cervical os proved to be relatively more difficult in 10 patients (5.1%) "explicit in the reasons". The pain rating by the visual analogue scale (VAS) found in half of the patients (51.8%) pain of mild intensity.

Therapeutic care: In our series, 63 patients (32%) were treated in our structure. Among them, thirty had benefited from an operative hysteroscopy (47.6%) and nineteen from a laparotomy for myomectomy or hysterectomy (30.1%) (Table 4).

Analytical results

Concordance hysteroscopy - pelvic ultrasound: In our series, 172 patients (88.2%) had undergone ultrasound before diagnostic hysteroscopy. The results of the two examinations were concordant in 143 patients (83.1%) and discordant in 29 cases (16.9%). These were 16 false negatives and 13 false positives. This gives ultrasound a positive predictive value of 83% and a negative predictive value of 70.4% (Table 5).

Factors Influencing Hysteroscopy Results: In our series, a multivariate analysis allowed us to observe that intrauterine lesions were more frequent in infertile women ($p = 0.0029$) (Table 6) and endocavitary myomas were more common in nulliparous women ($p = 0.0012$) (Table 7).

Factors Influencing Pain Intensity: Our results showed that the pain

DISCUSSION

Feasibility

Diagnostic hysteroscopy accounted for 0.65% or 0.7% of day hospital activities and 11.8% of surgical procedures. In 2013, in a study carried out by Diallo [1] at the King Baudouin Hospital Center in Guédiawaye, the frequency of diagnostic and operative hysteroscopies was 13% of surgical interventions. This rate is slightly higher than ours and could be partly explained by the fact that our work only focused on cases of diagnostic hysteroscopy. However, this frequency is still low if compared to those recorded in developed countries where diagnostic hysteroscopy is routinely performed. It could certainly be increased by improving its affordability and availability. In our study, the examination was performed on an outpatient basis and we did not note any particular difficulties or major complications. This proves that under our working conditions, diagnostic hysteroscopy can be performed safely and efficiently on an outpatient basis.

Indications

As part of the infertility assessment, it is important to explore the uterine cavity, because many intrauterine lesions may be involved. Diagnostic hysteroscopy therefore has its place in the assessment of infertility because it allows direct visualization of the cervical canal, the uterine cavity, the endometrial mucosa and the tubal ostia. However, she cannot assess tubal patency [2]. Thus Pansky [3] reports a 30% incidence of abnormalities detected by hysteroscopy in 221 infertile patients. These data are almost identical to those of our series. It is recommended to systematically perform a hysteroscopy before starting an in vitro fertilization program [4]. There are many arguments in favor of this attitude. The rate of abnormalities detected in patients who will participate in an In Vitro Fertilization (IVF) program is high and is between 30 and 45% [5, 6]. It is very likely that these abnormalities are responsible for transfer failures because their rate is very high in patients who have had at least two transfer failures [6, 7]. Also, when these lesions are treated before transfer, the results obtained on fertility are identical to those obtained in patients with normal hysteroscopy [8].

Regarding the diagnosis of uterine myomas, hysteroscopy can be performed as a second line, ultrasound being the first line examination. Indeed, the absence of intra-cavitary lesion makes it possible not to have recourse in first intention to hysteroscopy. The negative predictive value of ultrasound for the diagnosis of submucosal myoma is 100%. The presence of an intra-cavitary lesion should lead to the performance of a diagnostic hysteroscopy, as there are false positives on transvaginal ultrasound and hysterosonography. Also, the operability by hysteroscopy of an endo-uterine lesion is better appreciated by diagnostic hysteroscopy coupled with ultrasound. In our developing countries where, because of an often-late diagnosis, we are faced with the management of polomyomatous uterus, the mapping of fibroids on ultrasound is often difficult to do correctly. In these cases, the use of hysteroscopy is essential to get a more precise idea of the situation [9].

Postmenopausal metrorrhagia represents 8.5 to 32.2% of indications for hysteroscopy in the literature [10, 11, 12, 13, 14]. According to C. Uzan [15], hysteroscopy makes it possible to specify the existence of a lesion suggestive of simple, glandulocystic, polypoid hyperplasia or more worrying lesions of atypical hyperplasia with buds and disorganization of the vascularization. The existence of areas of necrosis, irregularities of the mucosa or a polylobed aspect are very suggestive of cancer [15, 16].

Exam procedure

The authors agree to perform hysteroscopy outside periods of bleeding and in the first phase of the cycle if possible [17, 18]. It is also important to ensure the absence of pregnancy before its realization. Routine pregnancy testing is not recommended but may be performed based on clinical data [19]. According to the recommendations for clinical practice of the National College of French Gynecologists and Obstetricians of 2013, before the procedure, it is not recommended to prescribe misoprostol orally or vaginally, nor an estrogen and misoprostol combination, even less mifepristone [20].

