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# Role of Hysteroscopy in Evaluation of Patients with Abnormal Uterine Bleeding

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**SUMMARY**

**The aim of this study was to assess the feasibility of hysteroscopy for identifying abnormal findings in uterine cavities of pre- and postmenopausal women presented with abnormal uterine bleeding and to correlate the hysteroscopic with histological findings.**

**The study involved 239 female patients referred to the Clinic for Gynecology and Obstetrics in Niš in the period of 12 months for abnormal uterine bleeding. Hysteroscopy with endometrial biopsy were performed in all patients. Biopsy materials were directed to histological examination, and the hysteroscopic and histological findings were compared afterwards. The polyps and submucous miomas were hysteroscopically removed in the same setting and also directed to histological examination.**

**The success rate of the method was close to 98%, while complications occurred in 0,85 % of the cases. The hysteroscopic findings were normal in 41% of the cases. Submucous myoma was the most common finding in premenopausal and endometrial polyp in postmenopausal women. The sensitivity of hysteroscopy in the detection of intrauterine pathology was 100%, the specificity was 91%, the positive predictive value was 93% and the negative predictive value was 100%.**

**Hysteroscopy is a safe, highly sensitive diagnostic procedure that provides useful information about the uterine cavity and represents an ideal method in evaluation of patients with abnormal uterine bleeding. Endometrial biopsy improves the diagnostic accuracy of hysteroscopy in detecting endometrial pathology. Adequate diagnosis is crucial for the selection of relevant treatment of abnormal uterine bleeding and avoidance of unnecessary major surgical procedures.**

***Key words:*** **hysteroscopy, abnormal uterine bleeding, endometrial polyp, submucous myoma**

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## INTRODUCTION

Abnormal uterine bleeding is one of the most common clinical problems in gynecology. Up to 33% of women referred to gynecological outpatient clinics have this problem and the proportion rises more in peri- and postmenopausal women. This condition has enormous consequences with regard to social life, morbidity and clinical workload (1).

The cause of the bleeding can be often discovered using simple methods, such as gynecological and speculum examinations. The transvaginal ultrasound represents the following diagnostic tool which has low specificity and sensitivity in diagnosis of the cause of bleeding (2).

Dilatation and curettage (D&C) have been the key diagnostic procedures in the evaluation of patients with abnormal uterine bleeding for decades. The introduction of hysteroscopy opened a new dimension in evaluation of patients with the problem of bleeding. This technique has replaced the procedure of D&C, which is a blind technique with a high diagnostic failure rate. Hysteroscopy has been generally accepted as the gold standard in evaluation of uterine cavity. The reason is that the entire uterine cavity is directly visualized and it is possible to identify the pathological changes which may be the cause of bleeding and perform the biopsy of the suspected lesion under direct visual inspection (3).

## AIM

The aim of this study was to assess the feasibility of hysteroscopy for identifying abnormal findings in uterine cavities of pre- and postmenopausal women presented with abnormal uterine bleeding and to correlate hysteroscopic with histological findings.

## MATERIAL AND METHODS

The study involved 239 female patients with abnormal uterine bleeding referred to the Clinic for Gynecology and Obstetrics in Niš from January to December, 2010. All the patients had previously been processed anamnestically, clinically and by ultrasound, with the aim of excluding other possible causes of bleeding (injuries of the vulva and vagina, pathology of the cervix and the ovaries).

Hysteroscopy was performed in all patients in the operation room, with the intravenous sedation, by using the rigid hysteroscope of 4.8 mm (Karl Storz) without grasping and dilatation of the cervix (free-hand technique). A normal saline was used as a distending medium. Endometrial biopsy was performed with scissors or a bipolar tweezle electrode, and the samples were referred to histological examination. The endometrium was described as atrophic when appeared thin and pale, hyperplastic when it was thickened and with multipolyp appearance. Endometrial carcinoma was pronounced in the event of an irregular growth of the endometrium with atypical vascularisation. As focal intrauterine lesions, polyps and submucous miomas were removed in the same setting and also directed to histological examination.

In this study, the patients were divided into three age groups; group 1: below 30 years, group 2: 30-45 years and group 3: over 45 years old. All the patients, apart from the cases with complications, were discharged from the hospital two hours after the intervention.

## RESULTS

Out of 239 hysteroscopies, 5 (2.09%) were unsuccessful due to cervical canal stenosis. Two patients (0,85%) had complications and in both cases it was uterine perforation. The treatment was conservative in both cases.

Hysteroscopic results for different age groups are shown in Table 1. The majority of the patients is in group 3 and the minority is in group 1.

