The effectiveness of hysteroscopic polypectomy in cases of female infertility

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Summary
The authors, based on their own material, evaluated the value of hysteroscopic treatment of endometrial polyps in a group of infertile women. Polypectomy was performed in 25 patients using either endoscopic microscissors or electric loop. Follow-up hysteroscopy was performed after two months as an integral part of the treatment. All the patients were observed for 12 months. The primary intrauterine investigation was complete in all patients without regard to kind of instrument which was confirmed by second-look hysteroscopy. About 80% of the patients who underwent surgery conceived. Restoration of reproductive ability did not depend on the size of the removed lesion.

Key words: Operative hysteroscopy; Endometrial polyp; Infertility.

Introduction
There are organic, functional and systemic causes of female infertility which are based on hormonal, immunological and mental disorders [1]. Participation of the uterine factor in the etiology of reproduction disorders figures out at 6% to 10% [2, 3]. Endometrial polyps addition to submucosal myomas, adhesions or septa are acquired anomalies determined to be one of the four basic intrauterine lesions contributing to female infertility. According to the literature the occurrence is estimated at 1.8% to 35.9% (from 3.8% to 35.9% as a cause of primary sterility, from 1.8% to 17.0% as a cause of secondary sterility and from 3.4% to 6.4% as a cause of infertility) [4, 5].

In modern gynecology hysteroscopy is the basic method in the diagnosis and treatment of endometrial polyps [5-8]. It allows the lesion to be located precisely (especially the place of peduncle implantation) and to be excised entirely. The pathogenesis of infertility caused by endometrial polyps is compared to the functional mechanism of intrauterine contraceptive devices [3]. The presence of polyp does not allow normal embryo development due to uterine cavity volume distortion and diminution. In cases of early pregnancy this pathologic condition can produce difficulties in proper implantation due to inflammatory changes in the endometrium [9]. According to the data from the literature, endometrial polyp removal in a large number of cases allows for full restoration of reproductive function [5]. Based on this theory, the value of hysteroscopic operations in the treatment of female infertility caused by endometrial polyps was evaluated.

Material and methods
Twenty-five infertile patients aged from 22 to 38 years (average 25.7) and diagnosed with endometrial polyps (10 with primary sterility and 15 with secondary) subsequently removed from the uterus by hysteroscopy were investigated. In 16 of these women infertility coexisted with menstrual disorders of spotting inbetween menstrual periods or abundant prolonged menstruation.

All patients were referred for hysteroscopic polypectomy after precise gynecological and ultrasound examination to exclude other than intrauterine pathology within the sexual organs. Endoscopic procedures were performed under general anesthesia using a continuous flow 7 mm operative hysteroscope or resectoscope. The first step of our investigation was direct visualization of the entire uterus and the pathological lesion and localization of the polyp peduncle implantation site. Using microscissors or an electric loop, the diagnosed tumor was excised and extracted through the cervical canal. Polyps greater than 2 cm in diameter were resected in fragments by electric loop. The surgical procedure was extended to an endometrial biopsy from the cervical canal and the uterine cavity to exclude other intrauterine pathology, especially any malignant proliferation.

The follow-up period was 12 months with obligatory second-look hysteroscopy performed two months after primary surgery. The curative value of hysteroscopy was defined as the percentage of pregnancies in the study group in the successive year after surgery (in case of primary and secondary sterility) or in cases of previous infertility in the percentage of births of viable neonates.

The results obtained from the treatment of infertility underwent statistical analysis (Students’ t-test) to estimate whether the percentage rate of pregnancies following the hysteroscopic procedures depends on polyp size or not.

Results
In 25 patients the technique of endometrial polyp removal (microscissors or electric loop) was established by hysteroscopic lesion size and peduncle diameter estimation (Table 1).
Table 1. — Hysteroscopic diagnosis of endometrial polyps.

<table>
<thead>
<tr>
<th>Polyp peduncle location</th>
<th>Polypl diameter</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 1 cm</td>
<td>1-2 cm</td>
</tr>
<tr>
<td>Posterior wall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uterine fundus</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Anterior wall</td>
<td>4</td>
<td>—</td>
</tr>
<tr>
<td>Isthmus</td>
<td>2</td>
<td>—</td>
</tr>
<tr>
<td>Cornua</td>
<td>4</td>
<td>—</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>7</td>
</tr>
</tbody>
</table>

(56%) (28%) (16%)

In 52% cases, polyp pedicle insertion was in the uterine fundus. In 24% cases it was located on the uterine walls and in 8% in the isthmus. The remaining 16% of polyps were situated in the uterine cavity angles.

More than half of all the polyps (56%) were less than 1 cm in diameter. The remaining 11 were 1 cm to 2 cm (7 polyps) and over 2 cm (4 polyps) in diameter.

Figure 1 shows the type and range of endoscopic procedure performed on 25 infertile patients with endometrial polyps.

![Figure 1. — Hysteroscopic polypectomy techniques.](image)

Twenty-one endometrial polyps were excised with scissors. The use of this kind of instrument was dependent on the small diameter of the lesion and a long and thin pedicle. The remaining four were removed using a resectoscope loop electrode as they were over 2 cm in diameter, almost totally filled the uterine cavity, and had a short pedicle full of vessels. The results of microscopic examination of the removed polyps are presented in Figure 2.

