Hysteroscopic findings in patients with secondary infertility

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Hysteroscopic Findings In Patients with Secondary Infertility

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INTRODUCTION

Secondary infertility is defined as the incapability to conceive a fetus or has a gestation to full-term thereafter formerly giving delivery. This condition cause recurrent pregnancy with ability to conceive but disability carry to term. The preceding delivery should have happened with no assistance from fertility drugs or treatment, like in vitro fertilizations. Secondary infertility characteristically detected afterward unsuccessful conceive for 6-mths to a 1-yr.

Globally approximately 10-15% of the couples are infertile and the primary and secondary infertility rates are 67.3% & 32.6% from total number of fertile subjects. Prevalence of secondary infertility elevated abruptly with age, from 2.60% (2.30%, 3.00%) in women aging between 20&24 yrs to 27.10% (24.70%, 29.90%) in women aging between 40&44 yrs.

Most endometrial pathologies concerned in infertility cause both structural and functional damages. Consequently, endometrial space evaluation must be comprised in the assessment of non-fertile couples. This may be performed through TVS, hysterosalpingography (HSG), sono-hysterography and hysteroscopy. However, the WHO recommends HSG alone, for managements of non-fertile females may be owing to its capability to deliver information concerning tubal patency. Never the less, hysteroscopy is a more precise tool owing to the elevated false-positive and false negative rates of intra-uterine abnormalities with HSG.

Furthermore, anomalous hysteroscope results are significantly elevated in cases with preceding ART failures and hysteroscopy can be realized as a positive prognostical factor for accomplished in gestation in following IVF procedures in females with a history of recurrent implantation failures (RIF).

Aim of the work was to assess the advantage of hysteroscopy in diagnosing the abnormalities of the uterine-space among females having secondary infertility. 

PATIENTS AND METHODS

The present study was conducted on 138 patients having secondary infertility with no suspected uterine defect, aged between 20 and40 years attending the gynecological outpatient clinic in Al-Hussein and Sayed-Galal University Hospital, Al-Azhar University.
Patient selection and inclusion criteria: Women aged 20–40, women with secondary infertility (12 months or more after last pregnancy with regular sexual intercourse without lactation), Females with a normal uterine-space by 2D USG and women with a normal uterine-space by hysterosalpingography following last pregnancy

Exclusion criteria: Women with untreated cervicitis, women with undiagnosed AUB, women with cardiac disease and other diseases contraindicating hysteroscopy or pregnancy, women who refuse to join our study and women with any uterine abnormality in 2 DUS or HSG.

Interventions: A written signed agreement was attained from the cases who fulfilled the inclusion criteria and was not excluded.

All patients was subjected to

History taking, general examinations: BMI, vital signs, abdominal and pelvic examination, base line 2D transvaginal ultrasound and review of the recent HSG (less than 1 year) and documentation

Technique of hysteroscopy: Diagnostic hysteroscopy has been achieved throughout the proliferative stage of the menstrual cycle. A rigid 0.29-cm hystroscope has been utilized with a 30º forward oblique lens and an outer sheath diameter of 0.5cm (Karl Storz GmbH, Tuttingen, Germany) in this study. Distilled water solution has been utilized to distend the uterine-space. The pressures of the swelling media kept from 60 to 100-mmHg. Hysteroscopy has been achieved using no touch method (vaginoscopy method) as presented by Bettocchi and Selvaggi. The uterine-space was systematically inspected preliminary by its frontal and backward walls, the fundus, and the boundaries. The size and equality of the tubal orifices was observed and any pathology found at the tubal orifices (adhesions, polyps or hyperemia or inflammatory changes) was reported. Passages of any air bubbles in the irrigation fluid to tubal ostnea has been stated. If no bubbles of air are detected at all, two ml of air will be injected into the rubber end of the sterilized infusions set to be realized by the hystroscope operator. Hysteroscopic bubble suctions examination was measured positive if air bubble suctions by the ostium is realized on the patent side within one minute. Throughout this retro, neither injections of air nor elevated pressures was accomplished. If no suctions of bubbles occur, the operator will pause for 1 minute more. Once more, if no suctions occurs, the examination was measured negative. The pathologies, time of procedure (from insertion of the hystroscope through the vagina till complete removal), subjective ease of procedure was determined by the observer.

Study outcome: Intrauterine hysteroscopic findings (whether normal or pathologic) and the type and degree of pathology present

Ethical considerations: Study protocol was submitted for approval by the Ethical Committee of Faculty of Medicine - AL Azhar University – Ethical committee of the Obstetrics and Gynecology Department. Informed verbal and written agreement was attained from all participants sharing in the work after explanation of the purpose and procedures of the study.

Statistical Analysis: Collected data was statistically analyzed via the windows-based SPSS-20 (IBM, USA). In accordance to the kind of data qualitative introduces as numbers and percentages, quantitative continues group introduced as mean ± SD, the next examinations have been utilized to test variances for significance; comparison among frequencies and percentages in groups were done using Chi-square testing. comparison among parametric quantitative non-dependent groups by student testing P-value was significant at <0.05 & high significant at < 0.001.

RESULTS

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Mean ± SD Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>28.63 ± 6.12</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>27.54 ± 3.65</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>60 (43.5%)</td>
</tr>
<tr>
<td>Rural</td>
<td>78 (56.5%)</td>
</tr>
</tbody>
</table>

Table 1: Demographic characteristics among studied patients

This table shows that patients’ age ranged 20 – 40 years with mean BMI 27.54 kg/m². Majority of the patients were rural.

<table>
<thead>
<tr>
<th>As per infertility workup</th>
<th>Patients (n=138)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Before IVF treatment</td>
<td>107</td>
</tr>
<tr>
<td>After IVF treatment</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 2: Hysteroscopy indications among studied patients

Majority of the patients underwent hysteroscopy as per infertility workup (77.5%)
Hysteroscopy findings among studied patients

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Abnormal</th>
<th>Total</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal</td>
<td>84</td>
<td>60.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>54</td>
<td>39.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Hysteroscopy findings among studied patients

Majority of the patients were normal hysteroscopy (60.9%).

Pre-hysteroscopic diagnosis

<table>
<thead>
<tr>
<th>Hysteroscopy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal</td>
<td>62</td>
</tr>
<tr>
<td>Normal</td>
<td>76</td>
</tr>
</tbody>
</table>

Table 4: Association between Pre-hysteroscopic diagnosis and Hysteroscopy findings among the studied patients

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>81.48%</td>
<td>68.57% - 90.75%</td>
</tr>
<tr>
<td>Specificity</td>
<td>78.57%</td>
<td>68.26% - 86.78%</td>
</tr>
<tr>
<td>Positive Predictive Value</td>
<td>70.97%</td>
<td>61.42% - 78.96%</td>
</tr>
<tr>
<td>Negative Predictive Value</td>
<td>86.84%</td>
<td>78.86% - 92.11%</td>
</tr>
<tr>
<td>Accuracy</td>
<td>79.71%</td>
<td>72.03% - 86.07%</td>
</tr>
</tbody>
</table>

Table 5: shows that between 76 females who had ordinary hystero-gra-phy and US; 18 females had anomalous results from hysteroscope, for a NPV 86.8% for both ultrasound and hysterography.

DISCUSSION

Low rates of gestations are detected in cases with uterine space irregularities. The correction of these irregularities was accompanying with better rates of gestation. Diagnostical hysteroscopy could be accomplished with negligible distress and higher sensitivity and specificity in assessment of the uterine space.11

Hysteroscopy investigation is maybe better than hysteroigraphy in assessing the endometrial space. Moreover, anomalous hysteroscopy results were stated in cases with ordinary hysteroigraphy or TVS. Diagnostical hysteroscopy was recognized to have better sensitivity and specificity in assessing the endometrial space.12

Anomalous hysteroscopic results are significantly elevated in cases with preceding ART failures and hysteroscope can be seen as a positive predictive factor for accomplishing gestation in following IVF procedures in cases with RIF history.13

Majority of the patients underwent hysteroscopy as per-infertility workup (77.5%). Majority of the patients was normal hysteroscopy (60.9%).

Along with our results El Huseiny & Soliman,3 reported that anomalous hysteroscopic results existing more in cases with secondary infertilities 24.70%. This could be because of interference connected to preceding gestations like dilatations and curettages or preceding CS. Supportive to this is the elevated prevalence of intra-uterine adhesions, in comparison to other lesions.

Also, an old study Kessler & Lancet,14 reported that about 66% of hysteroscopy findings weren’t associated with those detected on hysterography. It was revealed that 54.30% of intra-uterine adhesions detected on hysteroigraphy weren’t detected on straight hysteroscopy examinations.

