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HYSTEROSCOPY FOR UTERINE CAVITY ASSESSMENT IN INFERTILITY

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Abstract: *Hysteroscopy is a surgical procedure that allows a direct view of the uterine cavity and the tubular ostium. This procedure can be performed for both diagnostic and curative purposes. Hysteroscopy have several indications including the evaluation of abnormal uterine bleeding, infertility or intrauterine tumours identified by ultrasound. The purpose of this paper is to evaluate the correlation between the diagnosis at admission and the intraoperative aspect of the uterine cavity following the hysteroscopic evaluation. We evaluated the patients admitted to the Obstetrics and Gynaecology Clinic of the Sibiu County Emergency Clinical Hospital during 1.01.2019- 07.06.2019 who had the following criteria: age between 15-64 years, patients with infertility, patients who had vaginal bleeding or intrauterine tumours or structure identified by ultrasound.*

INTRODUCTION

Hysteroscopy is a surgical procedure that allows a direct view of the uterine cavity and the tubular ostium. This procedure can be performed for both diagnostic and curative purposes. Diagnosis and treatment of intrauterine disorders have been revolutionized with the introduction of hysteroscopy into gynaecological practice. The most common indications of hysteroscopy are infertility and abnormal uterine bleeding.(1,2) Hysteroscopy is considered the gold standard in diagnosing women with abnormal uterine bleeding.

Hysteroscopy has several indications including the evaluation of abnormal uterine bleeding, infertility, intrauterine tumours identified by ultrasound and uterine malformations.(3) Uterine abnormalities can be congenital or acquired. The most common uterine malformations are uterine septum, bicorn uterus, uterus unicorn and uterus didelf.(4)

One of the causes of abnormal bleeding occurring in fertile and premenopausal age is endometrial polyps. Besides giving abnormal bleeding, these structures are also involved in infertility.(5)

Given that studies in the literature show that uterine structural abnormalities contribute to implant failure and infertility, polypectomy is an intervention that is performed frequently before in vitro fertilization.

Endometrial polyps develop from the endometrial stroma and from the endometrial glands. These are among the most common intracavitary structures. Given that most endometrial polyps are asymptomatic, it is difficult to determine exactly their prevalence. 14.8% of women with infertility were diagnosed with endometrial polyp.(6,7,8)

Data from the literature, although limited, suggest that endometrial polyps affect implantation, both in spontaneous and in vitro fertilization pregnancy. Hysteroscopy offers direct visualization of the lesions with the advantage of restoration of the integrity of the uterine cavity and polyp excision in the same procedure to improve fertility. Clinical studies evaluating fertility outcomes in women who have undergone hysteroscopic polypectomy before assisted reproduction treatment compared to those who have not undergone surgery are contradictory.(9,10,11,12) The effect of hysteroscopic polypectomy remains unclear on the outcome of pregnancy in patients undergoing in vitro fertilization.

Menorrhagia affects one in five women and accounts for 21% of hysteroscopic indications. The investigation of menorrhagia is important both for the identification of the underlying pathologies and for the exclusion of a premalignant pathology.(13)

Most often, abnormal intermenstrual bleeding has a benign cause and is commonly associated with contraceptive administration. The role of hysteroscopy in addressing intermenstrual bleeding is still unclear, but if is persistent in females over 45 years of age, a hysteroscopic evaluation of the uterine cavity is appropriate. Menopause bleeding is an important symptom that can be associated with endometrial cancer, which is why it requires further investigation. However, most of the time, this has a benign cause. There are standardized protocols for menopausal bleeding management. It is recommended to measure the thickness of the endometrium by transvaginal ultrasound. If the thickness of the endometrium is abnormal, further investigations of which the hysteroscopy is included are necessary.(14)

Another indication of hysteroscopy is submucosal fibroids. These are classified in 3 degrees depending on the involvement of the myometer. Grade 0 - the fibroid is located entirely in the endometrial cavity; grade I - less than 50% is located in the myometer; Grade II - more than 50% is located in the myometer. Hysteroscopic resection is indicated only for submucosal fibroids of grade 0 and I.

