

Spontaneous Pregnancy Rate after Hysteroscopic Removal of Endometrial Polyps in Infertility patients; Experience at King Hussein Medical Center

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ABSTRACT

Objective: To evaluate the effectiveness of hysteroscopic trans-cervical resection of endometrial polyps in improving pregnancy rates.

Methods: This retrospective study at King Hussein Medical Center from March 2006 to January 2012. One hundred and 25 patients were included with a diagnosis of primary or secondary infertility for a minimum of 2 years. Endometrial polyps were diagnosed by trans-vaginal Ultrasound scan and confirmed later by hysteroscopy. The inclusion criteria were age under 38 years, menstrual irregularities for at least 6 months, no other cause of infertility was found after diagnostic workup of the couples, minimum 2 years of infertility and 18 months of follow-up with attempts to conceive after hysteroscopic polypectomy. All polyps were larger than 1.5 cm. The effect of the different sizes of the polyps was not evaluated in our study.

Results: All 125 Patients had endometrial polyps on transvaginal scans and confirmed at hysteroscopic removal and histological examination. Among patients of the study group, there were no significant differences in age, type or length of infertility, or follow-up period after the procedure. The mean size of the endometrial polyps was 3.0 cm \pm 0.5cm. Sixty patients had endometrial polyp \leq 2.8 cm and 65 patients had bigger or multiple endometrial polyps. Following the procedure, menstrual irregularity was back to normal in 90% of patients. After the procedure, the spontaneous pregnancy rate was 80% (100 patients of the total number of patients) and delivery at term rate was 70% (70 patients out of the 100 patients who conceived). Spontaneous abortion rate in the first trimester of pregnancy was 12% (12 patients) of the total number of pregnant patients. Type of infertility did not affect fertility rates after hysteroscopic polypectomy. There were no complications related to the procedure in the study patients and only 13 patients (10.5%) had recurrence of their menstrual irregularities.

Conclusion: Fertility rate in patients with endometrial polyps and menstrual irregularities with no other cause to explain their infertility is significantly improved with trans-cervical polypectomy. The procedure is also safe with low recurrence rate.

Key Words: Endometrial polyp, Infertility, Spontaneous pregnancy rate, Hysteroscopy.

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Introduction

Endometrial polyps are localized hyperplastic overgrowths of endometrium that contain both endometrial glands and stroma. The large majority of these lesions are benign. They may result from altered expression of the estrogen receptor in the endometrium,

leading to excessive local endometrial growth in response to circulating estrogen. The polyps are commonly associated with irregular or abnormal ovulation and are made up of irregular proliferative glands and stroma around a vascular pedicle originating from a spiral artery. Polyps have a variable

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presentation; they can occur as individual or multiple lesions, range in size from millimeters to centimeters, and can be sessile or pedunculated ⁽¹⁾. The polyps have the potential to interfere with female fertility. This can be due to alteration of the micro-environment of the womb or due to physical interference with sperm transport impeding fertilization and subsequent implantation of the embryo. increased production of inhibitory factors such as glycodeilin, which can inhibit natural killer cell function ,reduced secretion of implantation factors such as insulin-like growth factor-binding protein-1 (IGFBP-1), tumour necrosis factor (TNF-alpha) and osteopontin , and unresponsiveness to cyclical hormonal changes . It is plausible that removal of the polyps might improve fertility.

Subfertility is defined as failure to achieve a clinical pregnancy despite regular unprotected sexual intercourse for 12 months or more. Up to 25% of women with unexplained infertility have endometrial polyps on hysteroscopy ^(2,3). Several nonrandomized studies of women with unexplained infertility and polyps demonstrated an improvement in spontaneous pregnancy rates after undergoing hysteroscopic polypectomy ^(3,4,5). Polypectomy reverses mechanical and anatomical distortions within the uterine cavity and this may potentially improve the chances of embryo implantation and a successful pregnancy outcome. A recent study has shown that the levels of endometrial implantation factors, such as mid-secretory concentrations of IGFBP-1, TNFa and osteopontin, are increased following the surgical removal of polyps. The increase in these implantation factors enhances the implantation rates. Embryo implantation is a critical step in achieving a successful pregnancy and involves a series of complex interactions between the developing blastocyst and the endometrium. A normal endometrium, physiologically and structurally, is essential and physiological and structural abnormalities may lead to adverse reproductive outcomes. While physiological abnormalities of the endometrium are mostly unresponsive to therapeutic manipulation, structural

abnormalities such as uterine fibroids, endometrial polyps, intrauterine adhesions and Mullerian anomalies are potentially amenable to surgical treatment. ^(1,3,5)

Methods

Retrospective study at King Hussein Medical Center from March 2006 to January 2012. One hundred and 25 patients were included with a diagnosis of primary or secondary infertility for a minimum of 2 years. Endometrial polyps were diagnosed by trans-vaginal Ultrasound scan and confirmed later by hysteroscopy. The inclusion criteria were age under 38 years, menstrual irregularities for at least 6 months, no other cause of infertility was found after diagnostic workup of the couples, minimum 2 years of infertility and 18 months of follow-up with attempts to conceive after hysteroscopic polypectomy. All polyps were larger than 1.5 cm. The effect of the different sizes of the polyps was not evaluated in our study.

