

Abnormal uterine bleeding

Diagnostic value of hysteroscopy

Sameera M. Madan, MB, ChB, Zainab A. Al-Jufairi, Arab Board, MRCOG (Lon).

ABSTRACT

Objectives: To determine the specificity, sensitivity and predictive value of hysteroscopic impression versus histological diagnosis of endometrial curettings in evaluating patients with abnormal uterine bleeding. In addition, to determine whether office hysteroscopy can eliminate hospital diagnostic dilatation and curettage for patients with abnormal uterine bleeding.

Methods: A retrospective study of 556 patients who underwent hysteroscopy and dilatation and curettage for abnormal uterine bleeding between January 1995 and December 1998 at the Salmaniya Medical Complex in Bahrain. A comparison was made between hysteroscopic impression and histological examination.

Results: Out of 556 patients who were included in the study, 53 were diagnosed to have endometrial polyps hysteroscopically, however only 13 patients (24.5%) were confirmed to have polyps histologically. Hysteroscopy had revealed submucous leiomyoma in 33 women but none of these were diagnosed histologically. Hysteroscopy was

highly specific for diagnosis of both endometrial hyperplasia and endometrial carcinoma (specificity was 85% for endometrial hyperplasia and 99.5% for endometrial carcinoma), however the sensitivity of hysteroscopy for diagnosing endometrial cancer was 40% and 30% for endometrial hyperplasia.

Conclusions: Hysteroscopy was more sensitive than curettage in detecting endometrial polyps and submucous fibroids, but less sensitive than curettage in detecting endometrial hyperplasia and endometrial carcinoma. Hysteroscopy should be carried out in conjunction with curettage for evaluating women with abnormal uterine bleeding. Office hysteroscopy with directed biopsies could be carried out, to reduce hospital diagnostic dilatation and curettage.

Keywords: Abnormal uterine bleeding, hysteroscopy, dilatation and curettage.

Saudi Medical Journal 2001; Vol. 22 (2): 153-156

Abnormal uterine bleeding is a common gynecologic problem, accounting for up to 20% of office visits to gynecologists.¹ The most common procedure used to evaluate the endometrial cavity of a patient with abnormal uterine bleeding is dilatation and curettage (D&C).² However, the accuracy of dilatation and curettage is decreased with focal lesions and many endometrial pathologies have been missed by endometrial curettage.²⁻⁵ Several authors have suggested that hysteroscopy with direct biopsy should become the procedure of choice in evaluating

women with abnormal uterine bleeding.⁶⁻⁸ Hysteroscopy is one of the oldest examination methods used in gynecology, and was first introduced by Pantaleoni in 1869.⁹ Despite the great promise of this new technology, wide spread use could be implemented only 100 years later, after significant advancement in optics, light delivery system and distension media were made.¹⁰ The direct view of the uterine cavity afforded by hysteroscopy offers a significant advantage over other methods such as hysterosalpingogram, D&C and ultrasound,

From the Salmaniya Medical Complex, Manama, State of Bahrain.

Received 12th August 2000. Accepted for publication in final form 24th October 2000.

Address correspondence and reprint request to: Dr. Zainab A. Al-Jufairi, PO Box 10303, Manama, Bahrain. Fax. +973 289651.

as these other modalities offer only a blind or indirect view of the cavity.¹⁰ In spite of the usefulness of hysteroscopy in evaluating women with abnormal uterine bleeding, many authors have emphasized that hysteroscopy without biopsy is unreliable for establishing the diagnosis of both endometrial hyperplasia and carcinoma.¹¹⁻¹³ This study was undertaken to evaluate the accuracy and value of hysteroscopy in patients with abnormal uterine bleeding as compared with the histological diagnosis of endometrial curettings obtained by D&C.