The use of physiological serum makes it possible to reduce the risk of complications, in particular gas embolism secondary to CO₂ distension [21, 22, 23, 24] and to obtain more correct visualization [23, 24, 25]. Concerning antibiotic prophylaxis, there are no arguments allowing it to be offered systematically. However, care must be taken to respect the rules of infection prevention and to ensure the absence of an evolving vaginal infection which would constitute a contraindication to the procedure.

For pain management, it is recommended to favor vaginoscopy and to use a rigid hysteroscope, with a diameter less than or equal to 3.5 mm, with distension with physiological saline at room temperature [25].

Panorama of the lesions observed

The predominance of polyps and endometrial abnormalities had been reported in the studies by Ndiaye [11] in Morocco and Diallo [1] in Senegal. Indeed, Ndiaye had recorded 18.2% polyps and 29.9% endometrial hypertrophy. In Diallo's series, endometrial polyps and hypertrophy accounted for 61.2% and 9.4%, respectively, of all abnormalities of the uterine cavity. These results could be explained by the high proportion of infertile patients in our respective series. Indeed, in our work, hysteroscopy was performed in 28.7% of cases for an indication of infertility.

Polyps may be asymptomatic, revealed by bleeding disorders or fertility. They are most often detected by endovaginal ultrasound. Hysteroscopy would make it possible to specify their appearance, their size, their number, their location in the uterine cavity, their vascularization and the appearance of the adjacent endometrium as well as any associated lesions.

The frequency of tubal anomalies in our series is also explained by the large number of infertile patients. It is important to specify that diagnostic hysteroscopy does not make it possible to visualize the lumen of the fallopian tube. Hysterosalpingography would therefore retain a prominent place in the exploration of tubal permeability disorders.

The prevalence of uterine myomas in our study was higher than that found by Ndiaye [11] in Morocco, which was around 7.8%. Indeed, black women develop more fibroids of a larger size and at an earlier age than Caucasian women. Diallo [1], in his study carried out in Dakar reported 15.3% of endocavitary myomas. Hysteroscopy is the examination which presents the best sensitivity for diagnosing intracavitary fibroids and it makes it possible to specify the type, the precise seat, the extent of its base of implantation and its angle of connection.

Complications

Complications of diagnostic hysteroscopy are exceptionally reported in the literature [18]. Cases of gas embolism have been reported when CO₂ is used under general anesthesia, uterine perforations and infectious complications, in particular endometritis. To minimize these risks, the recommended technique is that of vaginoscopy using a rigid

hysteroscope, with a diameter less than or equal to 3.5 mm and distension with saline at room temperature, without any anesthesia.

Factors Influencing hysteroscopy results

As was the case in our series, it has been proven that intrauterine lesions are more frequent in infertile women (40 to 50%) [26]. Indeed, our results were significantly correlated with the fertility of the patients ($p = 0.0029$). In Petit's study [27], 20 to 50% of women with infertility had internal endometriosis. The role of adenomyosis in female infertility is beginning to be well defined with chronic inflammation associated with ovulation disorders, contractility abnormalities and implantation difficulties [27]. In his study, El Gueddari [28] found that in women with secondary infertility, synechiae was the predominant pathology (61.5% of cases) followed by polyps and endometrial hypertrophy, whereas in those with primary infertility, polyps was the predominant pathology (73.9%) followed by cases of synechiae and endometrial hypertrophy.

Pain management

In our study, we also assessed the factors associated with the intensity of the pain felt at the time of the examination and our results showed that this was significantly related to parity ($p = 0.008$) and to the period of genital activity ($p = 0.006$). This finding could be explained by the fact that in nulliparas and even some primiparas, the cervix is often closed, which could be responsible for the pain felt when crossing the internal cervical os. On the other hand, the multiparous cervix, which would be rather transverse and open, would make the examination easier and less painful.

CONCLUSION

Diagnostic hysteroscopy is an examination that can be carried out on an outpatient basis in a safe and effective way under our working conditions. It is minimally invasive, reproducible, reliable and associated with low complication rates. In our developing countries, its availability should be improved and its indications further extended to the exploration of female infertility.

Table 1. : Socio-demographic characteristics of the patients (N=195).

Settings	Number (n)	Frequency (%)
Age (years)		
18 to 30	40	20,5
31 to 50	134	68,7
50 Plus	21	10,8
Period of genital life		
Period of genital activity	147	75,4
Menopause	48	24,6
Parity		
Nulliparous	85	43,6
Pauciparous	57	29,3
Multipara	53	27,2

Table 2. Indications for outpatient diagnostic hysteroscopy at the IHS hospital in Dakar (N=195).