Results

Of the 125 Patients, all were found to have endometrial polyps on transvaginal scans and confirmed at hysteroscopic removal and histologic examination. Among patients of the study group, there were no significant differences in age, type or length of infertility, or follow-up period after the procedure. The mean size of the endometrial polyps was 3.0 cm \pm 0.5cm. Sixty patients had endometrial polyp \leq 2.8 cm and 65 patients had bigger or multiple endometrial polyps (Table I). After the procedure, the spontaneous pregnancy rate was 80% (100 patients of the total number of patients) and delivery at term rate was 70% (70 patients out of the 100 patients who conceived). Following the procedure, menstrual irregularity was back to normal in 90% of patients. Spontaneous abortion rate in the first trimester of pregnancy was 12% (12 patients) of the total number of pregnant patients. Ectopic pregnancy rate was 2%. Sixteen out of the 100 patients who conceived had variable pregnancy

outcomes, missed second trimester miscarriage, preterm delivery and intra-uterine fetal death (Table II). Type of

infertility did not affect fertility rates after hysteroscopic polypectomy.

Table I: Size and symptoms of endometrial polyps

Size of endometrial polyp	Number of patients	Symptoms
≤2.8 cm	60	Menstrual irregularity
>2.8 cm or multiple polyps	65	Menstrual irregularity

Table II: Reproductive outcome after hysteroscopic polypectomy

No. of patients	Spontaneous pregnancy rate	Delivery at term rate	Miscarriage rate	Ectopic pregnancy rate	Other outcomes
125	80% (100 patients)	70% (70 patients)	12% (12 patients)	2% (2 patients)	16% (16 patients)

Discussion

This retrospective study was conducted at King Hussein Medical Centre which is the largest tertiary referral center in the country. Cases are usually referred from other hospitals of the royal medical services, ministry of health hospitals and private sector. The diagnosis of each case is verified again at our unit and arranged to be done by a consultant gynaecologic endoscopist. The endoscopy unit is a well-established service with facilities for both diagnostic and operative procedures. The cases initially presented with infertility, both primary and secondary, for a minimum of 2 years and menstrual irregularities. Completed fertility workup was done for all cases and the only abnormality was suspected endometrial polyp(s) on trans-vaginal ultrasound scan (TVS). Sensitivity of TVS to diagnose uterine masses is 78.6%. So, uterine mass can be evaluated more accurately by TVS than trans-abdominal scan (TAS) ⁽⁸⁾. A regular myometrial-endometrial interface and homogeneous endometrial structure on trans-vaginal sonography congruent with the phase of the menstrual cycle indicated a normal endometrium and precluded the need for diagnostic hysteroscopy. Trans-vaginal sonography may be used as the initial diagnostic procedure to select patients for hysteroscopy ⁽⁹⁾. All cases selected in our series had TVS before hysteroscopy. The cases were operated upon using a 10 mm bipolar operative hysteroscope. The effect of endometrial polyps on pregnancy in an otherwise unexplained infertility had been

proposed by many authors. Kalampokas T, et al ⁽¹⁰⁾ proposed that hysteroscopic polypectomy of any size appears to improve fertility in women with otherwise unexplained infertility. Perez-Medina T, et al ⁽¹¹⁾ in a prospective randomised study, suggest that hysteroscopic polypectomy before intra-uterine insemination (IUI) is an effective measure. Hysteroscopic polypectomy of endometrial polyps appeared to improve fertility and increase pregnancy rates in previous infertile women with no other reason to explain their infertility, irrespective of the size or number of the polyps. Type of infertility of patients seems not to affect fertility rates after hysteroscopic polypectomy ⁽¹²⁾. Therefore, we did not study the effect of different sizes of the polyps or the type of infertility on the spontaneous pregnancy rate. Varasteh NN, et al ⁽¹³⁾, found that both hysteroscopic polypectomy and hysteroscopic myomectomy appeared to enhance fertility compared with infertile women with normal cavities. Despite concern that hysteroscopic resection of a large myoma might ablate a large surface area of the endometrial cavity, the reproductive benefit appears greater than the risk. The reproductive outcome found in our series, a spontaneous pregnancy rate and delivery at term rate of 80% and 70%, respectively, indicated the important role of hysteroscopy in subfertility. The other pregnancy outcomes seen in our pregnant patients did not differ from the usual reported rates in the literature ^(14, 15, 16, 17). The failure rate seen in our patients is low. All procedures were done in

the conventional manner using general anaesthetic. We aim at shifting our practice to outpatient procedures using no anaesthetic. Hysteroscopic polypectomy performed in an outpatient setting under displays the same efficacy, but the procedure time is shorter and the complication rate is no anaesthesia is a well-tolerated procedure. As compared to conventional treatment, it lower ⁽¹⁸⁾. The duration of endometrial wound healing is different after various hysteroscopic surgeries. Postoperative new intra-uterine adhesion (IUA) formation is an important factor influencing endometrial wound healing. Yang JH, et al ⁽¹⁹⁾ found in their series that thirty-two of 37 women (86%) achieved a fully healed endometrium 1 month after polypectomy, a higher rate than those after myomectomy (18%), septal incision (19%), and adhesiolysis (67%). In our practice, we do not usually utilize pre-operative endometrial preparation agents like estrogens or progestogens for polypectomy. Cicinelli et al ⁽²⁰⁾ found that at 10 days before surgery, administration of Qlaira (a new estrogen step-down, progesterone step-up dosing strategy, Qlaira, Bayer Healthcare Pharmaceuticals) is effective for preparation of the endometrium for hysteroscopic polypectomy in the office setting. With preoperative administration of Qlaira, the surgical procedure can be performed more easily and faster, and both surgeon and patient satisfaction rates are improved. Considering the previous evidence of benefit of hysteroscopic polypectomy, we believed that the 12 patients who opted for further assisted reproduction techniques would have better pregnancy outcome. We had no further feedback on them. We hope that a randomised prospective trial is to be conducted at our unit for further strong evidence on the reproductive benefit of the hysteroscopic polypectomy in infertile patients.

Conclusion

Fertility rate in patients with endometrial polyps and menstrual irregularities with no other cause to explain their infertility is significantly improved with trans-cervical polypectomy. The procedure is also safe with low recurrence rate.

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