

RETROSPECTIVE EVALUATION OF HYSTEROSCOPIC SURGERY CASES
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ABSTRACT

Aim: Is to retrospectively analyze the cases who applied to the obstetrics clinic with various complaints and underwent hysteroscopy (HS) for different indications, to analyze the data such as hysteroscopy indications and complications, and to evaluate the efficacy and safety of hysteroscopy in the light of literature. **Method:** Our study was carried out retrospectively in patients who were in reproductive, peri and postmenopausal periods and underwent hysteroscopy, who applied to our gynecology outpatient clinic and IVF Center. The hysteroscopy indications, peri-post-operative complications, and demographic characteristics of the patients were analyzed using hospital records. The sensitivity and specificity of hysteroscopy were investigated by comparing pre-operative diagnoses with per-operative diagnoses and diagnoses in pathology reports. **Results:** The mean age of the patients (n=347) included in the study was 32.34 ± 7.71 , and their BMI was 24.65 ± 4.54 kg/m². When evaluated in terms of HS indications, the etiology of infertility was investigated in 222 (64.0%) patients, while in the other patients, myoma uteri 20 (5.8%), abnormal uterine bleeding (AUB) 29 (11.2%) and other reasons, no mortality was observed in 5 patients (%). 1.7) complications were observed. In our study, our hysteroscopy results were evaluated with pathological results and it was determined that the method showed correct results with 89.4% sensitivity and 94.7% specificity in polyps. In myomas, this rate was found to be 93.8% sensitivity and 96.1% specificity. **Conclusions:** HS allows the detection and treatment of intracavitary and cervical pathologies that may lead to implantation failure, especially in patients who will undergo IVF, and may increase IVF success. In our study, the rate of intrauterine pathology detected in patients who underwent hysteroscopy before IVF was similar to the literature, making us think that these pathologies should be screened and treated before the procedure in recurrent IVF failures.

KEYWORDS: hysteroscopy; infertility; abnormal uterine bleeding.

INTRODUCTION

With the developments in minimally invasive surgery technology in the last 20 years, hysteroscopy has become a space-occupying place in today's obstetric and gynecology practice, especially in the evaluation and treatment of infertile women, in the functional and anatomical examination of uterine anomalies, and in the diagnosis and management of abnormal uterine bleeding due to benign, premalignant and malignant causes. determining the nature of the lesions, demonstrating the presence of adhesion or septum, and determining the location of the lost IUD have been the main tools.^[1] The popularity of the method is increasing thanks to its many advantages such as being minimally invasive, providing direct evaluation of cervical canal and intrauterine pathologies, providing both diagnosis and treatment advantages, high sensitivity and specificity, allowing day-to-day procedures, and being repeatable in a short time. is increasing day by day.^[2] Parallel to the gradual

increase in the elderly population all over the world, considering the climacteric population, the rate of hysteroscopy in patients with abnormal uterine bleeding has increased to 70%.^[3]

The aim of this study is to evaluate retrospectively the cases who applied to the gynecology outpatient clinic with various complaints and underwent hysteroscopy for different indications, to analyze the data such as hysteroscopy indications and complications, and to evaluate the effectiveness and reliability of hysteroscopy in the light of the literature by examining the results of our study with the findings of the current literature.

MATERIAL AND METHODS

Our study included patients in reproductive, peri and postmenopausal period and underwent diagnostic hysteroscopy, who applied to Kahramanmaraş Sütçü İmam University Faculty of Medicine, Obstetrics and

Gynecology outpatient clinic and KSU IVF Center with different gynecological complaints between 01.01.2016 and 16.06.2020 after the approval of the Local Ethics Committee. was included.

The study was carried out retrospectively in accordance with the 1975 Declaration of Helsinki.

Data were obtained from patient files, computer records, anamnesis, and surgical notes and pathology data. All patients were informed about the method and complications of the method to be applied before the procedure, and their informed consent was obtained.

In the study, in the electronic data and file scan reviews of the patients; demographic data (age, body mass index (BMI), systemic diseases, gravida, parity, number of In vitro fertilization (IVF) failures, number of intrauterine insemination (IUI) failures, presence and number of abortions, presence and number of previous uterine surgery, preoperative, Intraoperative and postoperative haematological parameters, hysteroscopic findings and complications (bleeding, rupture) results were determined and recorded. The cases whose files were missing, whose data could not be accessed, and whose pathological records could not be reached were excluded from the study.

All operations were performed by the same team using the same device. After the systemic and gynecological examinations of the patients who will undergo hysteroscopy, the size and direction of the uterus were recorded. The procedure was performed in the early follicular phase after menstruation in premenopausal patients, and in the absence of bleeding in postmenopausal patients in order to avoid an increase in endometrial thickness.