Histological examination confirmed hysteroscopic diagnosis in 24 out of 25 cases. Nineteen polyps were of glandular structure and the remaining five presented as adenomatous (in 13 cases chronic inflammatory changes were revealed). Focal malignant proliferation was microscopically diagnosed in one polyp, in spite of its unsuspicous macroscopic appearance. This patient was scheduled for hysterectomy.

A successive hysteroscopy was performed after two months to estimate the effectiveness of the surgical treatment. In all 24 patients normal cervical canals and uterine cavities were observed.

Hysteroscopy effectiveness stated as the percentage rate of obtained pregnancies is introduced in Table 2.

Table 2. — The effectiveness of hysteroscopic polypectomy in 24 infertile patients.

<table>
<thead>
<tr>
<th>Primary sterility</th>
<th>Secondary sterility</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrauterine pregnancy</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Full term birth</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Miscarriage</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Ectopic pregnancy</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>No pregnancy achieved</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>16</td>
</tr>
</tbody>
</table>

In the 12-month observation period (most often in the 3rd and 4th month after treatment) 19 out of 24 treated patients conceived. Restoration of reproduction ability did not depend on removed lesion size (in 11 cases [1] an endometrial polyp larger than 1 cm in diameter was removed and in 8 cases [2] a polyp smaller than 1 cm [1-2 NS; \( p = 0.2501 \)]. Eighteen out of 19 obtained pregnancies were intrauterine, and the remaining one was ectopic (the polyp was removed from the uterine cavity angle and a tubal pregnancy was diagnosed in the unilateral oviduct). Seventeen patients gave birth to healthy newborn children - 16 delivered at term (14 by normal vaginal delivery and 2 by caesarean section because of threatened fetal intrauterine asphyxia). The remaining patient delivered prematurely in the 35th week of pregnancy. One pregnancy ended in miscarriage which took place in the 8th week of gestation.

Seven patients (6 of whom did not conceive and one who had a miscarriage) were referred for hysteroscopy which did not reveal any pathological condition within the uterine cavity.

**Discussion**

Modern hysteroscopic procedures are recognized as the best choice for diagnosis and treatment of endometrial polyps. [5, 11, 12]. In about 80% of cases the endometrial polyps are single lesions; most often the peduncles are attached to the uterine fundus or the cornua areas [9]. We observed that in 52% of cases the tumor pedicle was placed in the uterine fundus, in 24% on the uterine walls, in 8% in the isthmus and in 16% in the uterine cavity angles. Similar results were presented by Pace [13]. The choice of the hysteroscopic instrument for polypectomy
mainly depends on the lesion size (and histological structure). Endometrial polyps (most often glandular) are usually excised using microsissors [5, 6, 11]. The cases with the lesions over 2 cm in diameter required resection [14]. Large polyps are usually endometrial adenomas [15] and our results confirm this. Twenty-one of the diagnosed lesions did not exceed 2 cm in diameter and they were entirely removed together with the pedicle using semi-rigid scissors (19 glandular and 2 adenomatous). Four large polyps (adenomatous endometrial polyps) required the use of electric loop. In all patients the endoscopic procedure was complete and was confirmed by follow-up hysteroscopy. One case deserves special attention – the case where focal adenocarcinoma was histologically diagnosed within the polyp in spite of its unsuspicous macroscopic appearance. Marabini et al. [16] published a similar report. Malignant transformation within polyps appears very seldom (only in 0.6%) but no matter what the patient’s age and the kind of ailment, all excised tissue should be histologically examined [16, 17]. This is also why one should be critical of laser treatment and vaporizing techniques of only optically diagnosed lesions [18].

After hysteroscopic treatment, at 12-month follow-up, 19 (79.2%) patients had conceived. Pregnancy ended with full term delivery for 17 women. The remaining two cases ended unsuccessfully. One patient had an ectopic pregnancy (after polyp removal from the uterine cavity angle), and in another an early miscarriage took place. The inflammatory changes within the fallopian tube induced by the polyp in the uterine opening of the ovicduct could be the reason for the ectopic pregnancy. Follow-up hysteroscopy performed in patients who were unable to conceive and in the patient who had a spontaneous miscarriage did not reveal anatomical anomalies within the uterine cavity. The pathogenesis of polyps is not fully explained, but the formation – especially when multiple polyps are present – is associated with hormonal disorders often diagnosed in such patients [9]. Treatment failures such as inability to become pregnant or miscarriages are explained in the literature in this way [5, 10]. Additionally another significant question is how single, small endometrial polyps restrict normal reproduction ability. Taylor et al. [5] consider that although the diagnosis of these lesions indicates their removal, they are seldom the direct reason for female infertility. Our own results confirm those of the above authors’ experiences. All excised polyps in women who did not conceive were below 1 cm in diameter.

We conclude that hysteroscopic polypectomy is a procedure with about 100% effectiveness. In our study about 80% of patients who underwent surgery conceived, thus showing that the diameter of the removed endometrial polyps did not influence pregnancy rate.

References


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