Five years outcomes of hysteroscopy experience in a tertiary center

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.
INTRODUCTION
The uterine cavity can be evaluated by ultrasonography, hysterosalpin- 
gography, saline infusion sonohysterography (SIS), hysteroscopy 
(HS), and magnetic resonance imaging. With imaging methods other 
than HS, the clear distinction between intrauterine pathologies can-
not be made with full accuracy.[1] Among these methods, HS is con-
sidered 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 technologi-
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, endome-
trial 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 instru-
ments 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 pa-
tients 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 intruterine 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 
Sıtki Koçman University Health Sciences Scientific Research Ethics 
Committee (Decision number: 22.09.2020-4).

Data of patients who underwent HS were analyzed retrospective-
ly. As the inclusion criteria of the study, all diagnostic and operative 
HS cases performed in Muğla Sıtki 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, gravidity, parity, comorbidities, 
menopausal status, pre-operative symptoms, pre-operative endome-
trial thickness, application of SIS, mass detection in SIS, the larg-
est 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 les-
ions 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, uter-
ine 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 pathol-
ogy according to TVUSG and/or SIS results. For HS procedure, 300 
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 means±SD. The categorical variables were re-
ported as frequency and percentage.

RESULTS
The mean age of the 202 cases included in the study was 42.83±9.58 
years, their gravidity 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 pe-
period and 40 (19.8%) were in the postmenopausal period. While 74.8% 
of the patients did not have any comorbidity, hypertension (9.4%), dia-
abetes mellitus (4.5%), thyroid disease (4%), and breast cancer (3.5%) 
were the most common comorbidities. The mean pre-operative endo-
metrial 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 fol-
lows; Menometrorrhagia (54.5%), polymenorrhoea (14.4%), oligo-
menorrhoea (1.5%), infertility (9.4%), incidental diagnosis (5%), post-
menopausal 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
(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 1: The descriptive statistics of patients who underwent hysteroscopy

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

Table 2: The distribution of pre-operative symptoms

<table>
<thead>
<tr>
<th>The symptoms</th>
<th>Total patients (n=202)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Menometrorrhagia</td>
<td>110</td>
</tr>
<tr>
<td>Polymenorrhagia</td>
<td>29</td>
</tr>
<tr>
<td>Oligomenorrhagia</td>
<td>3</td>
</tr>
<tr>
<td>Infertility</td>
<td>19</td>
</tr>
<tr>
<td>Incidental diagnosis</td>
<td>10</td>
</tr>
<tr>
<td>Postmenopausal bleeding</td>
<td>22</td>
</tr>
<tr>
<td>Lost IUD/Rest piece of IUD</td>
<td>6</td>
</tr>
<tr>
<td>Chronic pelvic pain</td>
<td>3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Location</th>
<th>Total patients (n=173)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Fundus</td>
<td>75</td>
</tr>
<tr>
<td>Left lateral</td>
<td>28</td>
</tr>
<tr>
<td>Right lateral</td>
<td>26</td>
</tr>
<tr>
<td>Posterior</td>
<td>25</td>
</tr>
<tr>
<td>Anterior</td>
<td>14</td>
</tr>
<tr>
<td>Cervical</td>
<td>5</td>
</tr>
</tbody>
</table>

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.[13] 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
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. The most common HS complications are fluid overload (5%), uterine perforation (1%), and bleeding (3%).

In our study, uterine perforation was observed only in 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. evaluated tubal peristalsis hysteroscopically in patients with a diagnosis of unexplained infertility. In addition, Promberger et al. 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 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. 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.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES


