

# Hysteroscopic Evaluation in Infertility: Bangladesh Perspective

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## ABSTRACT

**Aims and objectives:** Hysteroscopy is now accepted as a gold standard method not only to access the uterine cavity but also to make therapeutic interventions for restoring the endometrial environment required for pregnancy. Uterine factors can compromise the fertility rate in infertility treatment or in assisted reproduction. This prospective study is done to diagnose different intrauterine pathologies responsible for subfertility in Bangladeshi population.

**Duration:** November 2017 to August 2019 Setting: Department of Infertility and Reproductive Medicine, Anwer Khan Modern Medical College, Dhaka, Bangladesh.

**Study population:** A total of 273 patients who had undergone hysteroscopy as a part of their infertility workup were included. Patients with spontaneous ovulation, anovulatory patients who underwent at least six cycles of documented successful ovulation induction, and patients with suspected intrauterine pathology in transvaginal sonography (TVS) were the subjects for this study. All of them underwent hysteroscopy with laparoscopy simultaneously. Patients with both primary and secondary infertility were included in the study.

**Materials and methods:** Hysteroscopy was performed in a standard gynecological operation theater setup under general anesthesia (G/A). A 2.9-mm 30° telescope (Karl Storz) with a 5-mm continuous-flow operative sheath was used in all the cases. Any pathological findings during the procedure were documented. However, different therapeutic modalities, such as polypectomy, complete or partial resection of the septum, or tubal cannulation, were all performed in the same time whenever indicated. A prestructured questionnaire was used to collect the data following hysteroscopy. All the data were then processed and analyzed using the computer software: statistical package for social sciences (SPSS). The test statistics used to analyze the data were descriptive statistics and the Chi-square ( $\chi^2$ ) test. The level of significance was set at 0.05 and the *p* value of <0.05 was considered significant. Summarized data were presented in the form of tables and figures with due statistical interpretation.

**Results:** Causes of subfertility found on hysteroscopy were endometrial polyp (*n* = 27), endometritis (*n* = 15), uterine synechiae (*n* = 24), blocked tubes (*n* = 30), uterine septum (*n* = 7), bicornuate uterus (*n* = 3), cervical stenosis (*n* = 2), and submucosal fibroids (*n* = 1).

**Recommendations:** It is therefore recommended to practice routine hysteroscopy with concurrent laparoscopy in all cases of primary and secondary subfertility in Bangladeshi population.

**Keywords:** Hysteroscopy, Infertility, Intrauterine pathologies.

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## INTRODUCTION

Hysteroscopy now a day has established itself as an invaluable tool for direct visualization, assessment, and proper intervention of the uterine cavity. With the advancement of endoscopic instruments, we can now perform hysteroscopy in office setup with reliability and safety. Rajat and Mooney observed that uterine anomalies may lead to a poor pregnancy rate and it can be improved if these anomalies are corrected.<sup>1,2</sup> The abnormal uterine finding has been reported to occur in as high as 50% of infertile women.<sup>3,4</sup> Alatas et al. suggested that structural as well as functional problems within the endometrium may lead to infertility.<sup>5</sup>

Around 2–3% of infertile women may have uterine factors. Rowe and Silva indicated that uterine factors may lead to a lower pregnancy rate in assisted reproduction.<sup>6,7</sup> Rowe observed that hysteroscopic intervention to remove endometrial polyps, submucous fibroids, uterine septum, or intrauterine adhesions lead to increased pregnancy rates.<sup>6</sup> Hysteroscopy gives us an unique opportunity not only to diagnose the definite pathology but also is effective as a treatment modality to restore the normal endometrial environment. Therefore, this prospective study was done with an aim to diagnose different intrauterine pathologies responsible for infertility in targeted patients.

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**Conflict of interest:** None

## MATERIALS AND METHODS

This prospective study was conducted in the Department of Infertility and Reproductive Medicine, Anwer Khan Modern Medical College, from November 2017 to August 2019. Hysteroscopy

was performed on a total number of 273 patients. Patients with spontaneous ovulation, anovulatory patients who underwent at least six cycles of documented successful ovulation induction, and patients with suspected intrauterine pathology in transvaginal sonography (TVS) were the subjects for this study. All of them underwent hysteroscopy with laparoscopy simultaneously. Patients suffering from primary as well as secondary infertility all were included in the study.

All the hysteroscopies were carried out in the postmenstrual phase of the menstrual cycle. Hysteroscopy was performed in a standard gynecological operation theater setup under general anesthesia (G/A). A 2.9-mm 30° telescope (Karl Storz) with a 5-mm continuous-flow operative sheath was used in all the cases. A meticulous sequence starting with vaginoscopy, cervicoscopy, followed by detailed assessment of the endometrial cavity and both ostia was followed in each and every hysteroscopy. Normal saline was used as a distension media. A satisfactory visualization and assessment of the uterine cavity as well as both the ostia were the prerequisites for a complete procedure. Any pathological findings during the procedure were documented. However, different therapeutic modalities, such as polypectomy, complete or partial resection of the septum, or tubal cannulation, were all performed in the same time, whenever indicated.

