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ORIGINAL ARTICLE

Five years outcomes of hysteroscopy experience in a tertiary center

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ABSTRACT

Objective: We aimed to document our hysteroscopy (HS) experience for a period of 5 years in an academic hospital.

Material and Methods: Data from patients who underwent HS for any indication were retrospectively analyzed. The clinical and histopathological outcomes of patients with diagnostic or operative HS were documented.

Results: The mean age of 202 patients included in the study was 42.83±9.58 years, their mean gravidy was 2.67±1.29, and their mean parity was 2.04±0.95. One hundred and sixty-two (80.2%) of the patients were at premenopausal period and 40 (19.8%) of them were at postmenopausal period. The most common comorbidities detected in patients were hypertension (9.4%), diabetes mellitus (4.5%), thyroid disease (4%), and breast cancer (3.5%), respectively. The mean pre-operative endometrial thickness was 12.80±6.10 mm. One hundred and thirty-five patients underwent saline infusion sonohysterography (SIS) procedure before HS, and a mass like lesion in the uterine cavity was detected in 97.8% of them. The average largest diameter of these intracavitary masses detected was 13.72±6.21 mm. Seven (3.5%) of all patients needed HS again. The most common indications for HS were menometrorrhagia (54.5%), polymenorrhea (14.4%), postmenopausal bleeding (10.9%), and infertility (9.4%). As a complication, uterine perforation was detected in 1 (0.5%) of cases and excessive bleeding in 2 (1%) of them. The most common localization of the masses in the uterine cavity was fundus (43.4%). As a result of histopathological examination, endometrial polyps were reported in 59 cases (70.3%) and myoma uteri in 21 (9.4%) cases.

Conclusion: The most common reason for HS in our clinic was endometrial polyp. The most common symptom and surgical intervention were determined as menometrorrhagia and resection of polyp, respectively. In the detection of intracavitary lesions, the use of SIS before HS was a common procedure. Our complication rate was found to be low in line with the literature.

Keywords: Diagnostic hysteroscopy, endometrial polyp, operative hysteroscopy, saline infusion sonography, submucosal myoma.

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INTRODUCTION

The uterine cavity can be evaluated by ultrasonography, hysterosalpingography, saline infusion sonohysterography (SIS), hysteroscopy (HS), and magnetic resonance imaging. With imaging methods other than HS, the clear distinction between intrauterine pathologies cannot be made with full accuracy.[1] Among these methods, HS is considered the gold standard method in the evaluation and treatment of intracavitary pathologies of the uterus.[2,3]

The first diagnostic and therapeutic HS were carried out in the mid-19th century by desormeaux, where the endometrial polyp was diagnosed and treated using silver nitrate.[4] As a result of technological developments, there have been advances in the techniques used in HS recently. HS can be used for both diagnosis and treatment. Diagnostic HS is used to examine the endocervical canal, endometrial cavity, and bilateral tubal ostia. Operative HS is also used in the treatment of intracavitary pathologies. Today, innovative technologies such as the application of mechanical, electrosurgical, or laser instruments in the operative HS offer a more widespread use for HS.[5]

Recently, HS in obstetrics and gynecology practice has become the main tool in the evaluation of infertile women, diagnosis, and management of uterine anomalies and abnormal uterine bleeding.[6] Today, the fact that minimally invasive surgery is preferred by both patients and physicians, increasing clinical experience, and production of small-scale surgical equipments have contributed to the expansion of the diagnostic and operative HS indications and its popularity.

SIS can achieve diagnostic accuracy as high as HS and can be directed to operative HS.[7] SIS is a useful diagnostic tool, especially in detecting the presence of intrauterine space-occupying pathologies.[8]

In this study, we wanted to evaluate the clinical and pathological results of all HS cases performed in our clinic in the last 5 years.

MATERIAL AND METHODS

This study was conducted on cases with HS between March 2016 and August 2020. Approval for the study was obtained from Muğla Sıtkı Koçman University Health Sciences Scientific Research Ethics Committee (Decision number: 22.09.2020-4).

Data of patients who underwent HS were analyzed retrospectively. As the inclusion criteria of the study, all diagnosic and operative HS cases performed in Muğla Sıtkı Koçman University Training and Research Hospital in the past 5 years were screened. Incomplete or inaccessible medical records were determined as exclusion criteria. All necessary information was obtained from patient files and hospital database records.

In the given period, a total of 229 patients underwent surgical or diagnostic HS procedures by our surgical team experienced in HS. Twenty-seven patients whose medical or surgical records could not be reached were excluded from the study. A total of 202 patients who underwent HS were included in the study. The characteristic and surgical parameters such as age, gravidy, parity, comorbidities, menopausal status, pre-operative symptoms, pre-operative endometrial thickness, application of SIS, mass detection in SIS, the largest mass size in pre-operative ultrasonography, mass localization in the uterine cavity, need for recurrent HS, pathology result, and HS complications (uterine perforation, fluid overload, air/gas embolism, thermal burns, excessive bleeding, and infection) were investigated.