Hysteroscopic and histological findings of 234 patients are shown in Table 2. The hysteroscopic findings were normal in 41% of the cases, and the most common intrauterine pathology was the endometrial polyp.

Comparison of hysteroscopic and pathologic results show that the sensitivity of hysteroscopy in the detection of intrauterine pathology was 100%, specificity 91%, positive predictive value was 93% and the negative predictive value was 100%. The sensitivity, specificity, positive predictive value and negative predictive value of hysteroscopy in diagnosing various endometrial pathologies are shown in Table 3.

***Table 1.*** *Hysteroscopy in different age groups*

| Age group (years) | Hysteroscopy | | Total |
|---|---|---|---|
| | *Normal* | *Abnormal* | |
| <30 | 3 (1,28%) | 2 (0,85%) | 5 (2,13%) |
| 30-45 | 55 (23,5%) | 29 (12,4%) | 84 (35,8%) |
| >45 | 38 (16,2%) | 107 (45,7%) | 145 (61,9%) |
| Total | 96 (41,02%) | 138 (58,9%) | 234 (100%) |

***Table 2.*** *Hysteroscopic and hystological findings in studied patients*

| | Diagnostic method | | | |
|---|---|---|---|---|
| | Hysteroscopy | | Histology | |
| Findings | *Number* | *%* | *Number* | *%* |
| Normal endometrium | 96 | 41,02 | 102 | 43,5 |
| Endometrial polyp | 48 | 20,5 | 51 | 21,8 |
| Cervical polyp | 31 | 13,2 | 31 | 13,2 |
| Submucous myoma | 18 | 7,7 | 15 | 6,41 |
| Endometrial hyperplasia | 20 | 8,54 | 16 | 6,83 |
| Endometrial atrophy | 18 | 7,7 | 16 | 6,83 |
| Endometrial cancer | 3 | 1,28 | 3 | 1,28 |

***Table 3.*** *Sensitivity, specificity, positive and negative predictive value of hysteroscopy in diagnosis of different intrauterine pathologies*

| Findings | Sensivity | Specificity | PPV* | NPV** |
|---|---|---|---|---|
| | | *Percentages* | | |
| Endometrial polyp | 94 | 100 | 100 | 97 |
| Submucous myoma | 100 | 98 | 83 | 100 |
| Endometrial hyperplasia | 100 | 98 | 80 | 100 |
| Endometrial atrophy | 100 | 98 | 88 | 100 |

*PPV-positive predictive value, **NPV-negative predictive value

## DISCUSSION

Abnormal uterine bleeding is an important problem and the most common reason why female patients are referred to a gynecologist. With the aim of solving the problem, a precise diagnostics is required. Hysteroscopy is a superior method that has high sensitivity and specificity in diagnosing the cause of abnormal uterine bleeding due to the fact that the uterine cavity and intrauterine pathology are directly visualized (4).

The extremely low percentage of failures (2.09%) indicates the simplicity of the method. In all cases it was impossible to place the hysteroscope due to cervical canal stenosis, which is also the reason of the complicated dilation of the cervical canal, thus making it impossible to perform even the D&C in these cases.

The method success rate near 98% corresponds to the results of other studies (96,9% in the study of Van Dongen et al. and 96% in the study of Nikolaou et al) (5, 6).

The complication rate of 0,85% was slightly higher than in the large study of Singhi et al. (0,6%) which can be explained by the number of hysteroscopies and the experience of the surgeon (7). However, the rate was much lower than the percentage of uterine perforation during D&C found in literature, which was expected because of placing the hysteroscope into the cavity under direct view (8).

The pathology of the uterine cavity was present in 58,9% of the patients (138/234). Such a high percentage justifies the use of hysteroscopy in cases of abnormal uterine bleeding. The results of other studies also indicate a high percentage of abnormal hysteroscopic findings (Lasmar et al. 80%, Sunitha et al. 69%)

(9,10). The incidence of abnormal hysteroscopic findings vary according to the age group and presentation. In this study near 62% (145/234) of women were peri- and postmenopausal and near 38% (89/234) were premenopausal. Postmenopausal bleeding was the most common indication, followed by menorrhagia. Other indications in small number of patients were intermenstrual and postcoital bleeding. Decloedt and Fenton reported the overall abnormal hysteroscopic findings of 32% in patients with abnormal uterine bleeding, in the case of which 69% of them were postmenopausal and 31% were postmenopausal (11). Jong et al. found that abnormal hysteroscopic findings to be very uncommon or even rare under the age of 35 (12).