Methods. This was a retrospective study carried out by reviewing the charts of all patients who underwent hysteroscopy as well as D&C for abnormal uterine bleeding at Salmania Medical Complex (Bahrain) between January 1995 and December 1998. Clinical data was obtained from case histories, operative notes, and histopathology reports. The majority of the procedures were performed as day-case surgery and a few as in-patient surgery, and all were performed under general anesthesia. All the procedures were carried out according to the Hamou technique and followed by D&C and the curettings sent for histological examination. Hysteroscopic impression was classified as follows: normal, atrophic endometrium, endometrial polyps, submucous fibroids, hyperplasia, carcinoma, miscellaneous (intra uterine contraceptive device (IUCD), adenomyosis, uterine abnormality) and unsuccessful hysteroscopy. The pathological reports were reviewed for the histological diagnosis of endometrial curettings. The histological diagnoses of endometrial curettings were categorized as follows: normal, benign polyps, decidual reaction, hyperplasia, atrophic, adenocarcinoma, endometritis or not diagnostic which included the specimens that were too scanty to interpret, or when no specimen was obtained. All patients diagnosed with endometrial carcinoma during the study period were identified from the annual statistics to determine whether any cases of endometrial carcinoma were missed by hysteroscopy or D&C. The collected data was entered into the computer and analyzed using the statistical package from the social sciences software (SPSS). The age, complaints, hysteroscopy findings, histopathologic findings of endometrial curettings and correlation were analyzed. Frequency statistics were run on all the hysteroscopic and histopathologic categories. The specificity, sensitivity and predictive value of hysteroscopy in detecting the endometrial lesions was calculated.

Results. During the study period, 835 diagnostic hysteroscopy procedures were performed. Of these, 215 were carried out in conjunction with diagnostic laparoscopy for infertility and were excluded. Sixty-four charts were missed, leaving 556 procedures for

Table 1 - Indication for hysteroscopy.

Complaint	Number of patients	Percentage
Menorrhagia	343	62.0
Post menopausal bleeding	76	14.0
Menometrorrhagia	68	12.0
Perimenopausal bleeding	26	4.5
Clinically diagnosed leiomyome with bleeding	28	5.0
Intermenstrual bleeding	15	2.5
Total	556	100

analysis. Sixteen patients (3%) had repeated hysteroscopy and D&C during the study. Their ages ranged from 20 to 80 years. The mean \pm standard deviation (SD) was 44 ± 9.19 years. The indications for hysteroscopy are summarized in Table 1. Menorrhagia was the most common indication for the procedure (62%), followed by postmenopausal bleeding (14%). The uterine cavity could be inspected adequately in 531 patients. There were 25 failed hysteroscopies (4.5%). In 4 of them, the cervical canal was tightly stenosed and in the other 21 the view was obscured by bleeding. Carbon dioxide was the distension media in 535 hysteroscopies (96%) and normal saline was used in the remaining 21. Abnormalities were found in 216 hysteroscopies (39%). Endometrial hyperplasia was suspected in 112 women (20%), 53 patients (9.5%) were diagnosed to have endometrial polyps and 33 (6%) had submucous fibroid. Endometrial carcinoma was suspected in 4 patients (1%) (Table 2). Endometrial curettage was attempted in 532 patients, with no specimen submitted in 24 cases. A summary of the histopathological findings of endometrial curettage are given in Table 3. Histological examination revealed a normal endometrium in 281 specimens (50.5%), atrophic endometrium in 15

Table 2 - Hysteroscopy findings.

Hysteroscopy finding	Number of patients	Percentage
Normal	249	45.0
Atrophic endometrium	66	12.0
Endometrial polyps	53	9.5
Submucous fibroid	33	6.0
Suspected hyperplasia	112	20.0
Suspected carcinoma	4	0.5
Miscellaneous*	14	2.5
Failure to complete hysteroscopy	25	4.5
Total	556	100

*Intrauterine contraceptive device; adenomyosis; uterine abnormality

Table 3 - Histological finding of endometrial curetting.

