

Effectiveness of different methods for polypectomy in the menopause: A retrospective study

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Abstract

Introduction: Most endometrial polyps represent focal hyperplasia of the endometrium. Endometrial polyps can be diagnosed by ultrasound, hysterocontrastsonography, hysterosalpingography, endometrial biopsy, and uterine curettage, but the diagnostic hysteroscopy (HSC) is considered as gold-standard method, with the greatest sensitivity and specificity with also the opportunity of treatment at the same time.

Study design: A retrospective study was conducted on 424 patients between 2006 and 2018. The polyps were verified during diagnostic hysteroscopy and were removed by resectoscopy or curettage. All samples underwent histological examination. The effectiveness of type of resection and the recurrence rate was evaluated.

Results: The average age of patients was 60.2 ± 9.3 . Polyps were excised in 62.97% by resectoscopic polypectomy, 37.03% by curettage. Malignancy was confirmed in 4.24% of cases. Histological verification of polyps was 79.4% in the resectoscopy group, 69.04% in the curettage group, the difference was significant ($p < 0.01$). Recurrence rate was 20.47% after resectoscopy and 27.12% following curettage.

Conclusion: The hysteroscopy remains the best option and the gold standard method among diagnostic procedures of endometrial pathology. In this study, there was significant difference in matching hysteroscopic and histological findings among the two way of polypectomy. Recurrence rate is also lower following resectoscopy.

Introduction

The endometrial polyp is a common lesion both in reproductive and postmenopausal ages; it is a localized tumor in the uterine cavity, which represents focal hyperplasia of the basal layer of the endometrium [1]. Histologically, it is composed of endometrial glands and stroma around a vascular axis of spiral arteries. The pathogenesis of the polyps is not exactly cleared, according to Baiocchi G. and coauthors it is similar to that of endometrial hyperplasia [2]. There are changes in the hormonal responsiveness of the endometrial tissue with the increase of estrogen receptors and the decrease or disappearance of progesterone receptors, leading to unopposed estrogen stimulation [3]. Similarly, hormonal disorders such as chronic anovulation, luteal insufficiency or hyperestrogenic states may cause the formation of endometrial polyps [2, 4]. Polyps may be single or multiple, of various sizes, sessile or pedunculated [1].

The prevalence of endometrial polyp varies depending on the population studied and the method used to detect polyps. Age and the use of tamoxifen were the two most significant risk factors for the development of endometrial polyps, while obesity, hypertension and diabetes mellitus were found that not to be significant when women's age is taken into consideration [5]. Nowadays, the incidence of endometrial polyp is increasing, due to the more prevailing diagnostic facilities [6]. Thus, endometrial polyps are more frequently found in subfertile eumenorrheic women with an estimated prevalence of 6–15% [7].

While most polyps are asymptomatic [8], the polyp can cause various symptoms. Abnormal uterine bleeding is the most frequent of them [6]. The definition of abnormal uterine bleeding (AUB) is 'flow outside of normal volume, duration, regularity or frequency [9]. FIGO classification of abnormal uterine bleeding in reproductive ages uses acronym PALM (Polyp, Adenomyosis, Leiomyoma, Malignancy and hyperplasia as structural causes) COEIN (Coagulability, Ovulatory dysfunction, Endometrial, Iatrogenic, Not yet classified as non-structural causes) [10]. The bleeding pattern is generally irregular and frequently not necessarily associated with menstruation, with a frequency of 5% [4]. Other causes of bleeding include atrophic vaginitis, cervicitis, endometritis, endometrial atrophy, uterine fibroids, endometrial hyperplasia, endometrial polyps, cervical polyps, and endometrial, vulvar, vaginal, and cervical cancers [11].

Furthermore, infertility is also a common symptom, due to the modified endometrial receptivity [12], blocking the pathway of sperms or other unknown reasons [13]. Polyps have been diagnosed hysteroscopically in 4% [14] of all women with unexplained infertility and 14.8% [15] of infertile women with eumenorrhea.