The most common finding in all patients was endometrial polyp (20.5%). The majority of other studies also state the highest incidence of endometrial polyp as the abnormal hysteroscopic finding but with a slightly higher percentage (32,5% Raquel et al., 37,6% Cordeiro et al.) (13,14). The type of abnormal hysteroscopic findings vary according to the age group and presentation. In our series of patients, submucous fibroids were predominant lesion in premenopausal patients with menorrhagia and intermenstrual bleeding (21%). On the other hand, endometrial polyps were the most common finding in patients with postmenopausal bleeding (26,2%). These confirm the results published by other authors who reported similar results in their pre- and postmenopausal patient with abnormal uterine bleeding (15). In our study, 3 patients (1,28%) were diagnosed with endometrial cancer by hysteroscopy, which was histologically verified. The incidence of endometrial cancer that is seen in the literature is generally higher. (16) Such a low incidence in our study may be explained by the fact that patients with postmenopausal bleeding are usually referred from ambulance for D&C, which is still opted by a great number of physicians in our clinic.

The results of our study indicate a high sensitivity and specificity of hysteroscopy in detection of intrauterine pathology (100% and 91%). The study of Allameh et al. presents the results of hysteroscopy sensitivity of 100% and specificity of 80.5% and the study of Tandulwadkar et al. 97% and 98%, respectively (17,18). Considering the fact that from the majority of studies from literature review it can be seen that sensitivity of hysteroscopy in the detection of intrauterine pathology exceeds 80%, we can say that the hysteroscopy is a valid diagnostic tool in detecting the cause of postmenopausal bleeding. Most studies also indicate the highest sensitivity and specificity in the detection of focal intrauterine pathology such as polyp and myoma (19). In our study, three cases of endometrial polyp were diagnosed as submucous myoma by hysteroscopy which can be explained by difficulty to distinguish small submucous myoma type 2 from a large sessile polyp. There were also 6 cases of endometrial hyperplasia and atrophy diagnosed by hysteroscopy that proved to be normal findings after the histological examination, but there were no cases of intrauterine pathology that were missed by hysteroscopy and later appeared at histological finding. The majority of studies, as well as ours, show that endometrial cancer has specific hysteroscopic appearance, so it is difficult to hysteroscopically declare it normal and in combination with biopsy the possibility of error is 0%.

## CONCLUSION

Hysteroscopy is a safe, highly sensitive diagnostic procedure that provides useful information about the uterine cavity and represents an ideal method in evaluation of patients with abnormal uterine bleeding. Endometrial biopsy improves the diagnostic accuracy of hysteroscopy in detecting endometrial pathology. Adequate diagnosis is crucial for the selection of relevant treatment of abnormal uterine bleeding and avoidance of unnecessary major surgical procedures.

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# ULOGA HISTEROSKOPIJE U EVALUACIJI BOLESNICA SA ABNORMALNIM KRVARENJEM IZ UTERUSA

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**Sažetak**

**Cilj ove studije je definisanje značaja histeroskopije kao dijagnostičke procedure u evaluaciji kavuma uterusa kod bolesnica sa problemom abnormalnog krvarenja iz uterusa. Cilj je, takođe, uporediti histeroskopske sa histopatološkim nalazima.**

**U studiju je uključeno 239 bolesnica, koje su se javile na Ginekološko akušersku kliniku u Nišu u periodu od 12 meseci zbog abnormalnog krvarenja iz uterusa. Kod svih bolesnica urađena je histeroskopija sa biopsijom endometrijuma. Bioptati su slati na histopatološki pregled a zatim upoređivani histeroskopski i histopatološki nalazi. Polipi i submukozni miomi su histeroskopski uklanjani u istom aktu i takođe slati na histopatološki pregled.**

**Procenat uspešnosti metode iznosio je 98%, a komplikacija 0,85%. Histeroskopski nalaz je bio normalan u 41% slučajeva. Najčešći patološki nalaz kod žena u premenopauzi bio je submukozni miom a kod žena nakon menopauze endometrijalni polip. Senzitivnost histeroskopije u detekciji intrauterine patologije iznosila je 100%, specifičnost 91%, pozitivna prediktivna vrednost 93% i negativna prediktivna vrednost 100%.**

**Histeroskopija je sigurna, visoko senzitivna dijagnostička procedura koja daje precizne informacije o stanju kavuma uterusa i predstavlja idealnu metodu za ispitivanje uzroka abnormalnog krvarenja iz uterusa. Primena histeroskopije sa biopsijom endometrijuma vodi do precizne dijagnoze. Adekvatna dijagnoza je preduslov za izbor odgovarajućeg tretmana abnormalnog krvarenja iz uterusa i izbegavanje nepotrebnih velikih hirurških zahvata.**

***Ključne reči:*** **histeroskopija, abnormalno krvarenje iz uterusa, endometrijalni polip, submukozni miom**