

# Endometrial Polyps: Which Patients Should Be Selected for Hysteroscopic Surgery?

## —A Study Using Data from the Swedish National Quality Registry of Gynecological Surgery

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### Abstract

**Objective:** To illuminate the findings after hysteroscopic surgery of endometrial polyps. **Method:** Data were extracted from The Swedish National Quality Registry of Gynecological Surgery. Endometrial polyps were identified in 1934 cases in a total of 4512 hysteroscopic operations. Data on all hysteroscopic procedures registered as surgery of endometrial polyps between 1997 and January 2013 were analyzed with logistic regression analysis and effect size was calculated. Main outcome measure was malignancy in endometrial polyps. **Results:** The most frequently reported symptoms of endometrial polyps were: postmenopausal bleeding, metrorrhagia, pain, and infertility. Among the registered biopsies, there were: 30 malignancies (1.8%), and 41 dysplasias (2.5%). The remaining polyps were benign. Only 1/30 cancer patients were <52 years old ( $p < 0.001$ ). Among those women with dysplasia, 12/41 (29%) were <52 years old ( $p = 0.07$ ). All cancer patients at age  $\geq 52$  had postmenopausal bleeding. The <52-year-old cancer patient had treatment-resistant bleeding. Increasing weight was a risk factor associated with tissue alterations in endometrial polyps ( $p = 0.014$ ), controlling for age as a confounding factor. **Conclusion:** Hysteroscopic surgery should be recommended for women with postmenopausal bleeding and presence of endometrial polyps according to the findings of this study. The results further indicate a low risk of malignancy in premenopausal women <52 years with endometrial polyps. In those cases, it seems to be safe to refrain from surgery.

### Keywords

Endometrial Polyp, Menopause, Malignancy, Gynecological Surgery, Hysteroscopy

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## 1. Introduction

The Swedish National Quality Registry of Gynecological Surgery (GynOp) collects data on hysteroscopic surgeries performed in Sweden [1].

Endometrial polyps are the most common pathology of the endometrium in asymptomatic, postmenopausal women [2] [3], many of whom undergo a hysteroscopy. In a Danish study, 1660 healthy women between 20 and 74 years old were offered screening for endometrial polyps and polyps were found in 7.8% of 686 participants [2]. In premenopausal women, there are substantially less available data on the prevalence of endometrial polyps. Before the age of 30, endometrial polyps are extremely rare [2]. With increasing age, endometrial polyps are the most common pathology behind abnormal bleeding in premenopausal women [4]. In a newly published, registry-based study on 870 hysteroscopic endometrial polyps, 23% of the patients were premenopausal, and there was a trend towards an increase in malignancies with age [5].

Therefore, endometrial polyps are common and up to 82% of women with endometrial polyps are asymptomatic [2]. Even when endometrial polyps are asymptomatic; their presence is a risk factor for endometrial cancer and should lead to protective actions and investigations by the health care profession [6]. It is significantly more common in patients with polyps, compared to women without polyps, to be later diagnosed with endometrial cancer [7]. The latest published studies show an endometrial cancer incidence of 0.8% - 3% in patients with endometrial polyps [2] [8] [9].

The sensitivity for finding polyps using only ultrasound is 80% [3]. It is not possible to diagnose or rule out polyps by examining the thickness of the endometrium [10]. Diagnosis by ultrasound improves sensitivity, but the most reliable assessment is hysteroscopy [11]. Internationally, hysteroscopy is the golden standard for detecting focal intrauterine pathology, according to Dutch and British studies [12] [13]. In 2003, only 56% of women's health clinics in Sweden performed hysteroscopy for postmenopausal bleeding and endometrial thickness >5 mm [6].

Studies have shown that "blind" endometrial biopsies miss the majority of focal lesions [6] [14] [15], and even dilatation and curettage miss many such pathologies [16]. The risk for relapse of an endometrial polyp is three times greater after blind removal compared to hysteroscopic extraction [6]. In one study, relapse was non-existent after removal of atypical endometrial polyps by hysteroscopy [17].

The aim of this study was to illuminate the findings after hysteroscopic surgery of endometrial polyps in a dataset from GynOp. A further aim was to identify the incidence and type of pathology of the endometrial polyps, and to investigate age and BMI as risk factors and finally to see if any recommendation could be made to perform or refrain from a hysteroscopy in certain patients with endometrial polyp.

## 2. Material and Methods

### 2.1. Selection

All variables and data were extracted from GynOp. This registry follows patients through the entire process surrounding the gynecological surgery, starting with an online health declaration, through admission, surgery, and discharge, and including follow-up surveys administered 2 and 12 months after surgery.

