Objective: To assess endometrial polyp location and abnormal endometrial findings and their impact on pregnancy rate.

Design: Retrospective study.

Setting: Reproductive clinic in Kanagawa, Japan.

Patient(s): A retrospective study was conducted on 230 infertility patients who had an endometrial polyp, as suspected on the basis of ultrasound and as diagnosed by hysteroscopy.

Intervention(s): Polyps were excised by either polypectomy or curettage. All samples were examined for pathology. The endometrial cavity was subdivided into five area categories: uterotubal junction, anterior uterine wall, posterior uterine wall, lateral uterine wall, and multiple. The patients received ≥6 months of follow-up; pregnancy rates were compared between the five subdivisions.

Main Outcome Measure(s): Pregnancy rates.

Result(s): The incidence of endometrial polyps was as follows, by location: uterotubal junction, 8.0%; posterior uterine wall, 32.0%; anterior uterine wall, 15.4%; lateral uterine wall, 9.2%; and multiple, 35.4%. The pregnancy rate after surgery was as follows, by location: uterotubal junction, 57.4%; posterior uterine wall, 28.5%; anterior uterine wall, 14.8%; lateral uterine wall, 18.8%; and multiple, 40.3%. Endometrial hyperplasia was found in 6.9% of the cases. The pregnancy rate after surgery at the uterotubal junction was significantly higher than that of other locations.

Conclusion(s): Endometrial polyps are commonly found on the posterior wall of the uterus; however, excision of polyps that were located at the uterotubal junction significantly improved the pregnancy rate. Endometrial polyps should be categorized by both size and location. (Fertil Steril 2008;90:180–2. ©2008 by American Society for Reproductive Medicine.)

Key Words: Endometrial polyp, pregnancy rate, polyp location, infertility

Endometrial polyps are a common clinical condition and can cause infertility (1). Ultrasound can detect endometrial abnormalities and diagnose endometrial polyps. Endometrial polyps have been reported in from 15% to 24% of infertile women (2, 3). Moreover, pregnancy rates ranging from 23% to 65% have been reported after polypectomy (1, 3–5). Endometrial carcinoma is sometimes found in patients who have an endometrial polyp (6). In view of the foregoing, hysteroscopy may be performed as part of an infertility evaluation.

To the best of our knowledge, this is the first study that describes endometrial polyp location and pregnancy rate after surgery. Furthermore, this article reports the frequency of endometrial hyperplasia in patients with endometrial polyps.

MATERIALS AND METHODS

From June 2005 through June 2006, outpatient hysteroscopy was performed at the Reproductive Center of the Denentoshi Ladies Clinic (Kanagawa, Japan) on 230 infertile women who were suspected to have an endometrial polyp, according to ultrasound. All the patients had previously undergone a routine infertility workup, including hysterosalpingography and blood tests. The infertility factors were luteal dysfunction (P levels at midluteal phase of <10 ng/mL), male factor (according to the World Health Organization classification), and unexplained. Patient criteria included age, estrogen and P levels at mid luteal phase, endometrial thickness, and polyp size according to ultrasound. The endometrial cavity was divided into the following five area categories: uterotubal junction, anterior uterine wall, posterior uterine wall, lateral uterine wall, and multiple. Multiple polyps were defined as the presence of three or more polyps in more than two locations. All surgeries were performed by the same physician.

All patients received general anesthesia, and the polyp was excised either by forceps and/or curettage. Immediately after the surgery, a second hysteroscopy was performed to detect polyp remnants. The diagnosis was confirmed by histological examination. Postoperative treatment was identical to preoperative treatment, and follow-up was conducted for ≥6 months. Preoperative and postoperative treatment included ovulation induction, intrauterine insemination, and luteal
support; assisted reproductive technology was excluded from the protocol. All patients received identical, appropriate treatment.

Pregnancy was confirmed by an elevated hCG level, as well as by the presence of a gestational sac by ultrasound. The multiple $\chi^2$ test and Student’s $t$-test were used for statistical analysis. Because the multiple $\chi^2$ tests were rejected, the Student’s $t$-test was used, and $P<.05$ was considered to be significant.

This study was granted exemption from institutional review board oversight because of its retrospective nature and maintenance of confidentiality.

RESULTS
The average patient age ($\pm$SD) was 35 ± 2.9 years, the duration of infertility was 3.65 ± 2.6 years, and the average estrogen and P levels at the mid luteal phase were 140 ± 92 pg/mL and 12 ± 7.5 ng/mL, respectively. The average endometrial thickness was 12.1 ± 3.1 mm, and the average polyp size was 9.4 ± 2.5 mm by ultrasound. A 31.7% pregnancy rate was achieved, and the average duration from surgery until pregnancy was 4.5 ± 2.8 months. Benign endometrial hyperplasia was found in 6.9% of the patients; no cases of endometrial carcinoma were found. The distribution of infertility factors was the same for each group.