SIS was performed in patients with suspected intracavitary lesions or abnormalities during routine transvaginal ultrasonography (TVUSG). During the SIS, an insemination cannula was inserted through the cervical os into the endometrial cavity due to its thinner size that causes less pain. To prevent echogenic artifact of air, uterine cavity was filled with sterile saline solution before the cannula was placed into the cavity. To fill the endometrial cavity, 10–30 ml of saline solution was slowly infused into the cavity accompanied by TVUSG. The thickness and regularity of the endometrium and the presence of any mass-like lesion were checked during SIS.

Diagnostic or operative HS was planned in the secretory phase of the menstrual period for patients with suspected intrauterine pathology according to TVUSG and/or SIS results. For HS procedure, 300 optical telescope, and 10 mm operative histeroscope device were used under general anesthesia (Storz, Germany). For cervical ripening, two tablets of intravaginal misoprostol were administered in selected patients with postmenopausal cervical stenosis or no history of birth 12 h before HS. Three thousand milliliters of resectisol solution were used for uterine cavity distension. Loop electrosurgical resection and correction of uterine abnormalities were performed in patients as needed. Sterile disposable blue drapes were used for sterilization during HS. Sacks with strainers and drain plugs, which are part of these drapes, were used to collect pathological materials removed after the procedure.

Statistical Analysis

The collected data were analyzed using SPSS software, version 23 (SPSS Inc, IBM, Chicago, IL, USA). The continuous or consecutive variables reported as mean±SD. The categorical variables were reported as frequency and percentage.

RESULTS

The mean age of the 202 cases included in the study was 42.83±9.58 years, their gravida was 2.67±1.29, and their parity was calculated as 2.04±0.95. 162 of the patients (80.2%) were in the premenopausal period and 40 (19.8%) were in the postmenopausal period. While 74.8% of the patients did not have any comorbidity, hypertension (9.4%), diabetes mellitus (4.5%), thyroid disease (4%), and breast cancer (3.5%) were the most common comorbidities. The mean pre-operative endometrial thickness was 12.80±6.10 mm. SIS procedure was applied to 135 of the patients before HS and a mass occupying the cavity was detected in 97.8% of them. The mean largest diameter of these intracavitary masses detected was 13.72±6.21 mm. In 7 (3.5%) of all patients, HS was needed again. All of the cases with recurrent HS were performed due to recurrence of the endometrial polyp (Table 1).

The distribution of symptoms of patients before HS was as follows; Menometrorrhagia (54.5%), polymenorrhea (14.4%), oligomenorrhea (1.5%), infertility (9.4%), incidental diagnosis (5%), postmenopausal bleeding (10.9%), lost intrauterine device (IUD)/rest piece of IUD (3%), and chronic pelvic pain (1.5%) (Table 2). All IUD dislocations were intrauterine. No IUD perforating the uterus was seen. While one (0.5%) of the cases had uterine perforation and two

Table 1: The descriptive statistics of patients who underwent hysteroscopy

Variables	Total patients (n=202) Mean±SD	%
Age (years)	42.83±9.58	
Gravidy (n)	2.67±1.29	
Parity (n)	2.04±0.95	
Menopausal status		
Premenopausal	162	80.2
Postmenopausal	40	19.8
Comorbidity		
No	151	74.8
Hypertension	19	9.4
Diabetes mellitus	9	4.5
Cardiovascular disease	6	3.0
Breast cancer	7	3.5
Thyroid disease	8	4.0
Central nervous system disease	2	1.0
Preop endometrial thickness (mm)	12.80±6.10	
SIS n (%)	135	66.8
Mass detection in SIS n (%)	132	97.8
Mass size (mm)	13.72±6.21	
Need for Re-HS	7	3.5
Complications		
Uterine perforation	1	0.5
Fluid overload	–	–
Air/gas embolism	–	–
Thermal burn	–	–
Excessive bleeding	2	1
Infection	–	–

SD: Standard deviation; HS: Hysteroscopy; SIS: Saline infusion sonohysterography.

(1%) had excessive bleeding, no complications such as excessive fluid load, air/gas embolism, thermal burn, and infection were observed. No additional procedure was needed in the case with uterine rupture. In patients with excessive bleeding, an 18 F Foley catheter was placed into the uterine cavity after HS and the balloon of Foley was inflated to 20–30 cc. These patients were followed up with vital signs, hematocrit value, and ultrasonography, and no other complications were observed.

