

Histopathological evaluation of intrauterine polyps and scrapings of the uterine cavity in women with endometrial polyp described in ultrasound

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Abstract

OBJECTIVES: The aim of the study was to analyze the histopathology results of polyps removed and scrapings taken from the uterus in women, in whom ultrasound described endometrial polyp.

METHODS: The study included 412 patients whose ultrasound described endometrial polyp in the uterine cavity. The material obtained during hysteroscopy or curettage of the uterine cavity were subjected to the histological evaluation. The study group was divided into two subgroups depending on the presence of symptoms. The analysis of the relationship between variables was performed using Student's t-test and the Mann-Whitney U test.

RESULTS: In our study of 412 patients with suspected endometrial polyp based on ultrasound 342 patients had mild lesions in the uterine cavity, including a 51 of women had mild hyperplasia, 14 of women had endometrial hyperplasia with atypia or endometrial cancer. Subgroup of women who report abnormal bleeding accounted for 49.8% study group, asymptomatic patients was 50.2%.

CONCLUSIONS: This study showed no higher incidence of precancerous lesions and cancers of the endometrium in women with endometrial polyp described in ultrasound, who reported abnormal bleeding. Ultrasound-based diagnosis of endometrial polyps should therefore be verified both in women who report abnormal bleeding, as well as in asymptomatic women.

INTRODUCTION

Endometrial polyps are described in both the ultrasound, hysteroscopy and histopathology. However, there are differences in the meaning of the term “polyp” in each of these studies. The transvaginal ultrasound define polyp as a circular or lenticular formations in the uterine cavity, of uniform or partially non-homogeneous hyperechoic structure, of characteristic vascularization in the form of one or more vessels penetrating the structure to the center of the tumor (Valenzano *et al.* 2005). In hysteroscopy polyps are pedunculated lesions in the uterine cavity. Polyps described by ultrasound or hysteroscopy may ultimately prove to be an endometrial polyp, but they can also be fibroids, endometrial hyperplasia or carcinoma.

Endometrial polyps in histopathology, are the thickenings of the endometrium, incorporating elements of stroma and glands. These changes are the most common endometrial pathology and may appear at any age, but usually occur between 40 and 49 years of age (Katz, 2007). The main symptom of endometrial polyps are abnormal bleeding from the uterus. They are often asymptomatic, however, observed accidentally in a routine ultrasound examination or during the diagnosis of infertility, so the actual incidence rates in the general population is not known. It is estimated to occur in women 7.8–25% (Savelli *et al.* 2003). Probably they arise as a result of aberrant expression of estrogen and progesterone receptors and unbalanced action of estrogen on the lining of the uterus (Lopes *et al.* 2007; Thijs *et al.* 2000). Frequency of detection of endometrial polyps in histopathology in tissues removed during hysteroscopy, depending on the treatment group and the diagnostic method ranges from 0% to 4.8% (Ben-Arie *et al.* 2004). Endometrial polyps may be a risk factor for endometrial cancer. In postmenopausal women diagnosed with

endometrial polyp, the risk of endometrial cancer in the future was 9 times higher than in women in whom the endometrial polyps did not occur (Armenia, 1967).

The aim of the study was to analyze the histopathology results of polyps removed and scrapings taken from the uterus in women, in whom ultrasound described endometrial polyp. Then it was assessed whether in women with described polyp in ultrasound, who reported abnormal bleeding, there occurs hyperplasia or endometrial cancer when compared to women without symptoms.

MATERIAL AND METHODS

The study included 412 patients whose ultrasound described endometrial polyp in the uterine cavity. Patients were treated in the Department of Surgical Gynecology of the 1st Department of Obstetrics and Gynecology, Medical University of Warsaw in 2011–2014. In the first stage, all patients underwent hysteroscopy. Observed endometrial polyps were removed under direct vision. In the case of abnormal bleeding reported by the patient and/or incorrect macroscopic view of endometrium curettage of the cervix and uterus was performed during hysteroscopy.