Also Wadhwa et al.,15 reported anomalous hysteroscopic results were noticed in 35.71% (10/28) cases with secondary infertility.

In the report by Sharma et al.,16 grade-IV adhesions were the commonest (38.40% in group-1 and 9.50% in group-2), followed by grade-III (15.10% in group-1 and 42.90% in group-2), and grade-II (15.10% in group-1 and 14.0% in group-2).

The most common finding on hysteroscopy in Wadhwa et al.,15 was ostial fibrosis in (9.34%) secondary infertile females, pale or atrophic endometrium 8 (7.5%), endometrial polyp in 5 (4.67%), and Asherman’s syndrome in 5 (4.7%) cases. Taskin et al.,17 as well revealed that uterine septum or sub-septum (9.5%) as the commonest result in their report shadowed by endometrial polyp (6.9%). Endometrial polyp was the commonest in secondary infertile females. They revealed that Asherman’s syndrome in comparatively lesser cases (0.1%) than the study by Vaid et al.18, which can be as most of their patients were of males factor infertility. Chauhan et al.,19 revealed that submucous fibroids and congenital deformities every in 6.0% of the cases as the commonest uterine irregularities noticed in their work on hysteroscope. Vaid et al.18 showed that ostia fibrosis was in 15.0% as commonest result then intra-uterine adhesions then polyp/myoma 11.9% and 6.2%, resp., on hysteroscope. In Wadhwa et al.,17 uterine adhesion was accompanying with Asherman’s syndrome in 4.7% cases. Hysteroscopy interventions were accomplished in 28.7% (30/107) of cases.

The informed frequency of myomas in non-fertile females with no any clear reason of sterility is valued to be from 1.0 to 2.4 %. In Pansky et al.,20,
submucous myomas have been detected in 4.30% of cases with secondary infertility. Another recent study by Siddiqui et al., 21 don’t go with our results as reported endometritis in 3.8% of secondary infertility and cervical stenosis in 1% only. The most common cause was endometrial polyyp with 15.4% then uterine synchiae with 14.4%. Intra-uterine adhesion (uterine synchiae) was detected in 15 patients of secondary sub-fertility. Among 76 females who had ordinary hysterography and US; 18 females had anomalous results on hysteroscopic examination for lesions in comparison with ultrasound and hysteroigraphy. Gandotra, 22 reported hysteroscopy provides cost-effective, comprehensive and a diagnostic aid and simultaneous therapeutic treatment in fertile patients. It delivers straight visualizations of the conditions and as well a chance to manage the same if operative treatment is needed. It as well contributed to the management strategy in the fertile cases. In the patients of secondary infertility, there were 2 patients (16.7%) each with fibroid, intrauterine adhesions, endometrial, polyyp endometrial polyp and uterine septum has been detected in 6.10% (2) cases each.

In the patients of secondary infertility, most common abnormality noted was intrauterine adhesions in about 12.1%. In the study conducted by Vaid et al. 18 intrauterine adhesions were observed in about 11.91% patients as a result of previous history of curettage done in them. In our work, uterine myoma was the commonest irregularity detected by hysteroscope. Myomas were as well detected in many other reports: Puri et al., 23 (8%) and Bhat et al., 24 (7.05%) thus showing that myomas effect infertility receptive implantation site.

Cervical stenosis was the most common finding in 6% patients in Gandotra, 22 study, which correlated with reports performed by Makled KA et al., 25 (6%) and Sabu et al., 26 (6.48%) Uterine septum was noted in 4% patients in the same study which is near our findings.

Puri et al., 23 reported Endometriosis was detected in 26.90% cases in secondary infertility group. As regarding uterine pathology in cases with secondary infertility 11.50% had sub-mucous polyp and 3.8% had uterine septum. Similar to our study Endometriosis is the 2nd commonest reason detected by Puri et al., 23. Endometriosis can persuade infertilites as a consequence of anatomic distortions and adhesions. Histologic examinations must be performed to settle the existence of endometrial lesions, particularly those with non-classical appearances, but laparoscopy is the commonest utilized method in endometriosis diagnosis.

**CONCLUSION**

Hysteroscopy was the most precise diagnostic examination for lesions in comparison with ultrasonography. The technique was of limited usage in the diagnosing of intra-uterine adhesions and some uterine deformities, while its global consequences in diagnosis of uterine deformities were better than those attained by US.

**REFERENCES**


