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Original Research Article

The effectiveness of hysteroscopic polypectomy in cases of female infertility

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ABSTRACT

Background: The position of hysteroscopy in current fertility practice is under debate. There are many randomized controlled trials on technical feasibility and patient compliance demonstrating that the procedure is well tolerated and effective in the treatment of intrauterine pathologies. However, no consensus on the effectiveness of hysteroscopic surgery in improving the prognosis of sub fertile women is available. The aim of this study is to evaluate the effectiveness of hysteroscopic polypectomy in cases of female infertility.
Methods: This is a cross-sectional descriptive study. This study was carried out on 63 patients the find out about the population including female patients in the department of obstetrics and gynecology, Evercare Hospital, Dhaka, Bangladesh. The duration of the period from July 2020 to June 2023. The period from data was entered in MS Excel and statistical analysis was done using SPSS-24.
Results: The distribution of study patients according to indication of polypectomy and mode of anaesthesia where 37 (58.7%) patients had endometrial polyp and 26 (41.3%) patients had submucous fibroid and 52 (82.53%) patents were given spinal anaesthesia. Pregnancy after hysteroscopic polypectomy where 29 (46.03%) patients became pregnant with endometrium polyp and 34 (53.96%) patients became pregnant with submucous fibroid.
Conclusions: The efficacy of surgery in infertile women with intrauterine polyp suggests potential benefit. More randomized controlled trials are needed before the widespread use of hysteroscopic surgery in the general population.

Keywords: Hysteroscopy, Intrauterine pathologies, Polyps, Fibroids, Septate uterus

INTRODUCTION

The introduction of hysteroscopy into gynecological practice has revolutionized the diagnosis and treatment of intrauterine diseases. New methodological and technological developments have made diagnostic and surgical hysteroscopy much more efficient, cost-effective, safe and useful. The most common indication for hysteroscopy is abnormal uterine bleeding (AUB), but it is also used in cases of infertility and Mullerian abnormalities.[1,2]

Uterine factor can only be found in 2 to 3% of infertile women, but uterine lesions are much more common in this setting (40 to 50%).[3] These lesions can affect natural fertility as well as reduce pregnancy rates in assisted reproduction.[4] Published observational studies have shown increased pregnancy rates after hysteroscopic removal of endometrial polyps, submucosal fibroids, uterine septum or intrauterine adhesions, found in 10-15% of women seeking treatment for infertility.

Evaluation of the uterine cavity is a fundamental step in the evaluation of female infertility. Classically, uterine and

transvaginal ultrasound was most commonly used for this purpose. However, hysteroscopy is considered the gold standard for the diagnosis of uterine lesions.[3,4] The value of systematically using hysteroscopy in the initial assessment of infertility is unclear and exploration of the uterine cavity in the initial evaluation of infertility should be based on hysterosalpingography (HSG) or hysterosonography. Systematic hysteroscopy before IVF is a widely accepted method that is believed to improve pregnancy rates but lacks scientific evidence. After multiple failed implantations in IVF cycles, the uterine cavity needs to be re-evaluated by the hysteroscopy and this approach has been shown to improve the pregnancy rates.[5]

The place of hysteroscopy in reproductive practice is currently still under debate. Although numerous randomized controlled trials of technical feasibility and patient compliance demonstrate that the procedure is well tolerated and effective in the treatment of intrauterine conditions, but there is no consensus on the effectiveness of hysteroscopic surgery to improve the prognosis of infertile women.[6,7]

A recent review of the effectiveness of hysteroscopy in improving pregnancy rates in infertile women without other gynecological symptoms concluded that there is little evidence to support its widespread use of laparoscopic surgery in the general infertility community.[8] According to the American society for reproductive medicine (ASRM), hysteroscopy is the most accurate method for diagnosing and treating uterine pathology. Since it is also the most expensive and invasive method for evaluating the uterine cavity, it should be reserved for further evaluation and treatment of abnormalities identified by less invasive methods such as HSG and sonohysterography.[9]