Study group was divided into two subgroups. The first subgroup consisted of 205 women who reported abnormal bleeding from the uterus. In premenopausal women there were heavy periods and/or intermenstrual bleeding. After menopause, any bleeding from the uterine cavity was considered abnormal. The second subgroup consisted of 207 women without abnormal bleeding.

The material for the histopathology were fixed in 10% buffered formalin. Sections were made from paraffin blocks in a typical way. Then the resulting 4 micron thick sections were stained with hematoxylin-eosin and subjected to the histological evaluation.

Statistical evaluation was performed using Excel and 12.0 Statistica (StatSoft Inc., USA). The analysis of the relationship between variables was performed using Student's t-test and the Mann-Whitney U test. It was considered to be statistically significant results when the calculated probability p satisfied the inequality test, $p < 0.05$.

RESULTS

The analysis included 412 women. All patients met the inclusion criteria for the study described in the methodology. The characteristics of the study group are presented in Table 1. In the study group 144 women were nulliparous and 268 women gave birth at least once. In 30% of women had comorbidities: hypertension (3%), diabetes (19%), thyroid disease (12%).

Hysteroscopic images were evaluated in the study group. In 56 (14%) subjects there was no polyp during hysteroscopy. Because of the reported abnormal bleed-

Tab. 1. Study group characteristics.

Characteristic	Mean	Standard deviation	Range
Age	45	12.87	23–84
BMI	25.46	4.87	17.59–43.37
Parity	1.14	1.03	0–5

Tab. 2. Histopathology diagnosis in study group.

Histopathology diagnosis	Number of patients	Percent
Normal endometrium	56	14%
Endometrial polyp	276	67%
Submucosal myoma	15	4%
Hyperplasia without atypia	51	12%
Hyperplasia with atypia	8	2%
Carcinoma of the endometrium	6	1%

ing by 25 women, material from the uterine cavity was taken from them for microscopic examination and no abnormalities were found. In 31 other women who did not report abnormal bleeding – not curettage was performed. In 356 patients a polyp / polyps was found during hysteroscopy, which were removed under direct vision, and then because of the reported abnormal bleeding or abnormal endometrial image during hysteroscopy – curettage of the cervical canal and uterine cavity followed.

Histopathology of polyps removed and scrapings from the cervix and uterus were analyzed. 342/356 (96%) patients had mild lesions in the uterine cavity, including a 51/356 (14%) of women had mild hyperplasia. 14/356 (4%) had endometrial hyperplasia with atypia or endometrial cancer, Table 2.

An analysis of the two subgroups of women was performed: reporting abnormal bleeding and without abnormal bleeding.

Subgroup of women who report abnormal bleeding accounted for 49.8% (205 people) study group, asymptomatic patients was 50.2% (207). Initially, the two sub-groups were compared in terms of age, body mass index, parity and comorbid conditions, Table 3. In a subset of asymptomatic women average age was higher – 46.02 vs. 43.96, this difference was not statistically significant, $p=0.0920$. Mean BMI values were similar, $p=0.7721$. In the subgroup without abnormal bleeding there were significantly more nulliparous women, $p=0.0089$. There were no statistically significant differences in the frequency of comorbidities between the two subgroups.

Table 4 shows the distribution of histopathological diagnoses in the subgroup of women who reported abnormal bleeding and in a subset of asymptomatic women. Statistical analysis showed a significantly higher incidence of endometrial polyps in the subset of patients reporting abnormal bleeding (73% vs. 61%, $p=0.0145$). For other histopathological diagnoses frequencies were similar in both groups.

In the group of 51 women with mild hyperplasia, 19/51 (37%) patients had only hyperplastic polyp. In four of the eight women with endometrial hyperplasia with atypia, hyperplasia was diagnosed only in polyp. No woman diagnosed with endometrial cancer showed any cancer in the polyp. We assessed whether women diagnosed with hyperplasia in the polyp, had more frequently abnormal bleeding. Statistical analysis showed no relationship between the diagnosis of hyperplasia without atypia or atypia only in the polyp, and the occurrence of abnormal bleeding, $p=0.2648$, $p=0.1441$.