Hysteroscopy is the main method of treatment of Asherman's syndrome. Asherman's syndrome is characterized by the presence of intrauterine adhesions. Women with this syndrome may have hypomenorrhea, but often they do not give

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importance to this symptomatology especially if they do not seek to get a pregnancy. Asherman's syndrome is not detectable following a routine examination. Hysteroscopy, like any surgery, presents a number of complications. These include: uterine perforation, infection, air embolism, water poisoning, etc. The complications of hysteroscopic surgery are primarily related to the operator's experience. These can be prevented if an adequate preoperative evaluation is performed, if the technique is meticulous and the surgeon is vigilant.(15)

AIM

The purpose of this paper is to evaluate the correlation between the diagnosis at admission and the intraoperative aspect of the uterine cavity following the hysteroscopic evaluation.

The diagnosis at admission was established on the basis of anamnesis, clinical examination and ultrasound examination.

MATERIALS AND METHODS

We evaluated the patients admitted to the Obstetrics and Gynaecology Clinic of the Sibiu County Emergency Clinical Hospital during 1.01.2019- 07.06.2019 who had the following criteria: age between 15-64 years, patients with infertility, patients who had vaginal bleeding or intrauterine tumours or structure identified by ultrasound.

Patient data were obtained from the database of the department and the medical records of patients.

From the patient medical records data on age, symptoms, number of pregnancies, infertility history, previous hysteroscopic interventions, intraoperative uterine cavity appearance, type of surgery, complications as well as duration of hospitalization were extracted.

The data obtained were analysed by age groups. Five age groups were established as follows: Group I aged 15-24; group II 25-34 years; group II 35-44 years; group III 45-54 years and group IV 55-64 years.

Another criterion after which the obtained data were analysed and classified was the diagnosis of infertility established at the time of admission. Primary infertility was defined as the inability to get pregnant for one year of unprotected sex life. Secondary infertility was considered when the patient failed to get a pregnancy after a year of attempts but presenting at least one pregnancy in her personal history.

In the evaluation of the intraoperative aspect of the uterine cavity, the following aspects were observed: the cervical canal aspect, the endometrium appearance, the visualization of the tubular ostium, the presence of uterine malformations, the presence of foreign intrauterine bodies or uterine tumours.

RESULTS

Between 1.01.2019- 7.06.2019, 60 patients who were admitted to the Obstetrics Gynaecology Clinic of the Sibiu County Emergency Clinical Hospital were investigated histeroscopically. The number of hysteroscopies is relatively high and the main indication is the uterine cavity evaluation in order to obtain a pregnancy. Of these, only one patient in the first age group. The reason why hysteroscopy was performed in this case was abnormal uterine bleeding. During the intervention, an endometrial polyp about 1.5 cm, located on the anterior uterine wall, was observed.

Hysteroscopy was performed in 23 patients aged between 25 and 34 years. The main diagnosis for this age category was infertility - 16 patients. One of these patients was suspected of Asherman's syndrome.

Asherman's syndrome or uterine adhesions is an acquired uterine disorder, characterized by the formation of adhesions (scars) between the uterus walls. The extent of adhesions defines the disease as mild, moderate, or severe. The adhesions can be thin or thick and they can be limited or extended to entire uterine cavity. Usually, they are not vascularized.

Asherman's syndrome is a difficult diagnosis; it is not obvious on ultrasound examination and is suspected in imaging examinations. The condition occurs in women with a history of gynecological and obstetrical pathology (repeated abortions, missed abortion, birth, usually with infectious complications).

