Diagnostic Hysteroscopy in Abnormal Uterine Bleeding: A Prospective Analytical study

Karthiga Prabhu J1, Sunita Samal1, Shanmugapriya Chandrasekaran1, Maitrayee Sen1, Balaji Ramraj2

1Department of Obstetrics and Gynaecology, SRM Medical College Hospital and Research Centre, SRM Institute of Science and Technology, Kattankulathur, Chengelpet district -603203, Tamil Nadu, India
2Department of Community Medicine, SRM Medical College Hospital and Research Centre, SRM Institute of Science and Technology, Kattankulathur, Chengelpet district -603203, Tamil Nadu, India

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ABSTRACT

Localized lesions like a polyp or abnormal growth can be missed by traditional dilatation and curettage whereas such intrauterine abnormalities can be easily diagnosed by hysteroscopy as we can directly visualise the cervical canal and uterine cavity. The objective of our study was to assess the diagnostic accuracy of hysteroscopy in diagnosing the cause of AUB and to correlate hysteroscopy findings with histopathology. This prospective study was conducted in women with symptoms of AUB in the reproductive, perimenopausal and postmenopausal age group who had underwent hysteroscopy over a period of 2 years. Hysteroscopic findings and histopathology findings were compared. The main symptoms for which hysteroscopy was performed was postmenopausal bleeding (44.1%) followed by menorrhagia (33.8%). Hysteroscopy detection of abnormal findings had a sensitivity 90%, specificity 87.5%, positive predictive value 98.2% and negative predictive value 53.8%. To conclude hysteroscopy improves the accuracy of diagnosing intrauterine pathologies and also helps in treating some causes of AUB by simple procedures in the same sitting thereby avoiding major surgeries.

INTRODUCTION

Abnormal uterine bleeding, one of the most common gynaecological problems seen in reproductive and post-menopausal women has varied etiology. According to the International Federation of Gynecology and Obstetrics (FIGO), AUB has been classified based on the etiology by a new classification system PALM-COEIN. Causes of AUB are divided into PALM - structural causes (polyp; adenomyosis; leiomyoma; malignancy) and COEIN - non-structural causes (coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not yet classified) to facilitate targeted management (Munro et al., 2012). For a long time, dilatation and curettage is the main modality of investigation of AUB, but, this blind technique can miss a polyp or any localized abnormal endometrial growth (Bettocchi, 2001; Guin et al., 2011). Hysteroscopy helps in diagnosis of intrauterine abnormalities as we can directly visualise the cervical canal and uterine cavity. Additional benefit of hysteroscopy is that biopsies or polypectomy can be done at the same sitting. This advantage of hysteroscopy increases patient satisfaction (Darwish et al., 2012). Focused treatment of specific pathology may prevent major surgery. In the present day, though hysteroscopy
is expensive it is trying to replace dilatation and curettage for the evaluation of AUB. Hence, the study was conducted with the objective to assess the diagnostic accuracy of hysteroscopy in patients with AUB and to correlate the hysteroscopic findings with histopathology.

MATERIALS AND METHODS

This prospective analytical study was conducted in women with symptoms of AUB in the reproductive, perimenopausal and postmenopausal age group in a tertiary care hospital in semiurban area over a period of 2 years from 2016-2018. Patients who were willing to participate in the study were included after informed written consent. Patients demographic details and examination findings were noted. Postmenstrually hysteroscopic examination was done in all patients except for patients with continuous bleeding or irregular cycles. Hysteroscopic examination was performed in the usual sequential manner starting from ectocervix, then proceeding to cervical canal, uterine cavity, endometrium and finally ostia of the fallopian tube. All endometrial samples were sent for histopathological examination. Hysteroscopic findings and histopathology findings were compared. The sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of hysteroscopy were calculated.

RESULTS

During the study period, 68 women had undergone hysteroscopy for AUB. In the study, the age of patients ranged from 35 to 65 years (Average 48 years).

The main symptoms for which hysteroscopy was performed was postmenopausal bleeding (44.1%) followed by menorrhagia (33.8%). Among postmenopausal women 50% had endometrial polyps and 20% atrophic endometrium in hysteroscopy (Table 1).

Among 13 patients who had normal hysteroscopy findings, 6 had proliferative phase endometrium and 7 had secretory phase endometrium. In 12 patients who had polypoidal endometrium 8 had proliferative endometrium, 3 had hyperplastic endometrium (2 patients - simple hyperplasia without atypia and one with atypia) and 1 had secretory phase endometrium. In patients with hysteroscopic findings of endometrial polyp (Figure 1), 93.7% were confirmed as endometrial polyp in histopathology and 1 patient was diagnosed as adenosarcoma. All patients diagnosed as fibroid (Figure 2) hysteroscopically were confirmed by histopathology. Both patients who were suspicious

Figure 1: Hysteroscopic findings - Endometrial polyp

Figure 2: Hysteroscopic findings - Submucosal fibroid

Figure 3: Hysteroscopic findings - Growth filling the endometrial cavity
**Table 1: Symptomatology and hysteroscopic findings**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Total patients</th>
<th>Polypoidal endometrium</th>
<th>Endometrial Polyp</th>
<th>Hysteroscopic findings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(68) %</td>
<td>12 (17.6%)</td>
<td>25 (36.7%)</td>
<td></td>
</tr>
<tr>
<td>Menorrhagia</td>
<td>(23) 33.8%</td>
<td>5</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Menometrorrhagia</td>
<td>(3) 4.4%</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Menorrhagia</td>
<td>(2) 2.94%</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Menorrhagia</td>
<td>(4) 5.88%</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Menorrhagia</td>
<td>(4) 5.88%</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Metropathia</td>
<td>(4) 5.88%</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Postmenopausal bleeding</td>
<td>(30) 44.1%</td>
<td>3</td>
<td>15</td>
<td>2</td>
</tr>
</tbody>
</table>