Both study groups were divided into subgroups of women who are pre- and postmenopausal then subjected to statistical analysis. In the group of 412 women, 119 (29%) went through menopause, 293 (71%) women had preserved ovarian function. In the subgroup of premenopausal women Statistical analysis showed no differences in the distributions of histopathological

diagnoses in women symptomatic and asymptomatic $p=0.982457$. In postmenopausal women, analysis of the frequencies of individual histopathological diagnoses also showed no significant differences between the two subgroups, $p=0.197322$, Figures 1 and 2.

DISCUSSION

According to data from the National Cancer Registry (2013), endometrial cancer is ranked 4th in terms of cancer incidence among women in Poland. In our study of 412 patients with suspected endometrial polyp based on ultrasound, 3.4% of women were diagnosed with endometrial hyperplasia with atypia or endometrial cancer. There wasn't a higher incidence of hyperplasia or endometrial cancer in women diagnosed with a polyp on ultrasound, who experienced abnormal bleeding.

In 356 (86%) of women hysteroscopy confirmed the presence of a polyp in the uterine cavity. Machtinger *et al.* (2005), in 74% of patients achieved agreement between ultrasound and hysteroscopy. Guven *et al.* (2004), evaluated the value of HyCoSy test and ultrasound in detecting pathology in the uterus in women with abnormal bleeding. The positive predictive value was 83% for HyCoSy compared to 75% for ultrasound. Due to the small percentage of false positive and false

Tab. 3. Study group characteristics with subgroup differentiation.

Characteristic	Asymptomatic patients (n=207)	Symptomatic patients (n=205)	p-value
Age	46.02±13.58	43.96±11.02	0.0920
BMI	25.38±4.89	25.53±4.86	0.7721
Comorbidities	68 (33%)	57 (28%)	0.2654
Hypertension	7 (3%)	4 (2%)	0.5519
Thyroid disease	21 (10%)	28 (14%)	0.2707
Diabetes	46 (22%)	31 (15%)	0.0645
Nulliparous	88 (43%)	58 (28%)	0.0089

Tab. 4. Analysis of histopathology diagnosis in both subgroups.

Histopathological diagnosis	Asymptomatic patients (n=207)	Symptomatic patients (n=205)	p-value
Normal endometrium	31 (15%)	25 (12%)	0.4102
Endometrial polyp	127 (61%)	149 (73%)	0.0145
Submucosal myoma	10 (5%)	5 (2%)	0.3016
Hyperplasia without atypia	30 (15%)	21 (10%)	0.1904
Hyperplasia with atypia	5 (2%)	3 (2%)	0.7315
Carcinoma of the endometrium	4 (2%)	2 (1%)	0.6809

n-number of women

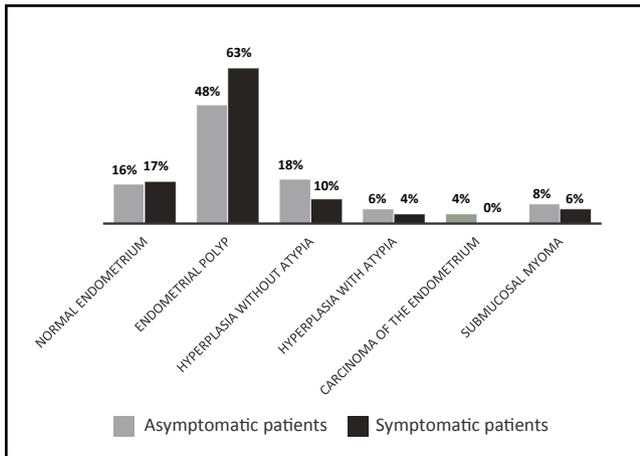


Fig. 1. Histopathological diagnosis in postmenopausal women.