In modern gynecology, hysteroscopy is the basic method for the diagnosis and treatment of endometrial polyps. [10] It can accurately locate the lesion and be completely resected. The pathogenesis of infertility due to endometrial polyps has been compared with the functional mechanism of intrauterine contraceptive devices.[11] The presence of polyps does not allow the embryo to develop normally due to the deformation and volume reduction of the uterine cavity. In the case of early pregnancy, this pathological condition can lead to difficulty in proper implantation due to inflammatory changes in the endometrium.[12] According to data from the literature, resection of endometrial polyps allows in a large number of cases complete restoration of reproductive function. Based on this theory, the value of hysteroscopic surgery in the treatment of female infertility due to intrauterine polyp has been evaluated.

METHODS

The study was a cross-sectional descriptive study which was conducted at the department of obstetrics and gynecology, Evercare Hospital, Dhaka, Bangladesh in the period from July 2020 to June 2023 with a semi structured questionnaire. About 63 study population admitted in the department of obstetrics and gynecology. Randomized sampling technique was used as a sampling method. The inclusion criteria for a study on the effectiveness of hysteroscopic polypectomy in cases of female infertility typically focus on selecting participants who meet specific medical and clinical characteristics that ensure the relevance and validity of the results. These criteria generally include were women who diagnosed with uterine polyps either through imaging techniques such as ultrasound, sonohysterography, or HSG, or through hysteroscopy. Women of reproductive age, typically between 20 to 40 years. Participants should have been unable to conceive despite normal ovarian reserve and patency of fallopian tubes. Women should be suitable candidates for hysteroscopic surgery (no contraindications for anesthesia or surgery).

Exclusion criteria for a study on the effectiveness of hysteroscopic polypectomy in cases of female infertility are used to rule out participants who may not benefit from the intervention, who might have confounding factors affecting the results, or who may be at higher risk for complications. These criteria ensure that the study outcomes are as accurate and reliable as possible. Common exclusion criteria would include were women with large uterine fibroids or significant uterine malformations (such as septate uterus or significant adenomyosis) that could require different treatment or confound results related to polyps alone. Women who are unable to provide informed consent for the study or those who do not agree to the study protocols, including follow-up visits or procedures. After collection, the data were checked and cleaned, followed by editing, compiling, coding and categorizing according to the objectives and variable to detect errors and to maintain consistency, relevancy and quality control. Collected data were edited and analyzed according to the objectives and variables by IBM software-statistical package for social science (SPSS 25) version. Ethical clearance was taken from the IRB of the institution.

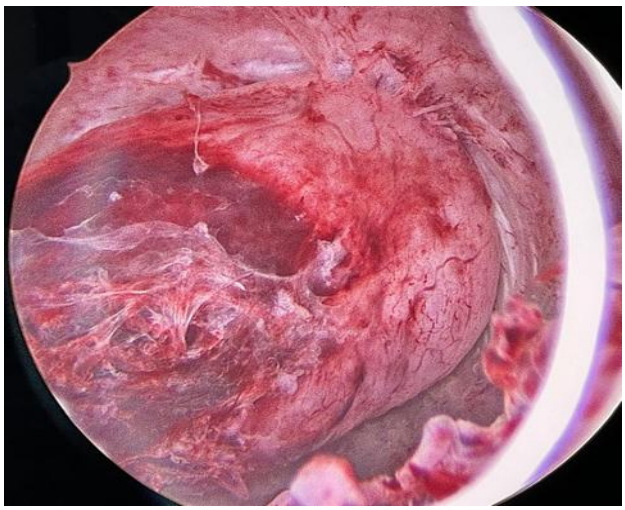

Figure 1: Before surgery.

