

Review Article

Hysteroscopy Guided D&C A Systematic Review & Analysis

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Abstract: Background: This study was conducted to assess the accuracy and feasibility of diagnostic hysteroscopy in the evaluation of women with abnormal uterine bleeding. **Methods:** This is retrospective study conducted at Multispecialty Hospital. **Data collection and analysis:** Analysis was performed according to validity criteria, study quality, menopausal state, time, setting and performance of the procedure. The pooled sensitivity, specificity, likelihood ratios, post-test probabilities and feasibility of diagnostic hysteroscopy on the prediction of uterine cavity abnormalities. Post-test probabilities were derived from the likelihood ratios and prevalence of intrauterine abnormalities among included studies. Feasibility included technical success rate and complication rate. **Conclusion:** This systematic review and meta-analysis shows that diagnostic hysteroscopy is both accurate and feasible in the diagnosis of intrauterine abnormalities.

Keywords: Bleeding disorders, diagnosis, hysteroscopy

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INTRODUCTION

Abnormal uterine bleeding in premenopausal and postmenopausal women is the single most common reason for gynaecological referrals. In more than 40% of the referred patients polyps and myomas have been reported (Emanuel, M. H. *et al.*, 1995). The ultimate gold standard in uterine cavity evaluation is hysterectomy. This can, however, not be used as a diagnostic tool. Hysteroscopy permits direct visualisation of the cervical canal and uterine cavity, enabling observation of intrauterine abnormalities. An accurate diagnosis may result in surgical or medical treatment directed at the specific pathology and may avoid the need for major surgery. Since Gimpelson and Rappold (Gimpelson, R. J., & Rappold, H. O. 1988). reported that hysteroscopy combined with guided biopsy was more accurate than dilatation and curettage, hysteroscopy is considered an accurate 'gold standard' in uterine cavity evaluation. Despite the lack of adequate information about the diagnostic accuracy, it is used in many studies with and without endometrial sampling as a reference standard (Bernard, J. P. *et al.*, 1997; Turner, R. T. *et al.*, 1995; Crequat, J. *et al.*, 1993). Although a high-quality review has been published about the accuracy of hysteroscopy in 2002, this review focused exclusively on studies reporting on presence or absence of (pre-)malignant disorders of the endometrium (Clark, T. J. *et al.*, 2002). It took until

2003 before a systematic review and metaanalysis of the accuracy of hysteroscopy was conducted in the assessment of intracavitary abnormalities in general in premenopausal women with abnormal uterine bleeding (Farquhar, C. *et al.*, 2003). This review, however, had only included studies written in English and because of heterogeneity between studies, no positive likelihood ratio had been calculated. Therefore, the purpose of this systematic review and meta-analysis is to evaluate appropriately, without language restriction, the diagnostic accuracy of hysteroscopy in the evaluation of intrauterine abnormalities in premenopausal and postmenopausal women with symptoms of abnormal uterine bleeding.

Selection Criteria

The Patient with abnormal uterine bleeding compared, chronic menorrhagia, irrespective of age.

METHODS

This review was focused on studies in which the results of the diagnostic hysteroscopy in the evaluation of the uterine cavity were compared to histology. The population of interest was adult hysteroscopy.

All the patients in the study were subjected through detailed history taking, general physical examination, specific examination in the form of per

speculum and per vaginal examination (unless actively bleeding). Routine blood and urine investigations (hemoglobin [Hb]%, ABO and Rhesus (Rh), Prolactin, TSH, blood sugar, bleeding time, clotting time, urine routine and microscopy) were ordered for all patients. USG of all the patients were done. Detailed informed consent of all the patients was obtained before taking up for any procedure. Hysteroscopy and diagnostic D&C were done for each of these patients. If indicated,

hysteroscopic guided curettings were also taken and sent for histopathological analysis. The procedures were done under total intravenous (IV) anesthesia in operation theater. The curettings were sent for histopathological examination. The findings at USG, D&C reports, hysteroscopy were compared with each other. This study reveals the superior ability of hysteroscopy in evaluating patients with Abnormal Uterine Bleeding, when compared to D&C and USG.

Table 1

Menorrhagia with Thick Endometrium	Menorrhagia without Thick Endometrium
8	5

Table 2

Age in Years	26- 30	31- 35	36- 40	41- 45	46- 50	51- 55	56 & above
No. of Patients	01	01	00	05	02	01	03