Histological finding	Number of patients	Percentage
Normal endometrium	281	50.5
Atrophic endometrium	15	3.0
Benign polyps	26	5.0
Decidual reaction	31	5.5
Endometrial hyperplasia	132	24.0
Adeno carcinoma	7	1.0
Endometritis	7	1.0
Inadequate specimen	33	6.0
No specimen obtained	24	4.0
Total	556	100

(3%) and benign polyps in 26 (5%). One hundred and thirty-two curettings (24%) showed endometrial hyperplasia and adenocarcinoma in 7 (1%). There were 33 inadequate endometrial curettings (6%) (Table 3). The correlation between hysteroscopic impression and histopathological examination of endometrial curettings was studied (Table 4). Of those 249 patients with normal hysteroscopies, 49 patients (20%) had hyperplasia and 2 (1%) had adenocarcinoma. Fifty-three patients were diagnosed to have polyps on hysteroscopy, however only 13 (24.5%) were confirmed to have polyps on curettage, and 12 (23%) patients had endometrial hyperplasia. Submucous leiomyomas were diagnosed in 33 patients on hysteroscopy, but none of these were confirmed on curettage. Of the 66 patients with a hysteroscopic impression of atrophic endometrium, 11 patients (17%) had endometrial hyperplasia. Histologically, endometrial hyperplasia was demonstrated in 132 patients, the hysteroscopic impression was hyperplasia in 42 (32%), endometrial polyps in 12 (9%), suspected carcinoma in 2 (1.5%) and normal in 49 (37%). Of the 7 patients (1%) with histological diagnosis of adenocarcinoma, the

hysteroscopic impression was carcinoma in 2 patients, hyperplasia in 3 and normal in the remaining 2 patients. In 4 patients, the hysteroscopic impression was adenocarcinoma. Two of these were confirmed to have adenocarcinoma on curettage and 2 had endometrial hyperplasia. During the study period there were 16 registered cases of endometrial carcinoma. Hysteroscopy was performed in 7 patients only. Hysteroscopic diagnosis of endometrial cancer was made only in 2 patients, 3 patients were suspected to have endometrial hyperplasia and in the remaining 2 patients the hysteroscopic findings were reported to be normal. Hysteroscopy was highly specific for diagnosing both endometrial hyperplasia and endometrial adenocarcinoma. However the sensitivity was low for both. The sensitivity of hysteroscopy for diagnosis of endometrial cancer was 40% and the specificity was 100%. The PPV was 50% and the negative predictive value was 99%. The sensitivity of hysteroscopy for diagnosis of endometrial hyperplasia was found to be 30% and the specificity was 85%. The PPV was 37.5% and the negative predictive value was 82.5%.

Discussion. Uterine abnormalities were found in 39% of diagnostic hysteroscopy in women with abnormal uterine bleeding in this study. This finding was comparable with the other studies.³⁻⁶ Many studies have shown that hysteroscopy appears to be more sensitive than D&C in the diagnosis of polyps and submucous fibroid.^{3,4,7,8,11} In our study though, 53 patients were diagnosed to have endometrial polyps; only 13 (24.5%) were confirmed to have polyps on D&C. Hysteroscopy revealed submucous leiomyoma in 33 women but none of these were diagnosed by D&C. This confirms the superiority of hysteroscopy over D&C in diagnosing both endometrial polyps and submucous fibroids. On the other hand, this study showed that the sensitivity of diagnostic hysteroscopy in diagnosing both endometrial hyperplasia and

Table 4 - Comparison of hysteroscopy impression and histo-pathological examination of endometrial curettings.

Hysteroscopic impression	Histological exam of curettings							Total
	Normal	Polyps	Fibroid	Hyperplasia	Atrophic	Carcinoma	no Dx*	
Normal	160	3	0	49	5	2	30	249
Atrophic	20	3	0	11	10	0	22	66
Endometrial polyps	17	13	0	12	0	0	11	53
Submucous fibroid	17	5	0	6	0	0	5	33
Suspected hyperplasia	52	1	0	42	0	3	14	112
Suspected carcinoma	0	0	0	2	0	2	0	4
No diagnosis **	15	0	1	10	0	0	13	39
Total	281	26	0	132	15	7	95	556

* No diagnosis on histology i.e. inadequate specimen or no specimen
** No diagnosis on hysteroscopy i.e. failure to complete hysteroscopy, inconclusive.