When we analyzed the localization of the masses in the cavity detected during HS, fundus localization was the most common site (43.4%). The left lateral (16.2%), right lateral (15%), posterior (14.5%), anterior (8.1%), and cervical (2.9%) localizations were detected less frequently (Table 3).

Table 2: The distribution of pre-operative symptoms

The symptoms	Total patients (n=202)	
	n	%
Menometrorrhagia	110	54.5
Polimenore	29	14.4
Oligomenorrhea	3	1.5
Infertility	19	9.4
Incidental diagnosis	10	5.0
Postmenopausal bleeding	22	10.9
Lost IUD/Rest piece of IUD	6	3.0
Chronic pelvic pain	3	1.5

IUD: Intrauterine device.

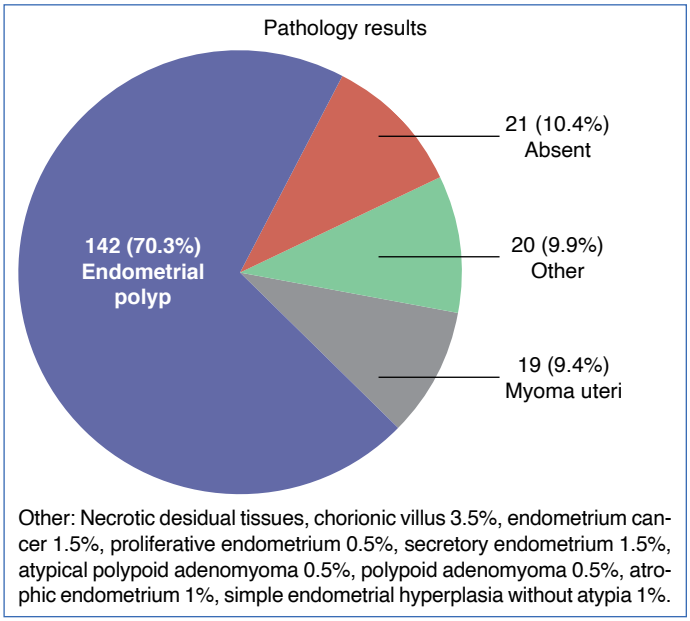
Table 3: The rates of mass localization in the uterine cavity

Location	Total patients (n=173)	
	n	%
Fundus	75	43.4
Left lateral	28	16.2
Right lateral	26	15.0
Posterior	25	14.5
Anterior	14	8.1
Cervical	5	2.9

The distribution of hysteroscopic operations according to the pathological results is presented in Figure 1. Hysteroscopic resection or endometrial sample was obtained in 181 cases for histopathological examination. Pathology results were reported as endometrial polyp in 142 cases (70.3%), and myoma uteri in 19 (9.4%) cases. The benign results other than endometrial polyp or fibroid were detected in 9.9% of the cases (necrotic decidual tissues (3.5%), proliferative endometrium (0.5%), secretory endometrium (1.5%), endometrial cancer (1.5%), atrophic endometrium (1%), simple endometrial hyperplasia without atypia (1%), polypoid adenomyoma (0.5%), and atypical polypoid adenomyoma (0.5%).

DISCUSSION

HS is used for a wide variety of diagnostic and therapeutic algorithms, such as the assessment of infertility, recurrent abortion, uterine anomalies, and the diagnosis and treatment of endometrial pathologies.[9–11] Office HS is recommended to be used as the first step, especially in the evaluation of infertile cases, as it offers very useful information and can be used practically.[12] In this study, a total of 19 cases were found to have undergone diagnostic HS due to infertility, and 183 cases operative HS. Although 8 of 19 patients who



Other: Necrotic desidual tissues, chorionic villus 3.5%, endometrium cancer 1.5%, proliferative endometrium 0.5%, secretory endometrium 1.5%, atypical polypoid adenomyoma 0.5%, polypoid adenomyoma 0.5%, atrophic endometrium 1%, simple endometrial hyperplasia without atypia 1%.

Figure 1: The pathology results of patients who underwent hysteroscopy.

underwent HS with the indication of infertility gave normal results, three uterine septum, four endometrial polyps, and two leiomyomas were detected and were found to be compatible with the literature.[13] Due to the recently opened IVF unit in our clinic, an increase in the number of HS used in infertility research is expected in the future.