Indications	Effect if(n)	Frequency (%)
Uterine myomatosis	46	23.6
Post-menopausal metrorrhagia	34	17.4
Infertility	56	28.7
Uterine synechia	8	4.1
endometrial polyp	32	16.4
Endometrial hypertrophy	10	5.1
Repeat abortions	4	2
Migration of an intrauterine device (IUD)	4	2
Osteoid metaplasia	1	0.5
Total	195	100

Table 3. Summary of lesions found on diagnostic hysteroscopy at the IHS hospital (N=195).

Lesions found	Number (n)	Frequency (%)
Polyp	81	31
Endocervical	18	
Endocavitary mucosa	51	
Myomas type 0. 1 et 2	36	13.8
External cervical stenosis	1	0.4
Internal cercal sténosis	6	2.3
Uterine synechia	13	5
cervical	1	
isthmic	4	
corporate	8	
Endometrial pathology	57	21.8
endometrial hypertrophy	30	
endometrial atrophy	23	
chronic endometritis	1	
- suspicious endometrial tumor	2	
- hematometry	1	
Tubal ostia abnormality	64	24.5
unvisualized tubal ostia	49	
veiled tubal ostia	16	

Table 4. Treatment received by the patients (N=63).

Treatment received	Number (n)	Frequency (%)
Operative hysteroscopy	30	47.6
polypectomy	14	
synechia cure	5	
cure of cervical stenosis	2	
endometriectomy	5	
myomectomy	1	
removal of intrauterine device	3	
Laparotomy	19	30.1
myomectomy	10	
hysterectomy	9	
Vaginal route	6	9.5
hysterectomy	4	
scalpel	1	
myomectomy	1	6.3
Laparoscopy (blue test +/- tubal plastic surgery)	4	
Medical treatment	4	6.3
Total	63	100

Table 5. Concordance between the results of the ultrasound and those of the diagnostic hysteroscopy at the IHS hospital in Dakar (N=172).

	Lesion present on hysteroscopy	Lesion absent on hysteroscopy	Total
Lesion detected on ultrasound	VP* : 105	FP* 13	118
Lesion not detected on ultrasound	FN* 16	VN* : 38	54

Total	121	51	172
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TP*: true positive . FP*: false positive . FN*: false négative. TN*: true negative

Positive prédictive value (PPV) = TP/TP+FP = 83%

Negative prédictive value (NPV) = TN/TN+FN = 70.4%

Table 6. Results of diagnostic hysteroscopy according to the fertility of patients at the IHS hospital in Dakar (N=195).

Hysteroscopy results	Infertility	Normal fertility
Polyp	32(39.5%)	49(60.5%)
Myomas types 0. 1 et 2	20(55.6%)	16(44.4%)
Endométrial pathology	23(40.3%)	34(59.7%)

p = 0.0029

Table 7. Results of diagnostic hysteroscopy according to the parity of patients at the IHS hospital in Dakar (N=195).

Hysteroscopy results	Parity		
	Nulliparous	Pauciparous	Multipara
Polyp	22(27.2%)	26(32.1%)	33(40.7%)
Myomas types 0. 1 et 2	18(50%)	13(36.1%)	5(13.9%)
Uterine synechia	2(15.4%)	4(30.8%)	7(53.8%)
Endométrial pathology	12(21%)	31(54.4%)	14(24.6%)

p = 0.0012

Table 8. Intensity of pain according to parity in patients who underwent diagnostic hysteroscopy on an outpatient basis at the IHS hospital in Dakar (N=195).

Pain intensity / 10	Parity			Total
	Nulliparous	Pauciparous	Multipara	
No pain	3(75%)	1(25%)	-	4
1 to 3	31(30.7%)	33(32.7%)	37(36.6%)	101
4 to 5	41(51.2%)	23(28.8%)	16(20%)	80
6 to 7	9(100%)	-	-	9
Supérieure à 7	1(100%)	-	-	1
Total	85	57	53	195

p = 0.008

Table 9. Intensity of pain according to the period of genital activity of patients who underwent diagnostic hysteroscopy on an outpatient basis at the IHS hospital in Dakar (N=195).

Pain intensity / 10	Genital activity	Menopause	Total
No pain	4(100%)	-	4
1 to 3	62(54.6%)	39(45.4%)	101
4 to 5	73(92%)	7(8%)	80
6 to 7	7(77.8%)	2(22.2%)	9
More than 7	1(100%)	-	1
Total	147	48	195

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