Polyp locations were as follows: uterotubal junction, 8.3%; anterior uterine wall, 15.2%; posterior uterine wall, 31.7%; lateral uterine wall, 9.1%; and multiple, 35.7%. In cases without multiple polyps (independently generated), 50% were located on the posterior uterine wall (Fig. 1). Some 50% of the multiple polyps were uterotubal polyps. There were no differences in polyp size in the five subdivisions of the endometrial cavity. The pregnancy rates by location were as follows: uterotubal junction, 57.1%; anterior uterine wall, 14.8%; posterior uterine wall, 28.5%; lateral uterine wall, 18.8%; and multiple, 40.3% (Fig. 2). Excluding multiple polyps, the pregnancy rate for the uterotubal junction area was significantly higher than that for other areas (uterotubal junction vs. anterior uterine wall, $P=.015$; uterotubal junction vs. posterior uterine wall, $P=.041$; and uterotubal junction vs. lateral uterine wall, $P=.029$). Although the limited number of pregnancy cases in the patients who had uterotubal junction polyps, significance was obtained by Student’s $t$-test. There was no difference in the pregnancy rate between the types of postsurgical treatment.

DISCUSSION
The presence of an endometrial polyp is not a significant health risk; thus, it sometimes is disregarded in the routine patient examination. However, endometrial polyps cannot be overlooked in an infertility examination. It has been reported that the detection rate for endometrial polyps is high with transvaginal sonography; thus, the procedure may be used as the initial diagnostic tool for selecting patients for hysteroscopy (7). Recently, three-dimensional contrast sonography has been used for the detection of endometrial polyps (8). A recent article noted that a significantly higher proportion of endometrial polyps express aromatase (9). It also has been reported elsewhere that patients with endometriosis have a high frequency of endometrial polyps (10). Perez-Medina et al. (11) reported that hysteroscopic polypectomy before intrauterine insemination is an effective procedure. Thus, the existence of an endometrial polyp may sometimes be a significant finding for infertility patients.

Polyp size in relation to pregnancy rate has been reviewed. Small endometrial polyps ($<2$ cm) do not decrease the pregnancy rate; however, an increased pregnancy loss has been noted (12). Isikoglu et al. (13) reported that endometrial...
polyps of size <1.5 cm do not affect intracytoplasmic sperm injection outcome. Restoration of reproductive ability was found to be unrelated to the size of the removed lesion (5, 14). However, a statistically significant difference in pregnancy rate was found between women who underwent hysteroscopy before an IVF–embryo transfer cycle and those who did not undergo a hysteroscopy (15). Furthermore, the specific hysteroscopy procedure for polyps of different size currently is subject to debate.

Among patients with endometrial polyps, hyperplasia was diagnosed in 11.9% (15). Furthermore, another study found endometrial carcinoma in 3.9% of menopausal women with an endometrial polyp (16). We did not find any cases of endometrial carcinoma in our study; however, endometrial hyperplasia was found in 6.9% of the aforementioned cases. All of our cases of hyperplasia contained multiple polyps. If multiple polyps are found at hysteroscopy, a biopsy should be performed. When endometrial polyps are suspected, hysteroscopy should be performed, because endometrial cancer is found on rare occasions (6).

To the best of our knowledge, only Shokeir et al. (3) have reported on endometrial polyp location. They found that most polyps were located in the region of the uterotubal junction. In our study, although multiple polyps were frequently found, posterior uterine wall polyps often were present (31.7%). We found an incidence of uterotubal junction polyps in only 8.3% of our cases; furthermore, the postoperative pregnancy rate was the highest for these polyps (57.4%). This finding was comparable to the 50% pregnancy rate after polypectomy that Shokeir et al. (3) reported. A uterotubal junction abnormality leads to loss of function of the ostium and could affect sperm migration. To the best of our knowledge, the literature contains no reports that describe the relationship between polyp location and pregnancy rate. Although tremendous potential bias could have been introduced into the study that affected the outcome, it appears that location of the endometrial polyp may be one of the reasons for infertility.

It may be suspected that uterotubal junction polyps impede the passage of sperm or embryos. It is possible that decreased fertility in this situation is more physical than functional. Polyp size is relatively unimportant when compared with location, specifically, when polyps are present at the uterotubal junction; thus, it is prudent to excise uterotubal junction polyps. Hysteroscopy is a useful procedure that may be a routine component of an infertility evaluation when an endometrial polyp is suspected. To determine the most appropriate therapy when an endometrial polyp is found, the physician must take into consideration both its size and location.

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REFERENCES