The hysteroscopic treatment consists in incisions with scissors, sometimes in repeated interventions. Hyaluronic acid gels are useful.(16)

The following diagnosis as a frequency for this age group was endometrial hyperplasia - 4 cases. Endometrial hyperplasia is a histology diagnosis and is not a frequent diagnostic at the reproductive age. Usually, endometrial hyperplasia at this age is secondary repeated anovualtory menstrual cycles in polycystic ovary and after repeated ovarian stimulation in reproductive medicine. Hysteroscopy in this case is useful for the macroscopic aspect of the endometrium and for elective biopsy of the endometrium. It is always followed by hormone treatment for 3 to 6 months with progestin.(17)

In 2 cases the intervention was performed by suspecting endometrial polyps and in one case for hematometra.

Endometrial polyps are usually seen in routine ultrasound examination. They are detrimental for fertility only if their size is more than 10 mm and their pathogeny is similar to endometrial hyperplasia.

Hematometra is usually secondary to Asherman's syndrome located close to the internal os. Usually for this location cervical dilatation for hysteroscopy is sufficient treatment.(17)

Regarding the third age group of 35-44 years, hysteroscopy was performed in 26 patients. In this age group the ethio-patogeny of infertility is changing, the major problems are decreasing in ovarian reserve and uterine cavity disorders are decreasing in the infertility cases. Of these, 13 cases were investigated for infertility, 8 for endometrial polyp, 3 for endometrial hyperplasia, one for Asherman's syndrome. In one case, there was a suspicion of chronic endometritis.

Chronic endometritis is usually underdiagnosed because it has few symptoms such as chronic pelvic pain, abnormal menstrual bleeding and leucorrhea. Romero et al. suggests that hysteroscopy is a useful tool in revealing a usually asymptomatic pathology.(16,17)

Liquid exploratory hysteroscopy is a useful method because it shows micropolyps, stromal edema and diffuse hyperemia confirmed by histopathological examination. Hysteroscopy has a higher sensitivity and specificity for the diagnosis of chronic endometritis than bacterial cultures. Mycoplasma and ureaplasma are often involved in the etiology of chronic endometritis and treatment is with Doxycycline for several menstrual cycles.(18,19)

Table no. 1 Number of cases according to age

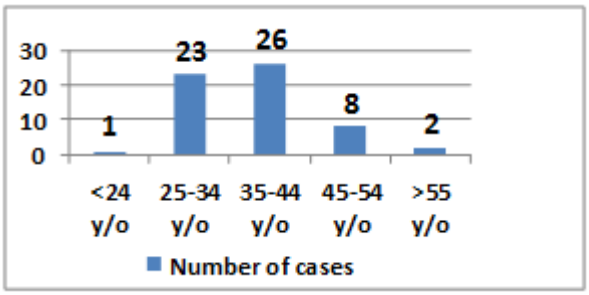
Age (years old)	Number of cases
<24	1
25-34	23
35-44	26
45-54	8
>55	2

A small number, 8 patients aged 45-54 years were hysteroscopically investigated in our clinic during this period. Of these, one was investigated for uterine bleeding in menopause, one for infertility, and the other suspected of chronic endometritis. These patients, even if they were menopausal patients, were investigated for infertility for egg

donation, where endometrium and uterine cavity are of major importance.

Two patients aged 55-64 years were investigated hysteroscopically for endometrial hyperplasia in our clinic during this period.

Figure no. 1. Number of cases according to age



In patients with endometrial polyp, the hysteroscopic resection of the polyp was performed. In patients with Asherman's syndrome, the uterine synechiae was debrided. Cervical dilation was performed in those with cervical stenosis. The content of the uterine cavity was evacuated in patients who had hematometra. In total, 30 women – 50% were hysteroscopically investigated for infertility in our clinic during this period. 16 of them were found to have apparently normal uterine cavity. Three patients presented with Asherman's syndrome, 3 chronic endometritis, in 2 cases - the presence of endometrial polyps, 2 patients with cervical stenosis, 2 patients with endometrial hyperplasia and 2 other patients with uterine malformation (arcuate uterus).

The average length of hospitalization was 3.1 days.

Of the 60 patients who had hysteroscopy in our clinic during this period, 2 had complications. One patient was bleeding from the cervix, post-traumatic, and the other patient had uterine perforation.