All procedures were performed by the same team using the same devices [(5 mm Bettocchi B.I.O.H Office Hysteroscope (Karl Storz GmbH & Co. Tuttlingen, Germany)) and 10 mm Operative Resectoscope (Bettocchi B.I.O.H (Karl Storz GmbH & Co. Tuttlingen, Germany))].

Video recording was done using the TelePack video monitor system. After the procedures were performed in the dorsolittotomy position, under regional or general anesthesia, the cervix and vagina were cleaned with povidone iodine, and the uterine cavity was entered with a hysteroscope with the help of a speculum or vaginal valves, with or without cervical dilatation. Cavity distension was performed with 0.9% NaCl (saline) solution or 5% Mannitol at a controlled pressure of 80-100 mmHg. Fluid delivery and pressure control were provided by the Storz Endomat Suction Wash and Pressure Control Unit.

Processing adequacy; The endocervical canal, the entire cavity, and both tubal ostia were considered as the

observation. In the evaluation of the uterine cavity; While the cases in which no pathology was detected were accepted as normal cavities, submucous myoma, endometrial polyp, synechiae and congenital uterine anomalies were also recorded.

Endometrial polyp; smooth-surfaced structures with or without pedicles covered by the endometrium, and fibroids were evaluated as shiny structures such as mother-of-pearl, which may have vascularity on them, which are not covered by the endometrium. The detected pathological structures were removed by operative hysteroscopy, the specimens were preserved in 10% formaldehyde and sent to the laboratory for pathological examination. In cases with pathological findings, the definitive diagnosis was made according to histopathological findings. The duration of the operation was considered as the time elapsed between the insertion of a speculum or valves into the vagina and the end of the hysteroscopy procedure.

SPSS 22 Windows (Statistical Package for the Social Sciences, Armonk, NY, USA) package program was used to analyze the data. The conformity of the data to the normal distribution was tested with the Shapiro-Wilk test and the homogeneity of variance was tested with the Levene test. Quantitative variables mean \pm std. (standard deviation) and median Range (Maximum-Minimum) values, while categorical variables are expressed as n (numbers) and percentages (%).

RESULTS

The mean age of the patients (n=347) included in the study was 32.34 ± 7.71 (min-max 16-67) years, and their BMI was 24.65 ± 4.54 kg/m². It was determined that abortion developed in the previous pregnancies in an average of 1.05 ± 1.66 cases (**Table 1**).

When evaluated in terms of HS indications, it was seen that 222 (64.0%) patients were investigated for the etiology of infertility, and in other patients, myoma uteri 20 (5.8%), AUB 29 (11.2%) and other reasons. Complications were observed in 5 (1.7%) patients. When the complications were evaluated, it was seen that perforation developed in 4 patients, and perforation + lymphatic channel injury developed in 1 patient. There was no mortality in any patient (**Table 2**).

In the analysis comparing hysteroscopic findings and pathology report results, it showed a significant ($p < 0.001$ / $\kappa = 0.837$) agreement. In our study, our hysteroscopy results were evaluated with pathological results and it was determined that the method showed correct results with 89.4% sensitivity and 94.7% specificity in polyps. In myomas, this rate was found to be 93.8% sensitivity and 96.1% specificity.

In our study, it was observed that no patient developed a need for transfusion. Hemoglobin values before and after the procedure are shown in **Table 3**.

DISCUSSION

The number of diagnostic tests in clinical gynecology practice has been increasing in recent years. The treatment of a gynecological disease can be done correctly by combining the patient's complaints, individual characteristics, examination with diagnostic tests. Accurate diagnosis makes timely and effective treatment possible. However, the application of tests with low diagnostic efficiency delays the diagnosis of the disease and causes an indirect cost increase. For this reason, various diagnostic tests are being developed in parallel with technological developments and the spread of minimally invasive surgery.

Hysteroscopy, which is increasingly used in today's gynecology practice, is a simple and reliable diagnostic and treatment tool that provides direct visualization of the uterine cavity. The decrease in instrument diameters and the increase in the image quality of the telescopes used with technological developments have caused hysteroscopy to be less painful, to be performed in office conditions without the need for hospitalization, to be used both as a diagnosis and as a therapeutic, and its frequency has increased.^[4,5] In hysteroscopy studies in the literature, the mean age of patients varies according to hysteroscopy indications. For example, in a study conducted with 510 women, the mean age of patients who were frequently treated for infertility was found to be 33.8 ± 8.1 , similar to our study^[6], while Török and Major reported that the mean age of patients was 41.1 years in their study, where they applied hysteroscopy mostly for AUB.^[7] The mean age of the patients in our study was 32.34 ± 7.71 years (min-max 16-67). The main reason for this situation is that the indications in our study are generally infertility, similar to the studies of Farquhar *et al.*^[6]

