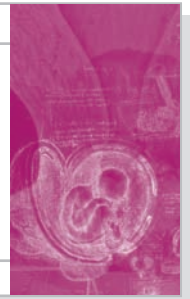


Follow-up and hysteroscopic evaluation of the uterine cavity after hysteroscopic polypectomy



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Objective. To assess the results of resection of endometrial polyps by means of diagnostic hysteroscopy.

Material and methods. This was a prospective long-term follow-up study in a tertiary teaching hospital. A total of 102 patients were included, of whom 83 completed follow-up.

Results. Eighty-three patients (81.4%) completed follow-up and underwent hysteroscopic evaluation. The recurrence rate was 2.5% (2/83) and the pregnancy rate after hysteroscopic polypectomy 60.9% (14/23). Further treatment was needed in 3 patients in the premenopausal group.

Conclusions. Hysteroscopic resection of endometrial polyps is safe and effective, and should be encouraged. With regard to treatment of infertility, results were promising. A levonorgestrel-releasing intra-uterine device can be considered when polyps recur or menstrual abnormalities persist.

Endometrial polyps are localised hyperplastic overgrowths of glands and stroma that form a projection above the uterine surface. They may be sessile or pedunculated and rarely include foci of neoplastic growth.¹ They are common during the reproductive years, occurring in up to 24% of women, and the rate increases with age.² The most common symptom is abnormal uterine bleeding (AUB), but patients may be totally asymptomatic. Endometrial polyps may cause infertility. Although the precise mechanism by which they do this is unclear, their removal has been reported to increase fertility.³ Hysteroscopy is the only technique that provides direct visualisation of the uterine cavity, and it is therefore more effective than other procedures in the diagnosis and treatment of endometrial disease.⁴ Further research should support and encourage this useful procedure.⁵

The aim of the present study was to assess the efficacy of treatment of endometrial polyps by operative hysteroscopy, and determine reproductive benefits and the recurrence rate.

Material and methods

Study design

This prospective long-term follow-up study commenced in January 2006 in a tertiary teaching hospital.

Ethics approval

The study was approved by the Ethics Committee of Zeynep Kamil Maternity and Pediatric Research and Training Hospital.

Subjects

From 1 January 2006 through 1 November 2009, 102 patients who underwent hysteroscopic polypectomy in the Department of Gynecology, Zeynep Kamil Maternity and Pediatric Research and Training Hospital, were included in the study. Of the 102 patients, only 83 (81.4%) completed follow-up.

Indications for hysteroscopic polypectomy were either AUB or infertility. Endometrial polyps were diagnosed by diagnostic hysteroscopy, and AUB was defined as

menorrhagia, metrorrhagia or intermenstrual bleeding. Infertility was defined as inability of a couple having frequent intercourse and not using contraception to conceive within 1 year.

Exclusion criteria were failure to comply with follow-up requirements, receiving an additional hysteroscopic intervention (e.g. hysteroscopic myomectomy or hysteroscopic septum resection), and being found to have no endometrial polyps on histological evaluation.

A 5 mm diagnostic hysteroscope (Karl Storz GbmH & Co., Tutlingen, Germany) was used for diagnostic hysteroscopy. No anaesthesia was needed during this procedure. Hysteroscopic polypectomy was performed electrosurgically with a continuous-flow operative hysteroscope (Karl Storz GbmH & Co., Tutlingen, Germany) equipped with a 7 or 9 mm operative sheath and a 12-degree optic. Sterile 1.5% glycine solution was used as a distending medium and fluid balance was carefully monitored. Operative hysteroscopy was performed with the patient under general anaesthesia.

Informed consent was obtained from all patients. Baseline characteristics, including age, number of pregnancies, number of births, confinement details, laboratory results and ultrasound findings, were recorded.

Study protocol

Patients who underwent hysteroscopic polypectomy during the period 1 January 2006 - 1 November 2009 and were followed up were included in the study. Recurrence or persistence of abnormal uterine bleeding after hysteroscopic polypectomy, necessitating medical therapy (oral contraceptives, iron supplements or levonorgestrel-releasing intra-uterine device (LNG-IUD)) or surgical re-intervention (repeated hysteroscopic polypectomy,

endometrial ablation or hysterectomy), was considered to indicate treatment failure. In cases of treatment failure the follow-up period was defined as the time between primary hysteroscopic polypectomy and any further management for endometrial polyps, while the follow-up period for patients with no complaints was defined as the time between primary hysteroscopic polypectomy and the date of diagnostic hysteroscopy offered to the patients at their scheduled follow-up visit. Data for patients who refused diagnostic hysteroscopy at their last visit were updated according to their complaints and transvaginal ultrasonography findings.