endometrial carcinoma was low (30% and 40%). This result was comparable with Ben Yehoda's study who reported that the sensitivity of diagnosing endometrial hyperplasia was 52% and carcinoma by hysteroscopy was 20%.¹¹ Lossa et al in a study of 2007 hysteroscopies followed by blind D&C reported 27 cases of endometrial cancer confirmed by biopsy. Out of these 27, hysteroscopic impression was cancer in 20 cases, hyperplasia in 5 and normal in 2. One additional case of endometrial cancer was diagnosed by hysteroscopy but missed with D&C.¹² De Jong et al in his study emphasized that hysteroscopy without biopsy is unreliable for establishing the diagnosis of endometrial malignancy as the difference between premalignant and malignant disease may be subtle.¹³ However, other studies that had compared hysteroscopic directed Biopsy with blind curettage had shown the superiority of the first method in diagnosing endometrial hyperplasia^{2,8} and endometrial carcinoma.² The limitations of this study were similar to those mentioned by Ben Yehoda in his study. This study was retrospective and many gynecologists carried out the procedure with different experiences (senior residents to consultants) and not by a special hysteroscopist. As noted by Ben Yehoda, the curettage was performed following diagnostic hysteroscopy which may increase the detection rate of D&C.¹¹ On the other hand, unless the uterus is removed it is difficult to find out which method is more accurate in establishing the diagnosis. Stovall el al in his study of endometrial sampling prior to hysterectomy, found 30 instances in which the endometrial sampling failed to identify either endometrial hyperplasia or carcinoma.⁵

In conclusion, diagnostic hysteroscopy is a safe procedure with few or no complication's reported.^{7,9,13} In this study 8 patients (1%) had uterine perforation. One perforation occurred during hysteroscopy, while

the other 7 occurred during D&C. There was no complication related to distension media and no postoperative infection reported.

References

- Nesse R. Abnormal vaginal bleeding in perimenopausal women. *Am Fam Physician* 1989; 40: 185-192.
- Valle RF. Hysteroscopic evaluation of patients with abnormal uterine bleeding. *Surg Gynecol Obstet* 1981; 153: 521-526.
- Loffer FD. Hysteroscopy with selective endometrial sampling compared with D&C for abnormal uterine bleeding: the value of a negative hysteroscopic view. *Obstet Gynecol* 1989; 73: 16-20.
- Brooks PG, Serden SP. Hysteroscopic findings after unsuccessful dilatation and curettage for abnormal uterine bleeding. *Am J Obstet Gynecol* 1988; 158: 1354-1357.
- Stovall TG, Solmon SK, Ling FW. Endometrial sampling prior to hysterectomy. *Obstet Gynecol* 1989; 73: 405-409.
- Goldrath MH, Sherman AI. Office hysteroscopy and suction curettage: can we eliminate the hospital diagnostic dilatation and curettage? *Am J Obstet Gynecol* 1985; 152: 220-229.
- Gimpelson RJ. Panoramic hysteroscopy with directed biopsies vs. dilatation and curettage for accurate diagnosis. *J Reprod Med* 1984; 29: 575-578.
- Gimpelson RJ, Rappold HO. A comparative study between panoramic hysteroscopy with directed biopsies and dilatation and curettage: a review of 276 cases. *Am J Obstet Gynecol* 1988; 158: 489-492.
- Lindemann HJ, Mohr J. CO₂ hysteroscopy: Diagnosis and treatment. *Am J Obstet Gynecol* 1976; 124: 129-133.
- Lavy G. Hysteroscopy as a diagnostic aid. *Obstet Gynecology Clinics of North America* 1988; 15: 61-67.
- Ben Yehuda OM, Kim YB, Leuchter RS. Does Hysteroscopy improve upon the sensitivity of dilatation and curettage in the diagnosis of endometrial hyperplasia or carcinoma? *Gynecol Oncology* 1998; 68: 4-7.
- Lossa A, Cianferoni I, Ciatto S, Cecchini S, Campatelli C, Lo Stumbo F. Hysteroscopy and endometrial cancer diagnosis: a review of 2007 consecutive examination in the self-referred patients. *Tumori* 1991; 77: 479-483.
- De Jong P, Doel F, Falconer A. Out patient diagnostic hysteroscopy. *Br J Obstet Gynaecol* 1990; 97: 299-303.