**Table 2: Correlation between hysteroscopy and histopathology**

<table>
<thead>
<tr>
<th>Hysteroscopy findings</th>
<th>Proliferative Endometrium</th>
<th>Secretory Endometrium</th>
<th>Hyperplasia</th>
<th>Atrophic Endometrium</th>
<th>Endometrial Polyp</th>
<th>Malignancy</th>
<th>Fibroid</th>
<th>No tissue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>6</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Polypoidal endometrium</td>
<td>8</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Atrophic Endometrium</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Malignancy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fibroid</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Endometrial Polyp</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 3: Evaluation of diagnostic efficacy of hysteroscopy for different AUB pathologies**

<table>
<thead>
<tr>
<th>Pathologies</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal findings</td>
<td>90%</td>
<td>87.5%</td>
<td>98.2%</td>
<td>53.8%</td>
</tr>
<tr>
<td>Hyperplasia</td>
<td>100%</td>
<td>-</td>
<td>25%</td>
<td>-</td>
</tr>
<tr>
<td>Endometrial polyp</td>
<td>100%</td>
<td>-</td>
<td>96%</td>
<td>-</td>
</tr>
</tbody>
</table>
of malignancy by hysteroscopy (Figure 3) were confirmed by histopathology (Table 2).

Hysteroscopy detection of abnormal findings had a sensitivity 90%, specificity 87.5%, positive predictive value 98.2% and negative predictive value 53.8%. Sensitivity of Hysteroscopy for diagnosing endometrial hyperplasia and endometrial polyp is 100% (Table 3).

DISCUSSION

In our study, the main indication for which hysteroscopy was performed was postmenopausal bleeding (44.1%), followed by menorrhagia (33.8%). In contrast, in the study by Guin et al. (2011), the frequent indication for hysteroscopy was menorrhagia (30%) followed by menometrorrhagia and oligomenorrhea (16%). Whereas 2% patients only presented with postmenopausal bleeding. Menorrhagia as the primary indication for hysteroscopy was reported by Guin et al. (2011); Sciarra and Valle (1977); Homou (1981) while postmenopausal bleeding and perimenopausal abnormal uterine bleeding were the main indications in the study of Pasqualotto et al. (2000); Sciarra and Valle (1977); Homou (1981).

In our study, 80.9 % of patients who underwent hysteroscopy had positive findings. In the study by Guin et al. (2011) among the women who had undergone hysteroscopy 74% had intrauterine pathology and most common finding was hyperplastic endometrium (30%) succeeded by mucus polyp (28%). We had 80.9% of intrauterine pathology. Most common finding was polyp (36.7%) followed by polypoidal endometrium (17.6%) (Guin et al., 2011). Whereas in the study by Patil et al. and Sinha et al. 47 - 50% of patients who underwent hysteroscopy had normal findings (Patil et al., 2009; Sinha et al., 2018). In our study among 12 patients with polypoidal endometrium, 8 had proliferative endometrium and 3 patients had hyperplastic endometrium. Hysteroscopic diagnostic accuracy for hyperplasia was 72% in a study by Patil et al. (2009).

In various studies, incidence of endometrial polyps has been reported ranging from 9.1% - 45.9% (Guin et al., 2011; Sciarra and Valle, 1977; Homou, 1981). In women with endometrial polyp as a cause of AUB, hysteroscopic polypectomy can be done easily thereby reducing major surgeries like hysterectomy and its morbidity. In our study, Positive predictive value of hysteroscopy for endometrial polyp was 96% when compared to 62% in a study by Patil et al. (2009). Naik et al. (2017) found diagnostic accuracy of hysteroscopy to be better in polyps and submucous myomas which were missed by USG and also by traditional D and C. One patient with endometrial polyp in our study was diagnosed as adenosarcoma on histopathology. Hence, both hysteroscopy and histopathology are complementary in evaluation of AUB.

Atrophic endometrium was seen in 18% in present study as compared to 6% -14% in various other studies (Sciarra and Valle, 1977; Homou, 1981; Valle, 1981). The finding of atrophic endometrium in hysteroscopy is reassuring in women with symptoms of postmenopausal bleeding. Diagnostic accuracy of atrophic endometrium in our study is 100 % compared to 69% in the study by Patil et al. (2009).

In our study, hysteroscopy examination has a sensitivity of 90% and specificity of 87.5% in detecting abnormal intrauterine pathologies in contrast to 78.3% sensitivity and 63.6% specificity in the study by Sinha et al. (2018). In the study by Elbareg et al. (2015), hysteroscopy had sensitivity of 98.9%, specificity 97.5%, positive predictive value 98.8%, negative predictive value 98.5% with diagnostic accuracy of 98.3% in diagnosing benign endometrial lesions.

Selvanathan et al. (2019) on comparing hysteroscopic targeted therapies and hysterectomy found that quality of life both short term and long term was better in hysteroscopy group.

CONCLUSION

Hysteroscopy improves the accuracy of diagnosing intrauterine pathologies and also helps in treating some causes of AUB by simple procedures in the same sitting thereby avoiding major surgeries. Both hysteroscopy and histopathology are complementary in diagnosing causes of AUB.

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Conflict of Interest

The authors declare that there is no conflict of interest.

REFERENCES