Endometrial polyps rarely carry malignant transformation. In a large study, among postmenopausal women the prevalence of hyperplasia and cancer was 10.1% and 3.7% in the polyps with postmenopausal bleeding (PMB), 4.8% and 0.4% in asymptomatic postmenopausal polyps. [16]. Other studies reported also reported low malignancy rates in endometrial polyps (0.59-3.5%) [1, 2]. Increased risk of malignant transformation was observed among patients with greater polyp diameter (1cm), obesity, hypertension or diabetes [2].

Endometrial polyps can be diagnosed by ultrasound, hysterosonography, hysterosalpingography, endometrial biopsy, and uterine curettage, but the diagnostic hysteroscopy is considered as the gold standard method with the greatest sensitivity and specificity, with values of 95.3 and 95.4% [17,18]. Polypoid lesions have to be distinguished from endometrial polyps. First is a diagnosis based on shape (hysteroscopy or ultrasound well), second is a histological finding based on identification of endometrial glands, stroma and vessels in the specimen.

Although polyps are considered benign lesions, there is no consensus in management among authors. While some suggest complete removing in all cases; others propose expectant management, recommending removal only in symptomatic cases [1, 17]. Removal of polyps could be performed by curettage, mono- or bipolar resectoscopy, scissor, intrauterine tissue removing system [19]. All non-blind methods provide better efficiency because curettage may fail to extract polyps in 60-87% of the cases [20, 21]. Having positive effect on success in IVF, strong evidence is supporting the removal of polyps before ARTs [22], as well. Taking account of cost-effectiveness removing polyps by office hysteroscopy is also more reasonable [23].

Hysteroscopic resection or morcellation (intrauterine tissue removal) has been proven better than previous 'blind' methods according to polyp recurrences. However, even though

hysteroscopic resection operates under direct vision in the polyp removal, a low recurrence rate still remains [24, 25, 26].

While the efficacy of the different polyp removal methods has been already reported, little is known about their profile related to longer term outcomes, such as recurrence. The aim of our study is to get an overview about the accuracy of the chosen method of resecting the endometrial polyps. Beside the effectivity of resection mode, we evaluated the recurrence rate of polyps according to patients main demographic and clinical characteristics and mode of resection.

Materials and methods

A retrospective study was conducted on 424 patients in postmenopausal age between 2006 and 2018 in Department of Obstetrics and Gynecology, University of Debrecen and Kenézy University Hospital Debrecen, Hungary, who were suspicious on endometrial polyp based on the ultrasonography, or symptoms. All of patients were routinely evaluated by diagnostic hysteroscopy. The operations were recorded in the documentation by detailed description. All patients received general anesthesia, and the polyp was excised either by resectoscopic device or curettage. The resectoscope (Storz, Germany) used was an equipment with a 4 mm 30 degree optic with an 11.5 mm sheath. The electrosurgical system had a 5 mm diameter 90 degree electrode. Monopolar technique was used with the output of 60-100 W. For the distension 1.5% Glycin was used with an inflow pressure of 80-100 mmHg. For cervical dilatation up to 11.5 mm, Hegar dilators were used without preoperative preparation. Following the protocol of the institute, control hysteroscopy was not performed to detect the polyp remnants after curettage. All samples underwent histological examination. The sampling precision, meaning matching hysteroscopic and histological diagnosis was compared by resection type. Recurrence rate could be evaluated in cases of patients showed up on a gynecological follow-up having any available data following the operation in our database. Recurrence was defined if focal lesion or thickened endometrium was detected by ultrasonography. Comparative statistics including Student's t-test or Mann-Whitney test, and chi-squared or Fisher's exact tests were used for continuous or categorical variables, respectively. To evaluate the trend in relapse after the resection of polyps Spearman correlation analysis was done. All statistical analysis was performed using SPSS Version 21.0 (IBM Corp, Armonk, NY). Significance was defined as $P < 0.05$.