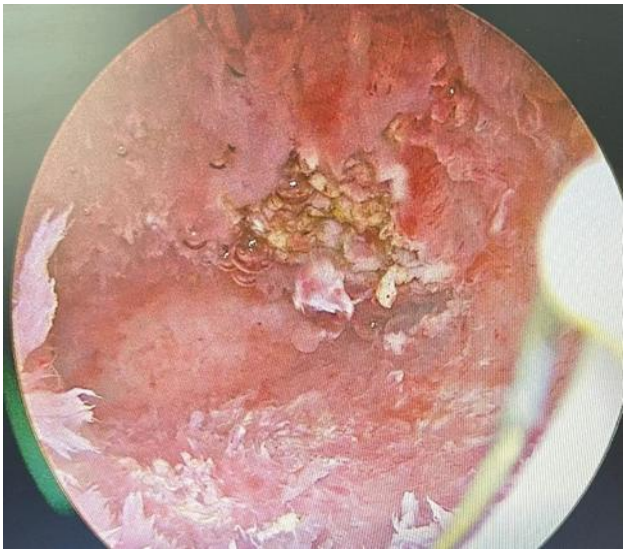

Figure 2: After surgery

RESULTS

Table 1 demonstrated the distribution of the study patients according to general characteristics, where most of the patients 31 (49.20%) were 31 to 40 years, 35 (55.56%) patients had high socioeconomic status and most of them 28 (44.44%) were para one. Demonstrated the distribution of study patients according to indication of polypectomy and mode of anaesthesia where 37 (58.7%) patients had endometrial polyp and 26 (41.3%) patients had submucous fibroid and 52 (82.53%) patents were given spinal anaesthesia.

Table 2 demonstrated the distribution of the study patients according to type of submucous fibroid where most of the patients 27 (42.9%) had single submucosal myoma, volume of submucosal myoma lies between 2.6 to 5 in 22 (34.92%) patients and most of the patients 35 (55.6%) had type 0 submucosal myoma of the uterus. Mode of delivery where half of the patients 31 (49.2%) had pedunculated growth and most of the patients 42 (66.67%) underwent caesarean section.

Table 3 demonstrated the distribution of the study patients according to changes in clinical symptoms of patients with uterine polyps of the uterus before and after treatment where before treatment 47 had excessive menstruation, 32 patients had too long menstrual period and 7 patients had anemia and after treatment the rate became decreased where 9 patients had excessive menstruation, 5 patients had too long menstrual period and two patients had anemia.

Figure 3 demonstrated the distribution of the study patients according to pregnancy after hysteroscopic polypectomy where 29 (78.4%) patients became pregnant with endometrium polyp and 20 (76.9%) patients became pregnant with submucous fibroid.

Table 1: Distribution of the study patients according to general characteristics and indication of polypectomy and mode of anaesthesia, (n=63).

Characteristics	N	Percentages (%)
Age (in years)		
20-30	13	20.63
31-40	31	49.20
<45	19	30.16
Socioeconomic level		
Medium	28	44.44
High	35	55.56
Parity		
Nullipara	17	26.98
Para one	28	44.44
Multipara	18	28.57
Indication of polypectomy		
Endometrium polyp	37	58.7
Submucous fibroid	26	41.3
Mode of anaesthesia		
Spinal anaesthesia	52	82.53
General anaesthesia	11	17.46

Table 2: Distribution of the study patients according to type of submucous fibroid and depth of infiltration and mode of delivery, (n=63).

Characteristics	N	Percentages (%)
Number of submucous myoma		
1=1	27	42.85
2=3	21	33.33
3=≥3	15	23.80
Volume of submucous myoma (cm)		
1=0-2.5	16	25.39
2=2.6-5	22	34.92
3=>5	25	39.69
Type of submucous myoma of the uterus		
Type 0	35	55.6
Type I	18	28.6
Type II	10	15.8
Mode of delivery		
Spontaneous vaginal delivery	21	33.33
Caesarean section	42	66.67

Table 3: Distribution of the study patients according to changes in clinical symptoms of patients with Uterine polyps of the uterus before and after treatment.