Table 3

Association with Disorders	Thyroid	Cardiac	DM	Other
No. of Patients	02	04	00	03

Table 4

Parity	Unmarried	Primi	Multigravida
No. of Patients	01	01	09

Table 5

Pre-Menopausal	Peri Menopausal	Post-Menopausal
03	07	04

OBSERVATIONS AND RESULTS

In the present study, panoramic hysteroscopy was performed using a 4 mm hysteroscope, 15 patients of AUB followed by D&C. The curetted endometrium was sent for histopathological analysis. The youngest patient was 24 years old, and the eldest was 92 years old. The maximum patients suffered for a period between 3-6 months. Some patients suffered for >12 months, and have resorted to various forms of supportive therapy. Menorrhagia was the most common presenting symptom, reported in patients. Polymenorrhea was the next most common symptom, reported. Patients complained of metrorrhagia, postmenopausal bleeding or diagnosed with fibroid uterus, of various types - submucosintramural, subserosal and pedunculated fibroid. Some patients were diagnosed with adenomyosis and polyps endometrial and cervical. Some patients had reports termed to be normal. This also included the samples marked as inadequate for study, samples reported as cervical tissue only. Some patients had reports of endometrial hyperplasia, endometrial atrophy, endometritis. Some patients were found to have no abnormality of hysteroscopy. Few patients were found to have endometrial hyperplasia or fibroids or polyps on hysteroscopy. Few cases was diagnosed with endometrial atrophy.

INTERPRETATION

The commonest presenting complaint in this study was menorrhagia, followed by polymenorrhea and metrorrhagia. In this study, when a comparison is drawn between the findings of the three diagnosing modalities, the following results were found. D&C revealed normal findings, polyp, endometrial Hyperplasia. This also included the reports of inadequate or incorrect samples, which does not help in reaching an accurate diagnosis. USG on the other hand revealed normal study. But, this was proven wrong by the findings of hysteroscopy, which revealed normal findings. D&C reveals pathological abnormal reports in some cases, USG revealed a pathology in few cases and hysteroscopy shows abnormal findings in some cases. A sample for histopathology was obtained from the cases, which showed normal reporting otherwise on D&C, but had some form of abnormality when directly viewed with the aid of a hysteroscope. This helped us to not leave out any patient without a definite diagnosis and accurate treatment was offered. These readings reveal that, hysteroscopy is a better mode of diagnosing a direct cause of AUB in most of the cases as compared to a D&C. Also USG can falsely lead to an overzealous diagnosis and hence wrong treatment may be offered. This is in agreement with other similar studies, which also prove that panoramic hysteroscopy is better than curettage in the evaluation of AUB.

DISCUSSION

The patient with abnormal uterine bleeding provides information from several comparative studies of hysteroscopy and histology collected at hysterectomy, operative hysteroscopy or guided biopsy as reference tests. It shows that diagnostic hysteroscopy is accurate in the diagnosis of intrauterine abnormalities and therefore clinically useful. Moreover, in accordance with others, our review confirms that diagnostic hysteroscopy is safe, with a low incidence of serious complications and a small failure rate. The prevalence of intrauterine abnormalities in our review of women with abnormal uterine bleeding which is consistent with previously published literature. The likelihood ratios were in the range that suggest that diagnostic hysteroscopy is useful both in predicting disease and excluding a non-diseased state (Jaeschke, R. *et al.*, 1994). Likewise, Clark *et al.* already proved in their meta-analysis that diagnostic hysteroscopy is accurate in the diagnosis of endometrial cancer. It has been suggested that a thick endometrium obscures a complete view of the uterine cavity, which would especially hamper accurate detection of intrauterine abnormalities.

This study reveals the superior ability of hysteroscopy in evaluating patients with AUB, when compared to D&C and USG. Hysteroscopy is the safe, reliable and quick procedure in diagnosis of cases with abnormal uterine bleeding with high sensitivity, specificity and negative predictive value. It is pivotal in the present day gynecological practice to arrive at an accurate diagnosis and specially not to miss any precancerous finding. The chances that such a lesion would be missed is rare, if we stick to the criteria for negative hysteroscopic view and usually no further investigations may be necessary. At the same time, enough stress shall be laid on the importance of endometrial histopathology for diagnosis of any such lesion especially in peri- or post-menopausal patients inspite of negative hysteroscopic view.

This systematic review of diagnostic hysteroscopy for premenopausal and postmenopausal women with abnormal uterine bleeding provides information from several comparative studies of hysteroscopy and histology collected at hysterectomy, operative hysteroscopy or guided biopsy as reference tests. It shows that diagnostic hysteroscopy is accurate in the diagnosis of intrauterine abnormalities and therefore clinically useful. Moreover, in accordance with others, (Clark, T. J. *et al.*, 2002) our review confirms that diagnostic hysteroscopy is safe, with a low incidence of serious complications and a small failure rate.

The prevalence of intrauterine abnormalities in our review of women with abnormal uterine bleeding was 46.6%, which is consistent with previously published literature.¹ The likelihood ratios were in the range that suggest that diagnostic hysteroscopy is useful

both in predicting disease and excluding a non-diseased state (Jaeschke, R. *et al.*, 1994). A separate analysis concerning the accuracy of endometrial polyps and submucous myomas did not reveal any difference. As missing endometrial polyps in postmenopausal women may result in undiagnosed malignant disorders, a subanalysis was performed, which showed similar results. Likewise, Clark *et al.*, (2002) already proved in their meta-analysis that diagnostic hysteroscopy is accurate in the diagnosis of endometrial cancer.