Statistical analyses

Descriptive statistics were utilised (examples: percentage, mean, standard deviation (SD), range). The Kolmogorov-Smirnov test was used to define normal distribution of the data. Student's *t*-test was used to compare numerical data (independent continuous quantitative data with normal distribution) (example: age). The Mann-Whitney *U*-test was the choice for data that were not normally distributed (examples: gravidity, parity, polyp size), and categorical data (existence of single polyp, number of recurrences) were assessed using the chi-square test or Fisher's exact test. A *p*-value <0.05 was considered statistically significant.

Results

One hundred and two patients who underwent hysteroscopic polypectomy were included in the study, and 83 (81.4%) of them completed follow-up with diagnostic hysteroscopy. The mean age of the 102 patients was 38.47 (SD 11.31) years (range 22 - 68 years). Of the 83 patients who completed follow-up, 55 (66.3%) complained of AUB. The prevalence of AUB was 59.6% in the premenopausal group and 80.8% in the postmenopausal group.

Table I. Characteristics and comparison of premenopausal and postmenopausal patients

	Premenopausal	Postmenopausal	<i>p</i> -value
No. of patients	57	26	
Age (yrs) (mean (SD) (range))	32.3 (7.0) (22 - 51)	52.1 (5.2) (47 - 68)	<0.05
Gravidity (mean (range))	1.7 (0 - 5)	3.3 (0 - 6)	<0.05
Parity (mean (range))	1.5 (0 - 5)	2.6 (0 - 6)	<0.05
Size of polyp (cm) (mean (SD) (range))	3.3 (0.9) (0.5 - 5)	2.3 (0.7) (0.5 - 4)	<0.05
Single polyp (<i>N</i> (%))	49 (85.9)	23 (88.4)	>0.05
Abnormal uterine bleeding (<i>N</i> (%))	34 (59.6)	21 (80.7)	
Infertility (<i>N</i> (%))	23 (40.3)		
No. of pathological reports of endometrial hyperplasia	0	1	>0.05
Follow-up period (mo.) (mean)	24.1	25.0	>0.05
Pregnancy	14*		
Hysteroscopic evidence of recurrence	2	0	>0.05

*Fourteen pregnancies were obtained in the 23 premenopausal patients who complained of infertility.

Pre- and postmenopausal women with endometrial polyps may require different management, and the natural course of the condition may also differ, so we divided our patients into premenopausal and postmenopausal groups: 57 were premenopausal and 26 postmenopausal. We then looked at clinical and demographic factors in these two groups that could affect the recurrence of polyps.

In the premenopausal group, the mean age was 32.3 (SD 7.0) years (range 22 - 51 years) and the mean gravidity and mean parity were 1.7 (0 - 5) and 1.5 (0 - 5), respectively. The mean follow-up period was calculated as 24.1 months. Two recurrences were detected in this group at hysteroscopic examination. A single polyp was found in 49 patients (86.0%). Indications for hysteroscopic polypectomy in this group were abnormal uterine bleeding in 34 patients (59.6%) and infertility in 23 (40.4%). There were no pathological findings indicating cancer or a precancerous lesion, and 14 pregnancies were recorded at the end of the follow-up period (60.9% of the 23 patients who complained of infertility). Eight pregnancies were spontaneous and in 6 cases assisted reproduction techniques (ovulation induction and intra-uterine insemination) were required. All these couples had been diagnosed with unexplained infertility. Nine couples, 6 with unexplained infertility and 3 with male factor infertility, had not yet achieved pregnancy at the time of writing. Comparison of the sizes and number of polyps in the 8 patients with unexplained infertility who became pregnant without any co-treatment and the 6 with unexplained infertility who did not succeed in falling pregnant did not reveal any statistically significant differences ($p>0.05$).

The mean age of the postmenopausal patients was 52.1 (SD 5.2) years (range 47 - 68 years) and the mean gravidity and parity were 3.3 (0 - 6) and 2.6 (0 - 6), respectively. The mean size of the polyps was 2.3 (SD 0.7) cm (range 0.5 - 4 cm). The mean duration of follow-up was 25.0 months. Hysteroscopic evaluation did not show any recurrences in this group. Of the patients 23 (88.5%) had a single polyp. AUB had been the main complaint for 21 patients (80.8%) before their hysteroscopic polypectomy; the other 5 patients had had no symptoms, and the polyps had been detected during routine postmenopausal transvaginal ultrasonography. Histopathological examination of the polyps in this group revealed only 1 case of endometrial hyperplasia (3.8%).

There were no complications in either group during operative or diagnostic hysteroscopy (Table I).