Uterine polyps clinical symptom	Before treatment	After treatment	P value
Excessive menstruation	47	9	0.005
Too-long menstrual period	32	5	0.004
Anemia	30	2	0.001

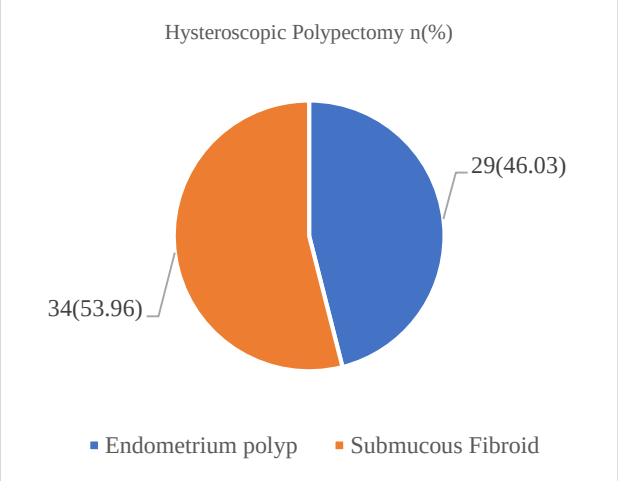

Figure 3: Pregnancy after hysteroscopic polypectomy.

DISCUSSION

Modern hysteroscopic procedures are widely acknowledged as the gold standard for diagnosing and treating endometrial polyps and other intrauterine pathologies.[21-23] In our study, we observed a significant correlation between hysteroscopic polypectomy and improved fertility outcomes among women diagnosed with endometrial polyps and submucous fibroids. Our findings align with previous studies that report a strong association between polypectomy and enhanced pregnancy rates in sub fertile women.[24]

Among our study population, 58.7% had endometrial polyps, while 41.3% had submucous fibroids. The histopathological diagnosis confirmed that the majority of submucous fibroids were type 0 (55.6%), followed by type I (28.6%) and type II (15.8%), consistent with existing literature on uterine lesions.[25] Additionally, nearly half of the fibroids (49.2%) were pedunculated, which supports prior findings that the majority of intrauterine lesions have a stalked attachment in the uterine cavity.[24]

The choice of surgical technique largely depends on the lesion's size and histological structure.[21,26,22] In our study, lesions below 2 cm were successfully excised using microscissors, while larger fibroids required resectoscopic intervention, confirming that lesion size plays a key role in the selection of the appropriate hysteroscopic technique.[27,28] Additionally, our findings support the recommendation that histopathological examination of all excised tissue is crucial, as malignant transformation, although rare, can occur within polyps.[29,30]

Following hysteroscopic treatment, the pregnancy rate in our study was 58.8% among patients with endometrial polyps and 41.3% among those with submucous fibroids. These findings are in agreement with previous studies reporting pregnancy rates ranging from 75% to 80% following polypectomy.[21,31] The high success rate supports the hypothesis that intrauterine lesions significantly impair fertility by interfering with implantation and that their removal can restore normal reproductive function.[23]

However, while our results confirm the effectiveness of hysteroscopic polypectomy in improving fertility, some patients still failed to conceive despite successful removal of intrauterine lesions. This could be attributed to underlying hormonal disorders, tubal factor infertility, or endometrial dysfunction, as suggested in previous research.[21,24]

Overall, our study supports the role of hysteroscopic polypectomy as a highly effective treatment for intrauterine polyps and submucous fibroids in infertile women. However, given the lack of consensus on its routine use in all sub-fertile patients, further randomized controlled trials are needed to establish its long-term benefits and role in standard infertility management.[31,32]

Limitations

The present study was conducted in a very short period due to time constraints and funding limitations. The small sample size was also a limitation of the present study.

CONCLUSION

The place of hysteroscopy in the treatment of infertile women remains controversial. Although various studies demonstrate that this procedure is well tolerated and effective in treating intrauterine conditions, there is still no consensus on the effectiveness of hysteroscopic surgery in improving the prognosis in infertile women. There are not enough prospective randomized trials to clearly demonstrate that surgical removal of all uterine abnormalities improves fertility. However, published observational results suggest a benefit of resection of submucosal leiomyomas, adhesions and at least a subset of polyps in increasing pregnancy rates.

Recommendations

This study can serve as a pilot to much larger research involving multiple centers that can provide a nationwide picture, validate regression models proposed in this study for future use and emphasize points to ensure better management and adherence.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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