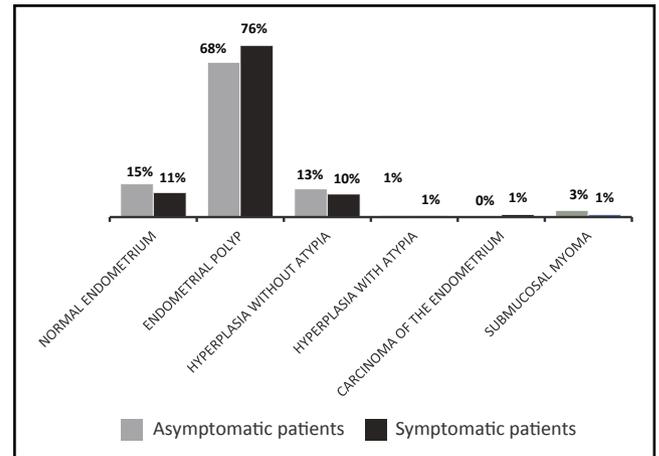


Fig. 2. Histopathological diagnosis in premenopausal women.

negative results, a preliminary assessment of changes using transvaginal sonography and diagnostic hysteroscopy was proposed by Davidson & Dubinsky (2003). Furthermore Luterek *et al.* (2014) report that nowadays a “gold standard” in the diagnosis of intrauterine abnormalities in women of perimenopausal age is diagnostic hysteroscopy, combined with histopathological examination of the endometrial sample.

Of the 8 women diagnosed with hyperplasia with atypia, in 4 (0.97%) changes were present in the removed polyp. No patient was diagnosed with a cancer within the polyp. These results are similar to those obtained by other authors. The incidence of histologically confirmed endometrial cancer of removed polyps, depending on the study group and a diagnostic method ranged from 0% to 4.8% (Ben-Arie *et al.* 2004). Savelli *et al.* (2003) analyzed 509 patients with suspected polyp in ultrasound. Group A consisted of 489 (96%) patients in whom were found pathologically benign lesions, group B – 20 (4%) of patients with malignant lesions. In Group B, 16 (3.2%) women had hyperplasia with atypia, 4 (0.8%) – carcinoma of the endometrium, 11/20 patients reported abnormal bleeding. Group A and B did not differ in terms of irregular bleeding.

Orvieto *et al.* (1999), in 146 patients with suspected polyp, endometrial hyperplasia with atypia was found in 2.5% of women. Endometrial cancer was not diagnosed in any woman. The discrepancies in the results obtained, are caused by different strength between the groups, as well as, age, race, menopausal status, taking hormone therapy and various diagnostic methods. Performing only a fractionated curettage of the cervical canal and uterine cavity does not allow for precise delimitation of changes in polyp from changes in the endometrium. Hysteroscopic endometrial polyp removal allows separate and thorough removal of the polyp with a stalk. This allows for subsequent, more precise determination of the tumor site. Cancer cells may also be present in the stalk of the polyp (Elfayomy

et al. 2012). Bakour *et al.* (2000), in a prospective cohort study of 248 women with abnormal uterine bleeding found two (3.2%) cases of endometrial hyperplasia and 11.4% (6.5% with atypia) in polyp.

In our study group of 412 patients, endometrial polyps histopathology occurred significantly more often in the subgroup of patients reporting abnormal bleeding (73% vs. 61%, $p=0.0145$). Elfayomy & Soliman (2015), diagnosed endometrial polyps more often in patients reporting no symptoms (93 vs. 57). They explained it by more frequent imaging studies of women for prevention of or diagnosis of other diseases, ie. pelvic pain or infertility.

CONSLUSIONS

In conclusion, in our study group, 3.4% of women with described endometrial polyps in ultrasound, endometrial hyperplasia with atypia or cancer of the lining were found. The results are similar to those obtained by other authors. Statistical analysis showed no higher incidence of precancerous lesions and cancers of the endometrium in women with endometrial polyp described in ultrasound, who reported abnormal bleeding. Ultrasound-based diagnosis of endometrial polyps should therefore be verified both in women who report abnormal bleeding, as well as in asymptomatic women.

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