Table no. 2. Number of cases according to indication

Indication	Number of cases
Endometrial polips	9
Asherman syndrome	19
Endometrial Hyperplasya	7
Hematometra	1
Infertility	24

Figure no. 2. Number of cases according to indication

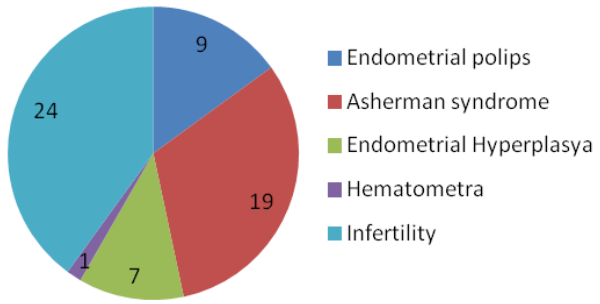


Table no. 3. Percentage representation of the number of cases by age

Age (years old)	Cases %
<24	1.67%
25-34	38.33%
35-44	43.33%^
45-54	13.33%
>55	3.33%

Figure no. 3. Distribution of cases according to pathologies

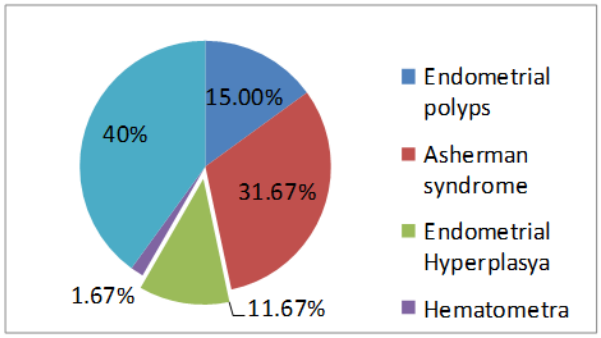


Table no. 4. Distribution of cases according to pathologies

Pathology	Percentage expression of pathologies
Endometrial polyps	15,00%
Asherman's syndrome	31,67%
Endometrial Hyperplasya	11,67%
Hematometra	1,67%
Infertility	40%

DISCUSSIONS

Hysteroscopy is a procedure that offers both diagnosis and treatment. Hysteroscopic evaluation is a key investigation in the evaluation and diagnosis of abnormal uterine bleeding, allowing the use of optimal treatment strategies, based on the underlying uterine pathology. Abnormal uterine bleeding of endometrial origin, uterine polyps and small submucosal fibroids can be treated at the time of diagnosis, with the advantage of rapid resolution of symptoms.(14)

The purpose of our study was to evaluate the validity of ultrasound and clinical examination used in establishing the diagnosis by comparing it to hysteroscopy outcomes.

In our study hysteroscopy was used most often as the method of diagnosis and treatment in the evaluation of patients aged between 34 and 44 years. In most of these patients hysteroscopy was performed to investigate infertility. Given that one of the causes of infertility is old age, the increased incidence of this investigation in this age category is justified. A good correlation was observed between the diagnosis of endometrial polyp at admission and the hysteroscopic evaluation. In our clinic the most common pathology for which hysteroscopy was performed was infertility and endometrial polyps. In the uterine cavity of infertile women, endometrial polyps are frequently encountered. Regarding the treatment of endometrial polyps in patients who are undergoing assisted reproductive technology, the studies' results are contradictory.

Following the intervention for infertility, pathologies such as arcuate uterus, Asherman's syndrome and cervical stenosis were highlighted. Three of the infertility cases had Asherman's syndrome. Only in two of them the diagnosis was suspected at the time of hospitalization.

CONCLUSIONS

Based on the results of our study, there is a good correlation between clinical diagnosis and hysteroscopic findings. However, it seems that hysteroscopy is needed as a diagnosis and not just as an operative instrument. The contribution of hysteroscopy to the diagnosis of uterine abnormalities was more evident in cases of congenital uterine malformations.

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