From GynOp, we selected 4512 female patients. They had all undergone hysteroscopic surgery between 1997 and January 2013, with identification of endometrial polyps pre-, intra- or postoperatively. For the most part, the selection was made according to diagnostic codes from the International Classification of Diseases and Related Health Problems, 10<sup>th</sup> revision (ICD-10). In 19 cases (1%), the hysteroscopy was not the only operation. Multiple and combined surgeries were excluded from the analysis. All the incorrectly declared operations which were identified as a sole hysteroscopy were included in the study. When answer fields had not been filled out in the registry, the commentary textbox was used as a complement. Unclear cases were submitted to in-depth review and complementary data was retrieved. After this selection, endometrial polyps were present in 43% of all hysteroscopic operations in the registry. The final study population was 1934 women operated with hysteroscopic technique because of endometrial polyps.

### 2.2. Study Population

Of all patients, 78.1% (n = 1511) responded to the preoperative survey. The follow-up survey after 2 months had a response rate of 71.3% (n = 1378), and 56.5% (n = 1092) completed the 12 month follow-up survey. Part of

the drop in the response rate was due to the requirement to submit the survey before the cutoff date (2 and 12 months). For the BMI analysis, values that were obviously incorrect were excluded.

Biopsy results were registered for 1640 (85.8%) patients. The biopsy results were divided into three groups: benign, dysplastic, and malignant. Where several changes had been noted, the more serious category was chosen. In cases where the surgeon noticed a polyp, and checked it as “without remark” in the registry, the biopsy result was classified as benign. The study was approved by the Ethics Committee University of Umeå, Sweden (Dnr 3013-155-32M).

The objective of this study was to examine the patients according to their menopausal status, divided into two groups: pre- and postmenopausal. Registration of the patients’ menopausal status was inadequate in the registry. Therefore, the patients were divided into two age cohorts with the cutoff set at 52 years, in accordance with the average Swedish menopausal age of 51.4 years [18].

### 2.3. Statistics

The data was analyzed using SPSS version 20.0 (SPSS, Inc., Chicago, IL, USA). The statistical tests used were Chi<sup>2</sup> and logistic regression, and a two-sided *p*-value of 0.05 was considered significant. Effect size was also used to measure the absolute difference. This test is adapted to handle large datasets in clinical registry studies.

## 3. Results

The 1934 women were divided into two groups according to age, a “premenopausal” and a “postmenopausal”. The “premenopausal” group (age < 52 years) consisted of 835 women (43.2% of the study population) with a mean age of 42 years and a median age of 43 years. There were 1099 (56.8%) women in the “postmenopausal” group (age ≥ 52 years), with a mean age of 64 years and a median age of 63 years. Out of the 344 women with bleeding aged ≥ 52 years (categorized as “postmenopausal” due to their age), 13% had episodes of bleeding caused by as yet premenopausal status or hormone or hormone replacement therapy (HRT).

According to the preoperative health declaration, the most common symptom was bleeding and pain (Table 1).

### 3.1. Operation and Complications

The operation time was indicated for 1835 patients, with a mean value of 26 minutes and median value of 21 minutes. For 86 patients (4.4%), the operation time was at least 60 minutes, and for 15 patients the surgery was extended to 75 minutes. The longest operation lasted 176 minutes. The nine operations which exceeded 100 minutes involved six perioperative complications: five blunt perforations and three hysterectomies. In at least five cases, the surgeon converted to laparotomy (0.2%), three of which procedures ended with hysterectomy (0.15%). The most common complication was blunt perforation (*n* = 36; 1.9%). Bleeding > 500 ml occurred in three cases (0.2%), and cutting in one case (0.1%). In total, 57 perioperative complications (2.9%) were registered, and another six patients were reported as having a mild complication at discharge.

**Table 1.** The most prevailing symptoms were bleeding and pain, the main symptom was bleeding disorders. Infertility was a fairly common indication in younger patients. Altogether, 30% of patients had more than one symptom.

	Symptoms with polyp (%)*		
	All	Premenopausal (<52)	Postmenopausal (≥52)
<b>Pain</b>	27	38.9	17.4
<b>Bleeding</b>	65.1	72.3	59.4
<b>Metroragia</b>	36.5	45.1	29.6
<b>Infertility</b>	5.6	12.6	0

\*Most patients note several symptoms. Main symptoms in most occasions are bleedings.

### 3.2. Histopathology

In total, 1640 biopsy results were registered (84.8%). There were 30 malignancies (1.8%), 41 dysplasias (2.5%), and 1569 benign samples (95.7%).

### 3.3. Age Distribution among Patients with Malignancy or Dysplasia

The youngest patient with cancer was 45 years old, and the remaining cancer patients were  $\geq 52$  ( $p < 0.001$ ). The effect size in the study was low (Cramer's V). Regarding dysplasia patients ( $n = 41$ ), the youngest patient in this group was 32 years old, 12 were  $< 52$  years, and 29 were  $> 52$  years old ( $p < 0.078$ ). For every year of age, the logistic regression analysis showed an 8.6% risk increase for an endometrial polyp to be malignant ( $p < 0.001$ ) (Figure 1).