Although hysteroscopy was reported for many reasons in studies conducted to evaluate hysteroscopy indications, it was reported that the most common hysteroscopy indication was AUB (43.7-75.7%).^[4,8] It has been reported that the most important reason for this situation is the blinding of the biopsy procedure in the D&C procedure, which is traditionally used in the investigation of the etiology of AUB, and the inability to recognize focal pathological lesions. In a study, it was shown that hysteroscopy was effective in detecting intrauterine lesions [44 (16%)] in patients who could not be detected by D&C.^[9] In our study, he applied to our polyclinics with different complaints and hysteroscopy was performed in 222 (64.0%) of 347 patients due to infertility, unlike the literature. Hysteroscopy was performed in only 24 (6.9%) patients for AUB. This significant difference between our study and the literature is due to the fact that there is an *in vitro* fertilization center with a high number of cycles in our clinic, and some factors such as myoma uteri and polyp, which are the causes of AUK, were diagnosed in the preoperative period and these reasons were examined under a separate title, not because of AUB, since the

procedure was performed for therapeutic purposes. In the literature, the complication rate of hysteroscopy is around 3%, and the most common complication is uterine perforation. Other complications that can be seen, respectively, are bleeding and distension media complications.^[6] Complications were observed in 5 (1.7%) of the patients in our series. When the complications were evaluated, it was seen that perforation developed in 4 patients, and perforation + lymphatic channel injury developed in 1 patient. No fluid overload, complications such as PIH (pelvic inflammatory disease) and endometritis, and mortality were observed. In our study, the results were found to be compatible with the literature. It has been reported in the literature that the operation time for hysteroscopy varies between 2 and 5 minutes.^[10] In our study, it was seen that the duration of the operation varied between 4.57 ± 1.72 (3-9), and the results were consistent with the literature.

In the literature, the sensitivity and specificity of hysteroscopy and some diagnostic modalities in the evaluation of some endometrial pathologies have been compared. Birini *et al.* In their study performed for AUB (n=835), they compared hysteroscopy and pathological results and found the sensitivity for polyp to be 87% and the specificity to be 89%.^[11] Widrich *et al.* on the other hand, in a study in which they compared hysteroscopy findings with vacuum curettage diagnoses in 130 patients with AUB, they found the sensitivity for polyps to be 94% and the specificity to be 90%.^[12] Vercellini *et al.* found the sensitivity for polyps to be 86% and the specificity to be 94% in 793 premenopausal patients with AUB.^[13] In our study, our hysteroscopy results were evaluated with pathological results and it was determined that the method showed correct results with 89.4% sensitivity and 94.7% specificity in polyps.

In a study evaluating patients with hysteroscopic diagnosis of endometrial myoma in patients with AUB in the literature, when direct imaging of submucous myomas with office hysteroscopy and endometrial biopsy diagnoses were compared, the diagnostic sensitivity of the method was found to be 75%, and the specificity was 99%.^[14] In our study, this rate was found to be 93.8% sensitivity and 96.1% specificity.

In our study, none of the patients developed bleeding complications requiring blood transfusion, and intermittent minimal bleeding was observed in 46 patients after polypectomy or myomectomy. While the initial Hb values of the patients were 12.37 ± 1.46 g/dl, the post-procedure Hb values were 11.69 ± 1.40 g/dl.

The most important limitation of the study is the inability to fully reflect the cause-effect relationship due to its retrospective design. However, data loss was minimal as the records were kept in the computer environment due to the transition to the automation system of the hospital where the study was conducted between the years examined. In addition to these limitations, the most

important strength of our study is the fact that some results different from the literature can be presented due

to the in vitro fertilization center working very actively in our clinic.

Table 1: Demographic characteristics of the patients included in the study.

	(n=347)
Age (Years)	32.34±7.71 (min-max 16-67)
Gravidity	1.48± 1.97
Parity	0.75±1.28
BMI (kg/m ²)	24.65±4.54
Number of previous abortions	1.05±1.66
Operation time (minutes)	4.57±1.72 (3-9)
<i>Data are expressed as mean±standard deviation or number (%).</i>	
<i>BMI: Body mass index</i>	

Table 2: Pathology results and complication status of the patients included in the study.