Results

All women who underwent polypectomy were in the postmenopause, with the mean age of 60.2 ± 9.3 (44-84). Abnormal uterine bleeding was present in 180 cases (42.35%), and in 9 (2.1%) of them had pelvic pain. The non-enhanced grey scale preoperative ultrasound examination described the presence of the polyp in 282 (66.5%) patients. Polyps were removed by resectoscope in 267 cases (62.97%) and by curettage in 157 cases (37.03%). In the resectoscope group histopathology confirmed endometrial polyp in 212 (79.40%), endometrial adenocarcinoma in 15 (5.62%) and negative regarding the histological characteristics of endometrial polyp in 40 cases (14.98%). In the curettage group results were similar: endometrial polyp in 109 (69.42%), endometrial adenocarcinoma in 3 (1.91%) and negative in 45 cases (28.67%) (Table 1.). In the aggregate, the number of malignant changes were 15 (4.2%), that accords to international data. On follow-up visits 43.87% of patient showed up. The recurrence rate was 22.68%. Our study population was divided into two subgroups by the type of removing method. Although there was a difference between the subgroups in the age distribution, histology results, but the relapse rate was not significantly differed. Recurrence cases received special attention, multivariate analysis was done to get a keen picture about the effect of removing method on recurrence. Odds ratios were calculated to find risk factors for recurrence of polyps. The relapse rate was significantly lower among women in age between 60-70 years (OR: 0.413; 95% CI: 0.181 – 0.943; $p=0.035$) if we used the population under 60 as reference. The use of curettage didn't result significantly higher relapse rate (OR: 1.445; 95% CI: 0.705 – 2.963; $p=0.314$). A Spearman's correlation analysis was used to examine the connection of the use of resectoscope and the rate of recurrence. We can find a negative trend in recurrence rate if we performed the intervention with resectoscope, but the association was weak (correlation coefficient: -0.074) and it was not significant ($p=0.658$) (Table 2).

Discussion

In our study histologically verification of endometrial polyp was found in 79.4% after resectoscopy and in 69.43% after performing curettage. Endometrial cancer was found in 5.62% in resectoscopy group and 1.91% in curettage group. Being a retrospective study, we could find follow-up data of patients at lower rate (43.87%). Reports of these follow-up meetings were analyzed, thickened endometrium or polyp on ultrasound were the inclusion criteria of the recurrence group. Divided in to resectoscopy and curettage group, data did not show significantly higher recurrence rate (27.11% vs 20.47%).

Endometrial polyps are a common lesion both in fertile and peri-, postmenopausal age with the prevalence ranging from 7.8 to 34.9 [27]. Polyps are localized tumors in the uterine cavity covered by epithelium. They can be sessile or pedunculated, and consist of endometrial glands, stroma and blood vessels. Overexpression of steroid receptors found in glandular epithelium of polyps and increased rate of coexisting hormonal disorders suggest the crucial role played by hormonal exposure [28].

Frequent symptoms can be infertility, abnormal uterine bleeding but in a notable part of cases polyps are asymptomatic [29]. Abnormal uterine bleeding expression is used for abnormal amount and timing of bleeding, as well. In the background numerous causes could be identified, such as organic or functional problems [10].

In the last decades due to the improvement of ultrasound instruments [30] and examination methods, techniques [31, 32], incidence of diagnosed endometrial polyps is increasing. Although the gold standard diagnostic method stayed the hysteroscopy with its high sensitivity and specificity [33] and following the see&treat principle, the opportunity of the treatment. There is still debate about necessity and the method of treatment in the literature. According to some opinion, eminently in asymptomatic peri-, and postmenopausal cases expectant management is recommended. In symptomatic cases resection is suggested due to the increased risk of malignant transformation [16, 34], which can be rated between 0.59 to 3.2% or up to 12.9% according to various studies [1, 28]. Due to data in the literature and

following protocols, in case of postmenopausal vaginal bleeding, further investigation, but at least endometrial biopsy is needed [35].