### 3.4. Malignant Biopsy Results

When the biopsy showed malignancy the presence of an endometrial polyp was entered into the registry by the surgeon in 29/30 cases (96.7%). The one unregistered case, an 85-year-old woman, was suffering from postmenopausal bleeding and underwent hysteroscopy for a suspected endometrial polyp. A blunt perforation occurred, and hysterectomy was performed before the polyp could be visually detected. The biopsy results later confirmed a cancerous endometrial polyp.

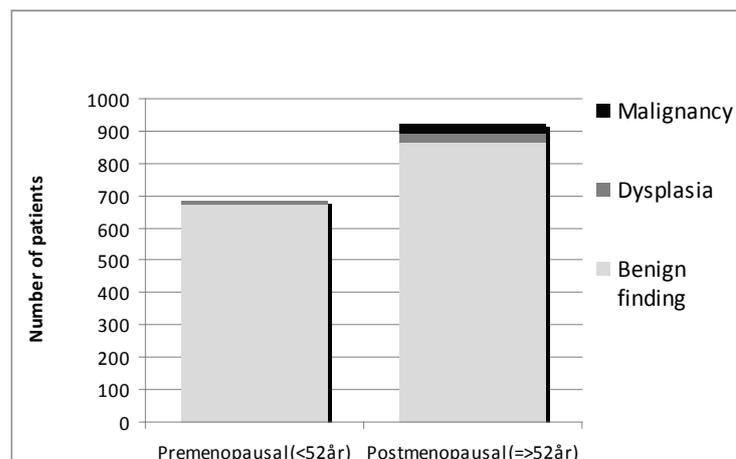
The malignant diagnoses consisted of 26 corpus cancers, two sarcomas, and two tumors of undetermined type. The preoperative health declaration had previously been completed by 19 out of the 29 malignant cases, all of whom had reported bleeding.

### 3.5. Dysplastic Biopsy Results

Dysplasia was found in 29 women in the postmenopausal group, 23 of who had submitted the preoperative health declaration. Out of these 23 cases, five patients had reported absence of bleeding (21.7%). In 37/40 cases (92.5%) where the biopsy showed dysplasia, the surgeon had entered the presence of an endometrial polyp into the registry at operation.

### 3.6. Body Mass Index at Dysplasia/Malignancy

A BMI value was only reported for 12/30 patients with a malignant biopsy result. For this reason, we grouped the malignant and dysplastic biopsy results together, in total 38 patients. This allowed better evaluation of the relation between BMI and biopsy results. Controlling for age, BMI had an effect on the outcome of the biopsy result (Fisher's exact test) ( $p < 0.014$ ). For every 1 digit increase in BMI, the logistic regression analysis showed a 6.2% risk increase in the likelihood of the biopsy to indicate either dysplasia or malignancy.



**Figure 1.** Histopathology findings divided in The pre- and postmenopausal group. Malignancy was significantly more common after menopause.

### 3.7. Follow-Up

In the 12 month follow-up survey, 81.6% of patients reported feeling improved or much improved after the hysteroscopic surgery (Figure 2).

## 4. Discussion

Removal of endometrial polyps is the most common hysteroscopic operation in GynOp (43%). The mean duration of this procedure is 26 minutes, and normally the procedure is performed as day surgery, with low risk of complications (2.9%). The most common complication is blunt perforation, which in most cases is a minor complication [19].

The present study shows, in agreement with the literature, that malignancy in endometrial polyps is rare [2] [9] [20]. Known risk factors are: age > 60 years [5] [9] and postmenopausal bleeding [5] [20] [21], both of which are confirmed by the present study. Previous studies have shown that the probability for an endometrial polyp to be cancerous in a postmenopausal woman is 10 times higher if the patient has bleeding [20]. This is also in agreement with the data in the present study, which showed that all patients with endometrial cancer had bleeding, where bleeding status was reported. Only one patient did not belong to the postmenopausal group ( $\geq 52$  years), confirming the rare occurrence of malignancy before age 52.

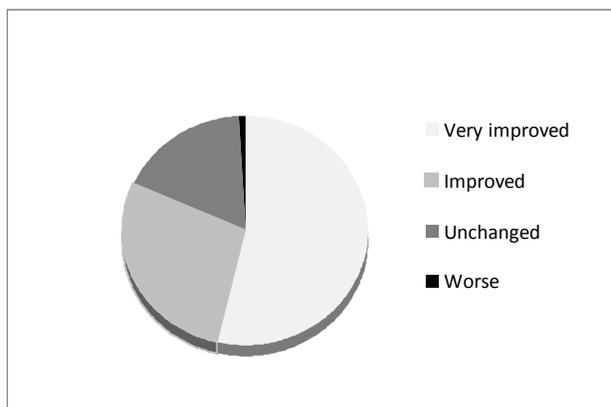
The finding of increased risk for malignancy in women  $\geq 52$  years is of great significance. For each year of age, there is an increased risk of 8.6% for a polyp to be malignant. The large quantity of data and the number of cases in the registry have the statistical effect of producing great  $p$ -values even when differences between groups are fairly small. To account for this, effect size was calculated, which was low in this study. The probability for malignancy under the age of 52 is low; however, this finding does not imply that tissue samples should not be taken from women <52 years old.