	(n=347)
Pathology result	
No Pathology	102 (29.4 %)
Chronic endometritis	13 (3.7 %)
Adenomyosis	2 (0.6 %)
Endometrium in proliferation	9 (2.6%)
Polyp	155 (44.7 %)
Carcinoma	1 (0.3 %)
Squamous metaplasia	1 (0.3 %)
Myoma uteri	60 (17.3 %)
Uterine synechia	4 (1.2 %)
Complication developing (n,%)	5 (1.5 %)
Uterine perforation	4 (1.2 %)
Uterine perforation+lymphatic channel injury	1 (0.3 %)
Mortality (n,%)	0(%0)
<i>Data are expressed as mean±standard deviation or number (%).</i>	

Table 3: Hematological values of the patients and their need for blood replacement.

	(n=347)
Number of patients who needed transfusion (n, %)	0 (0 %)
Pre-operative Hb value	12.37±1.46
Post-operative Hb value	11.69±1.40
<i>Data are expressed as mean±standard deviation or number (%).</i>	
<i>Hb; Hemoglobin (g/dl)</i>	

CONCLUSION

Hysteroscopy is a minimally invasive modality that can be used in the diagnostic approach of many causes such as AUB and infertility, as well as for treatment when necessary. The method allows direct evaluation of pathologies originating from the endometrial cavity.

Because of the low sensitivity and specificity of hysteroscopy, it is recommended to take endometrial biopsy, especially in patients aged 40 years and older, who underwent hysteroscopy due to AUB. In infertile patients undergoing IVF-ICSI/ET, hysteroscopy allows the detection and treatment of intracavitary and cervical pathologies, which can reach up to 40% and lead to implantation failure, and may increase IVF success. In our study, the rate of intrauterine pathology detected in patients who underwent hysteroscopy before IVF was similar to the literature, making us think that these

pathologies should be screened and treated before the procedure in recurrent IVF failures.

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REFERENCES

1. Ely JW, Kennedy CM, Clark E. Abnormal uterine bleeding: A management algorithm. The journal of the American board of family medicine, November–December 2006; 19: 590-602.
2. Birinyi L, Daragó P, Török P, et al. Predictive value of hysteroscopic examination in intrauterine abnormalities. Eur J Obstet Gynecol Reprod Biol, 2004; 115: 75-9.

3. Emanuel MH, Verdel MJC, Stas H. An audit of true prevalence of intrauterine pathology: the hysteroscopic findings controlled for patient selection in 1202 patients with abnormal uterine bleeding. *Gynaecol Endosc*, 1995; 4: 237-41.
4. Siristatidis C, Chrealis C, Salamalekis G, Kassanos D. Office hysteroscopy: current trends and potential applications: a critical review. *Arch Gynecol Obstet*, 2010; 282: 383-388.
5. Wieser F, Tempfer C, Kurtz C, Naegele F. Hysteroscopy in 2001: a comprehensive review. *Acta Obstet Gynecol Scand*, 2001; 80: 773-783.
6. Farquhar C, Ekeroma A, Furness S, Arrol B: A systematic review of transvaginal ultrasonography, sonohysterography and hysteroscopy for the investigation of abnormal uterine bleeding in premenopausal women. *Acta Obstet Gynecol Scand*, 2003; 82: 493-504.
7. Török P, Major T. Evaluating the level of pain during Office hysteroscopy according to menopausal status, parity, and size of instruments. *Arch Gynecol Obstet*, 2013; 287: 985-988.
8. Dealberti D, Riboni F, Prigione S, Pisoni C, Rovetta E, Montella F, Garuti G. New mini resectoscope, analysis of preliminary results in outpatient hysteroscopic polypectomy. *Arch Gynecol Obstet*, 2013; 288: 349-353.
9. Gimpelson RJ, Rappold HO. A comparative study between panoramic hysteroscopy with directed biopsy and D&C. *Am J Obstet Gynecol*, 1988; 158: 489-492.
10. Romani F, Guido M, Morciano A, Martinez D, Gaglione R, Lanzone A, Selvaggi L. The use of different size-hysteroscopy: our experience. *Arch Gynecol Obstet*, 2013; 13: 2932-2937.
11. Birinyi L, Darago P, Torok P. Predictive value of hysteroscopic examination in intrauterine abnormalities. *Eur J Obstet Gynecol Reprod Biol*, 2004; 115: 75-79.
12. Widrich T, Bradley LD, Mitchinson AR. Comparison of saline infusion sonography with Office hysteroscopy for the evaluation of the endometrium. *Am J Obstet Gynecol*, 1996; 174: 1327-1334.
13. Vercellini P, Cortesi I, Oldani S. The role of transvaginal ultrasonography and outpatient diagnostic hysteroscopy in the evaluation of patients with menorrhagia. *HumReprod*, 1997; 12: 1768-1771.
14. Gupta JK, Wilson S, Desai P. How should we investigate women with postmenopausal bleeding? *Acta Obstetrica et Gynecologica Scandinavica*, 1996; 75: 475-479.