SIS is another diagnostic method in investigating the causes of abnormal uterine bleeding. SIS has a distinct advantage over transvaginal ultrasound in detecting focal lesions. In the diagnosis of these lesions, SIS has a similar diagnostic accuracy value with HS. It also has the advantage to view other pelvic organs simultaneously. In the study of Bartkowiak et al.,[14] the role of vaginal ultrasound, SIS, and HS in recognizing intrauterine pathologies was investigated. They evaluated 150 premenopausal and postmenopausal patients prospectively. It has been determined that SIS is superior to vaginal ultrasound and has similar diagnostic value with HS. In the study of Nessar et al.,[15] the hysteroscopic diagnoses of the patients who were pre-diagnosed with SIS were compared and it was observed that SIS had 90.62% sensitivity and 90.48% specificity. It was also observed that SIS had 84.21% sensitivity and 100% specificity in the diagnosis of myoma. In the present study, when the pre-diagnoses of SIS and post-HS pathology results were compared, all 106 patients who were diagnosed with endometrial polyp and underwent SIS were found to have endometrial polyps after HS and the sensitivity was found to be 100%. In addition, sensitivity for fibroid was found to be 100% as a result of HS in all 18 patients who were diagnosed with fibroids and underwent SIS. The specificity could not be calculated, since there was no patient who did not have a mass finding with SIS and who had a mass after HS. SIS is currently considered as an eligible alternative method to HS due to its easy applicability, good tolerability by the patient, cheap, and outpatient application. In addition, HS has a diagnostic accuracy similar to SIS. If any pathology detected during HS procedure, it gives the advantage to treat at the same session. Thus, it has an increasing popularity in the uterine cavity pathologies.

Hysteroscopic endometrial sampling has been found to be very effective in detecting endometrial cancer and hyperplasia in patients with abnormal uterine bleeding and especially in recurrent postmenopausal bleeding cases. In our clinic, we did not have HS for the purpose of diagnosis or treatment to any patient diagnosed with endometrial cancer by pipelle or dilatation curettage method. In the samples taken in this study, endometrial cancer was detected in three (1.5%) cases after histopathological examination and all of these patients were in the postmenopausal period.

The complications of HS are rare and develop mostly due to therapeutic procedures.[16] The most common HS complications are fluid overload (5%), uterine perforation (1%), and bleeding (3%).[17] In our study, uterine perforation was observed in only one case. This perforation was a case of septum resection due to infertility. After the perforation was detected, intraoperative transabdominal ultrasonography revealed free fluid and bleeding in the abdomen. In the evaluation, the amount of bleeding did not increase, and an 18 F Foley catheter was placed from the posterior vaginal fornix to the posterior cul de sac. It was observed that there was no need for additional intervention in the patient's follow-up. This application may be an alternative method that may be useful in the follow-up of both intra-abdominal bleeding and fluid leakage during HS. In both cases, excessive bleeding occurred and the bleeding was controlled by applying balloon tamponade with the help of intrauterine Foley ballon. We attribute the fact that no fluid overload was encountered in our clinic to our experienced surgical team in HS.

The use of HS in the infertility researches is quite common. Although HS has a limited place in the detection of tubal pathologies, a few studies have been conducted on the evaluation of tubal pathologies recently. Yücel et al.[18] evaluated tubal peristalism hysteroscopically in patients with a diagnosis of unexplained infertility. In addition, Promberger et al.[19] evaluated the observation of flow effect in tubal ostia. In our clinic, we observed that at least one tube was open during hysterosalpingography in patients who underwent HS due to infertility and had fluid leakage into the abdomen. We think that the detection of fluid leakage into the abdomen after HS may bring give a positive opinion about tubal permeability. Therefore, especially in infertile patients, ultrasonography after HS can contribute not only to the control of bleeding and fluid overload but also to the evaluation of tubal permeability.

The use of misoprostol for cervical ripening before HS has not been shown to benefit cervical dilatation and surgical complications. Since increased side effects have been reported in these cases, routine application of misoprostol is not recommended. For this purpose, it is recommended that the use of misoprostol be reserved for some selected cases.[20,21] In our clinic, we do not routinely apply misoprostol for cervical ripening in the pre-operative period. In addition, we administer misoprostol only to patients not gave a birth before and who have postmenopausal cervical stenosis.

As a limitation of our study, we can say that the number of infertile patients who underwent diagnostic HS is low. However, thanks to the IVF center opened within our clinic, we think that the patient population undergoing diagnostic HS will increase in the coming days. In addition, using the same technical equipment for HS is a strong factor for standardization of the work.

HS is an indispensable intervention in gynecology clinics with its high reliability and low complication rates that can be used for diagnostic and operative purposes. The results of our study show that HS procedures performed in our clinic is a diagnostic and treatment method with high reliability and low complication rate.

Statement

Ethics Committee Approval: The Muğla Sıtkı Koçman University Health Sciences Scientific Research Ethics Committee granted approval for this study (date: 22.09.2020, number: 4).

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – BS, MNA; Design – BS, EA; Supervision – MNA, EA; Resource – BS; Materials – BS, MNA, EA; Data Collection and/or Processing – BS, ES; Analysis and/or Interpretation – BS, ES; Literature Search – MNA, EA; Writing – BS; Critical Reviews – MNA, EA, ES.

Conflict of Interest: The authors have no conflict of interest to declare.

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