With regard to dysplasia, there was no clear relation to age; however, 22% of postmenopausal women with dysplasia did not report any bleeding. Consequently, dysplasia occurs after menopause even in the absence of bleeding.

The size of the endometrial polyp as well as the patient's BMI has been discussed as malignancy risk factors. A few studies have presented polyp size as a risk factor [20] [21], but unfortunately the size of the polyp cannot be entered into GynOp. Consequently, this risk factor was not evaluated. Concerning BMI as a risk factor, current medical opinion regarding this is more divergent. One study showed no effect of increasing BMI [9], while another showed an increased risk for obese women (BMI > 30) [5]. In the present study, BMI was identified as a risk factor for dysplasia or malignancy. With every 1 digit increase in BMI, the risk was elevated by 6.2%.

### 4.1. Study Limitations

It is not known on what grounds the patients were selected for hysteroscopy by the reporting hospitals, with



**Figure 2.** The majority of women reported that they felt better 1 year after surgery, but a large number of women reported not feeling any difference after, compared to before, surgery. However, many of these women only had minor or no symptoms before the surgery.

hospitals varying in their specification of endometrial polyp as the indication for surgery. Further, in an earlier version of GynOp, the option of entering corpus polyp as the indication for surgery was missing. Information on the patient's menopausal status is not a mandatory specification in the registry, and consequently, we used the average age of menopause in Sweden to categorize the data [18]. The BMI data in the registry turned out to be insufficient, making the calculation of BMI as a risk factor uncertain. Despite these limitations, the study results are comparable to those of previous publications investigating the same factors, which indicate that our findings are reliable.

## 4.2. Treatment Recommendations

Based on the results in this study, surgical intervention is recommended for all postmenopausal women with bleeding where an endometrial polyp is suspected. This is in agreement with recommendations from other, similar studies [5] [20]. Hysteroscopic polyp extirpation is recommended for all women >60 years of age and for every woman with postmenopausal bleeding [9]. According to the findings of this study, in postmenopausal women without bleeding, but with incidental detection of an endometrial polyp, it is possible to abstain from further actions. The results further indicate that in premenopausal, asymptomatic women aged <52 years, it is justifiable to refrain from hysteroscopic action.

Where a younger woman with an endometrial polyp is experiencing symptoms such as bleeding or pain, a hysteroscopy operation could be recommended as the first line of treatment, with ample opportunity for her to get rid of the symptoms.

Another option is blindly operating with dilatation and curettage. However, this is not recommended with reference to the research on this procedure. In postmenopausal women with bleeding, 98% of the endometrial transformations are focal, and in one study population, 87% of these transformations remained completely or partly after dilatation and curettage [16]. Nor is curettage any longer internationally considered as the first hand choice [12] [13]. Only a small part of the endometrium is removed by abrasion [20]. Considering this and the low complication rates, hysteroscopy is recommended as the first line of treatment for endometrial polyps.

## 4.3. Future Directions

As a result of the work with this study, registration of BMI is now obligatory in the GynOp registry. A new study is planned with a follow up of BMI effects on polyps and operation results. Yearly reports about the collected data like indications, anesthesia, operation time and complications will be published.

## 5. Conclusions

This study shows that hysteroscopic surgery should be undertaken for women with postmenopausal bleeding and presence of endometrial polyps. The results further indicate a low risk of malignancy in premenopausal women <52 years with endometrial polyps. In those cases, it seems to be safe to refrain from surgery.

If there are any symptoms of discomfort for a patient with an endometrial polyp, the study indicates that the patient will consider herself in a better condition one year after the surgery.

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## Key Message

Hysteroscopic polyp resection is a safe procedure. Anyway, malignancy before the age of 52 years is rare and all malignancies signaled by abnormal bleedings. It seems to be safe to refrain from surgery in younger patient without abnormal bleedings.

## Conflicts of Interest

Mats Löfgren is the head administrator of the Swedish National Quality Register of Gynecological Surgery

(GynOp).

Stefan Zacharias has no conflict of interest to declare.

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## Abbreviations

BMI = body mass index

GynOp = the Swedish National Quality Registry of Gynecological Surgery

ICD-10 = International Classification of Diseases and Related Health Problems, 10<sup>th</sup> revision