A prestructured questionnaire was used to collect the data following hysteroscopy. We processed and analyzed the data using the computer software: statistical package for social sciences (SPSS). The test statistics used to analyze the data were descriptive statistics and the Chi-square ( $\chi^2$ ) test. A *p* value of <0.05 was considered significant. Tables and figures were used to summarize the data with due statistical interpretation.

## RESULTS

Hysteroscopy was performed on 273 infertile women. A total of 169 (61.9%) patients were diagnosed with primary infertility and 104 (38.1%) with secondary infertility.

All hysteroscopies were done first followed by laparoscopies in selected infertile patients. However, we did not consider the laparoscopic findings to influence the outcome of this study.

Normal finding in the uterine cavity was found in 141 (51.64%) women.

The hysteroscopic findings of possible subfertility factors were endometrial polyp (*n* = 27), endometritis (*n* = 15), uterine synechiae (*n* = 24), blocked tubes (*n* = 30), uterine septum (*n* = 7), bicornuate uterus (*n* = 3), cervical stenosis (*n* = 2), and submucosal fibroids (*n* = 1) (Table 1).

## DISCUSSION

One of the key factors that determines the success of infertility treatment or more importantly in assisted reproductive technology (ART) is the endometrium. About 2–3% of infertile women are found to have uterine pathology, of which 40–50% suffer from intrauterine lesions like endometrial polyps, submucous myomas, Müllerian abnormalities, or intrauterine adhesions. These lesions can reduce the spontaneous fertility and conception rates in infertility treatment even in assisted reproduction. Uterine cavity evaluation is of utmost importance in fertility assessment of the female partner. Different modalities like TVS, hysterosalpingography (HSG), sonohysterography, hystero-contrast sonography (HyCoSy), as well as hysteroscopy are used

**Table 1:** Types of hysteroscopic findings in study population

Hysteroscopic findings	Primary subfertility ( <i>n</i> = 169)	Secondary subfertility ( <i>n</i> = 104)	<i>p</i> value
Endometrial polyp*	11 (6.5)	16 (15.4)	0.017
Endometritis*	11 (6.5)	4 (3.8)	0.348
Uterine synechiae*	09 (5.3)	15 (14.4)	0.010
Blocked tubes*	13 (7.7)	17 (16.3)	0.026
Uterine septum**	5 (3.0)	2 (1.9)	0.461
Bicornuate uterus**	2 (1.2)	1 (1.0)	0.676
Cervical stenosis**	1 (0.6)	1 (1.0)	0.618
Submucosal fibroids**	1 (0.6)	0 (0.0)	0.619

Numerical values in the parentheses indicate corresponding %

\*The Chi-squared test ( $\chi^2$ ) was done to analyze the data

\*\*The Fisher's exact test was done to analyze the data

to assess the intrauterine environment. Shushan suggested that hysteroscopy provides much accurate information compared to HSG and other methods in assessing the uterine cavity.<sup>8</sup> Shushan and the American Society for Reproductive Medicine (ASRM) also suggested that hysteroscopy proves to be much superior to diagnose associated abnormalities and for proper assessment of the uterine cavity.<sup>8,9</sup>

In our study, a total of 141 patients (51.64%) had a normal uterine cavity and 132 patients (48.36%) had abnormal findings on hysteroscopy. These results are comparable to others studies reporting 43%–69% have a normal uterine cavity.<sup>10–12</sup> However a significant difference was observed in between women suffering from primary and secondary subfertility (61.9 and 38.1%, respectively).

In our study, we find endometrial polyps in both groups with statistically significant difference. But as many of them are clinically asymptomatic, it is difficult to practically determine the exact data of endometrial polyps. In our study, we found endometrial polyps in 11 cases of primary subfertility and in 16 cases of secondary subfertility with a statistically significant *p* value of 0.017. However, El Huseiny et al.<sup>13</sup> reported a much higher finding of polyps in women with primary subfertility.

In our study, intrauterine adhesions (uterine synechiae) was found in 9 cases of primary subfertility and 15 cases of secondary subfertility, which again was proved statistically significant with a *p* value of 0.010. El Huseiny et al.<sup>13</sup> also reported a similar result of intrauterine adhesions with higher incidence in the secondary subfertility group.

Interestingly, the incidence of blocked tubes was found much higher with a statistically significant *p* value of 0.026 in our present study compared to other studies of the similar type.

## CONCLUSION

The frequent and liberal use of hysteroscopy in fertility assessment has transformed the whole scenario. Although, there is lack of randomized controlled trial (RCT) evidence suggesting that the hysteroscopy in failed *in vitro* fertilization (IVF) cases improves

pregnancy rates, a lot of fertility specialists are routinely practicing it, especially along with laparoscopy. However, as it is more expensive and invasive, the ASRM and National Institute for Health and Care Excellence (NICE) guidelines recommend the use of hysteroscopy only to evaluate abnormalities suspected by noninvasive modalities like HSG and HyCoSy.

In this study, endometrial polyp was found in 27 cases, intrauterine adhesions in 28 cases, and blocked tubes in 30 cases. These three types constitute the major problems contributing to subfertility in those patients. Fortunately, interventions are now available to solve these problems intraoperatively and were routinely practiced in all cases in this study. We therefore recommend to practice hysteroscopy with concurrent laparoscopy in all cases of primary and secondary subfertility.

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