Resection could be managed by curettage, mono- or bipolar resectoscope, operative office hysteroscopy (scissors and grasper), intrauterine tissue remover system[19]. Because of its easy accessibility, low costs, simple instrumentation and basic technique, curettage is mostly wide spread among gynecologist. For other advanced instrumental techniques investments, new skills are needed, although their accuracy and effectivity are better [20, 21].

Due to the technical development of instruments, hysteroscopy can be performed in an outpatient setting, without the need for cervical dilation and anesthesia [36, 18, 37]. Office hysteroscopy has several advantages compared to the traditional methods, such cost-effectiveness, less strain and risks of complications for the patients [18].

Beside condition of the procedure, effectivity is an important factor. Effectivity in identifying intrauterine lesion, removing it and rate of recurrence were evaluated and analyzed by many researchers [27]. Taking account diagnostic accuracy and success of resection all “non-blind” methods (hysteroscopy, resectoscopy, intrauterine tissue removal system) are superior to curettage [20].

Because curettage may fail to extract polyps also in 60–87% of the cases [21], recurrence rate showed higher incidence resulted in by curettage than using hysteroscopy for polypectomy. However, even though hysteroscopic resection operates under direct vision in the polyp removal, a low recurrence rate still remains [25].

Based on our results we can state that resectoscopy is better in aspect of effectivity and recurrence rate, as well, but our data did not suggest its superiority. We think that the cause of deviation from international data was the hysteroscopic control of the removing with curettage. Compared to the blindly performed curettage, this method had an increased effectiveness.

Limitations of this research is the retrospective characteristics and the low rate of follow-up data. In a prospective study more precise correlation could be drawn between effectivity, recurrence rate and mode of polypectomy.

This retrospective study made possible to get a comprehensive aspect on removal methods of endometrial polyps, their effectivity, accuracy and recurrence rate after the procedures. We had the opportunity to compare our results with international data found in literature.

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Table 1 Characteristics and histological findings of patients underwent polypectomy

Table 1				
Characteristics				
	Overall	Resectoscope	Curettage	p
n (%)	424 (100%)	267 (100%)	157 (100%)	
Age at procedure				
60»	199 (46,93%)	112 (41,95%)	87 (55,41%)	0,007
60-70	168 (39,62%)	117 (43,82%)	51 (32,48%)	0,021
70«	57 (13,45%)	38 (14,23%)	19 (12,11%)	0,535
Histology				
Endometrial polyp	321 (75,71%)	212 (79,40%)	109 (69,43%)	0,021
Endometrial cancer	18 (4,25%)	15 (5,62%)	3 (1,91%)	0,068
Non-endometrial polyp	85 (20,04%)	40 (14,98%)	45 (28,66%)	0,001
Follow-up	186 (43,87%)	127/186 (68,28%)	59/186 (31,72%)	
Recurrence	42/186 (22,58%)	26/127 (20,47%)	16/59 (27,12%)	0,314

Table 2 Characteristics of patients in term of recurrence

Table 2			
Characteristics	Recurrence	Non-recurrence	p-value
Overall	42/186 (22,58%)	144/186 (77,42%)	-
Age at procedure			
60»	22/82 (26,83%)	Ref	
60-70	10/76 (13,16%)	0,413 (0,181 - 0,943)	0,035
70«	10/28 (35,71%)	1,512 (0,607 - 3,781)	0,373
Removing method			
Resectoscope	26/127 (20,47%)	Ref	
Curettage	16/59 (27,12%)	1,445 (0,705 – 2,963)	0,314
Correlation analysis (Spearman)			
Correlation Coefficient for Resectoscope		-0,074	
	p	0,316	
	n	186	