It has been suggested that a thick endometrium obscures a complete view of the uterine cavity, which would especially hamper accurate detection of intrauterine abnormalities (Parsons, A. K., & Lense, J. J. 1993). Therefore we pooled studies that performed hysteroscopy solely in the follicular phase of the menstrual cycle. Unfortunately, this failed to result in a clinically significant increase of the post-test probability, so an evidence-based recommendation on this subject cannot be made yet. Nevertheless, to achieve optimal visualisation it is practical to schedule diagnostic hysteroscopy in the follicular phase of the cycle.

It is interesting that generally when all studies are pooled as opposed to a selected group one expects a more precise but a conservative result. In this review the estimates of the accuracy pooling all studies are somewhat counter-intuitive in that they were not as good as the studies that were homogeneous. In this case the homogeneous population represents postmenopausal women, which may reflect a better accuracy on account of the postmenopausal state. Nevertheless, if we compare the likelihood ratios of postmenopausal to premenopausal women, this was only the case for the negative estimate. Therefore, it might be more likely that the different models used to calculate the pooled likelihood ratios and the different quality of the studies included in both subgroups are responsible for this phenomenon.

Further, although we found in this review a significantly better success rate of diagnostic hysteroscopy among premenopausal women than among postmenopausal women, this difference was only 1% and therefore clinically not of any importance. Also noteworthy is that 22% of the articles included for full reading were obtained by cross-checking reference lists of included studies. Although, this may imply a poor search strategy, it is more likely that these reports were poorly indexed, which is often the case for older reports on diagnostic accuracy (Deville, W. L., & Buntinx, F. 2002). Moreover, all of the studies identified by cross-checking did eventually not meet our inclusion criteria, and were excluded after all.

Heterogeneity may also be caused by clinical differences (Rogerson, L. *et al.*, 2002). Variations in the study population among studies can all result in

different estimates of diagnostic accuracy. An explanation for these differences might be the fact that disease status is defined by use of different diagnostic thresholds to define positive and negative results (Lijmer, J. G. *et al.*, 2002). Nevertheless, this is prone to a certain amount of subjectivity and could have introduced heterogeneity. Unfortunately, definition of diseased state was poorly reported and could not be solved as we had no access to individual data.

As the number of studies included in this review was rather small, it was not useful to examine sources of heterogeneity as thoroughly as possible, as the number of available data points would have limited its significance. To be able to draw conclusions, we decided to base our inferences on the overall pooled results calculated by the random effects model (Yusuf, S. *et al.*, 1991).

The potential bias due to variation in histological variation and lack of blinding in its assessment needs to be discussed as well. Hysterectomy specimens are regarded as the criterion standard for verification of intrauterine diseases, but exclusive use of this reference standard in a diagnostic study is not feasible (Clark, T. J. *et al.*, 2002). Therefore it is not surprising that many included studies obtained histology by guided biopsy. If the phenomenon of an imperfect gold standard is ignored, there will be a tendency to underestimate the diagnostic performance of the investigated test (Walter, S. D. *et al.*, 1999). On the contrary, if a reference test is established with knowing the outcome of the index test, test accuracy is overestimated (Deville, W. L., & Buntinx, F. 2002).

With regard to diagnostics of the uterine cavity, it is noteworthy that recently a meta-analysis on the accuracy of saline infusion sonography in women with abnormal uterine bleeding reported a sensitivity of 0.95 and a specificity of 0.88, equalling the accuracy of diagnostic hysteroscopy in our review (0.94 and 0.89, respectively).¹¹ It is thought that saline infusion sonography reduces costs and discomfort for women concerned (Carlos, R. C. *et al.*, 2001; Dijkhuizen, F. P. H. L. J. *et al.*, 2000; Rogerson, L. *et al.*, 2002). Nowadays, diagnostic hysteroscopy is performed according to the so-called vaginoscopic approach without use of speculum or tenaculum, reducing discomfort significantly (Widrich, T. *et al.*, 1996). Furthermore, as a result of recent advances in endoscopic instrumentation there is evidence suggesting that outpatient therapeutic hysteroscopic procedures provide significant cost savings and are preferred by women compared to day case procedures (Bettocchi, S., & Selvaggi, L. 1997; Marsh, F. *et al.*, 2002). Whether these improvements make diagnostic hysteroscopy comparable to saline infusion sonography regarding cost-effectiveness and patient compliance remains unclear.

CONCLUSION

This systematic review gives the strongest evidence to date that diagnostic hysteroscopy is both accurate and feasible in the diagnosis of intrauterine abnormalities. It may contribute to prognosis of expected quality of life (e.g. regarding complaints) as well.

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