Discussion

Endometrial polyps occur in all age groups, but are most common between the ages of 40 and 49 years.⁶ The mean age of our patients was 38.5 (SD 11.3) years. The most common reported clinical complaint is AUB (metrorrhagia or menorrhagia).⁵ In our study metrorrhagia (41.2%) was

the most common type of AUB in the premenopausal group, followed by intermenstrual bleeding (32.4%) and menorrhagia (26.5%).

Immunohistochemical comparison of endometrial polyps from pre- and postmenopausal women has shown differing amounts of hormone receptors (oestrogen receptors and progesterone receptors). However, both maintain the normal endometrial regulatory mechanisms for cellular proliferation rates (Ki67 expression), and appear to have lost the usual hormone receptor control mechanisms for the regulation of apoptosis (Bcl-2 expression).⁷ Although there were no statistically significant differences between our premenopausal and postmenopausal patients in terms of number of polyps and recurrence rate ($p\geq 0.05$), the 2 recurrent cases were in the premenopausal group, which also had a larger proportion of patients with multiple polyps. This finding was statistically significant ($p<0.05$) and can be explained by the possible role of oestrogen in the causation of polyps.⁷

There are studies that have assessed the effectiveness and safety of hysteroscopy in the treatment of endometrial polyps by means of transvaginal ultrasonography or disappearance of symptoms.^{8,9} However, diagnostic hysteroscopy and sonohysterography are more sensitive than transvaginal ultrasonography in detecting intra-uterine abnormalities, and hysteroscopy is accepted as the gold standard in the evaluation of the uterine cavity.¹⁰ We therefore consider that the efficacy of hysteroscopic removal of endometrial polyps and the recurrence rate can be assessed most accurately and reliably by means of hysteroscopy. To our knowledge, our study is the first to date that has used diagnostic hysteroscopy to evaluate the uterine cavity after hysteroscopic polypectomy.

Polyps most commonly recur in the first year after their removal.⁹ Our mean duration of follow-up was 24.1 and 25 months in the premenopausal group and 25 months in the postmenopausal group, which was sufficient to evaluate recurrence.

The recurrence rate in our study was 2.4% (2/83). Reported treatment success rates range between 65% and 100%, according to how success is defined.⁵ However, Preutthipan and Herabutya stated that they did not see any recurrences after resection of polyps when they compared polypectomy methods.⁸ A more recent retrospective study reported a 4.9% recurrence rate in 83 women under 35 years of age.¹¹ These findings are comparable to our low recurrence rate.

Although the mechanisms by which polyps may adversely affect fertility are not clear, enhanced pregnancy rates have been reported in infertile women after polypectomy. Perez-Medina *et al.* reported an improved possibility of becoming pregnant after polypectomy, with a relative risk of 2.1 (95% confidence interval 1.5 - 2.9), in their

prospective randomised study including 215 infertile women.¹² They reported a pregnancy rate of 59.8% in their study group; 65% of these women fell pregnant in the first 3 months after polypectomy, before the first intra-uterine insemination. Similarly, Preutthipan and Herabutya reported a 45.5% cumulative pregnancy rate in 9 years, 2 months.⁸ Of our 23 infertile patients, 14 (60.9%) conceived and gave birth. Eight of those pregnancies (57.1%) were spontaneous, and 6 women needed assisted reproductive treatment. All 14 had been diagnosed with unexplained infertility. Of the 9 couples who had not conceived at the time of writing, 6 had been diagnosed with unexplained infertility and 3 had male factor infertility. Although the number of patients is very limited, comparison of the sizes and number of polyps in the 8 patients with unexplained infertility who became pregnant without any co-treatment and the 6 who had not been able to fall pregnant did not reveal statistically significant differences ($p>0.05$). Similarly, it has been shown in a larger series that hysteroscopic polypectomy improves fertility and increases pregnancy rates, irrespective of the size or the number of the polyps.¹¹

LNG-IUDs have been recommended for patients with recurrent or multiple polyps or persistent menstrual abnormalities. Coexistence of anovulatory cycles, adenomyosis or intramural fibroids has been blamed for the persistence of symptoms by some authors.^{9,13} We used LNG-IUDs in the 2 patients in the premenopausal group in whom polyps recurred and in the 3 in the same group with treatment failure. After a mean follow-up of 13 months, no further complaints were confirmed.

Although 99% of removed polyps are benign, malignant or premalignant lesions have been found.¹³ We identified only 1 patient with endometrial hyperplasia (3.8%) in the postmenopausal group.

There were no complications during the operations in any of our patients. This corresponds with the low complication rates of hysteroscopic polypectomy reported in the literature (2.4%).¹¹

In conclusion, we consider that hysteroscopic resection of endometrial polyps is safe and effective, with a promising effect on fertility rates. It is worth encouraging, especially when the results can be evaluated by means of diagnostic hysteroscopy. LNG-IUDs can be considered in recurrent cases or when menstrual abnormalities persist.

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