Hysteroscopy in the Evaluation of Intrauterine Cavity. Is it More Valuable Than Dilatation and Curettage?

İntrauterin Kavitenin Değerlendirilmesinde Histeroskopi. Dilatasyon ve Küretajdan Daha Değerli mi?

Aşkın YILDIZ, MD,[a]
Atilla KÖKSAL, MD,[a]
Pınar Fadime ATEŞ, MD,[a]
Hüseyin İVİT, MD,[a]
Adnan KEKLİK, MD,[a]
Külal ÇUKUROVA, MD[a]

[a]3rd Obstetrics and Gynecology Clinic, İzmir Atatürk Training and Research Hospital, İzmir

Geliş Tarihi/*Received:* 13.05.2008
Kabul Tarihi/*Accepted:* 27.01.2009

Yazışma Adresi/*Correspondence:*
Aşkın YILDIZ, MD
İzmir Atatürk Training and Research Hospital,
3rd Obstetrics and Gynecology Clinic,
İzmir,
TÜRKİYE/TURKEY
ayild68@yahoo.com

ABSTRACT Objective: The aim of this study was to compare dilatation and curettage (D&C) with office hysteroscopy in the diagnosis of uterine pathologies in women with abnormal uterine bleeding. **Material and Methods:** This retrospective study was carried out in the 3rd Obstetrics and Gynecology Clinic in our hospital setting between June 2005 and March 2006. In the first step of the study D&C was performed. After a mean duration of 6.3 weeks (min. 3 weeks- max. 7 weeks) following D&C, the second step was office hysteroscopy with multiple biopsies. Meanwhile preoperative preparations of patients with operation indication were carried out. Patients with genital malignancy or pregnancy related bleedings were excluded. The sensitivity, specificity, and positive and negative predictive values of D&C and office hysteroscopy were compared by setting the tables separately. **Results:** A total of 86 patients (14 postmenopausal, 72 premenopausal) were included in the study. While 62 of 86 cases were considered normal with D&C, only 20 were normal with office hysteroscopy. Of 86 34 had endometrial polyp and four had submucosal myoma uteri. The diagnosis of endometrial polyp was made by D&C in 24 cases and by hysteroscopy in 28 cases. The submucosal myoma cases were diagnosed and treated with hysteroscopy. Considering histeroscopy the gold standard for examining the intrauterine cavity, sensitivity of the D&C was 36%, specificity was 100%, positive predictive value (PPV) was 100% and negative predictive value (NPV) was 32%. When histopathological examination was taken as the reference test, sensitivities of D&C and office hysterescopy were 34% and 94% respectively. Specificity and PPV of both methods were 100%, but the NPVs were 25% and 80% respectively ($p< 0.001$). **Conclusion:** Office hysteroscopy is a more valuable method than D&C in the diagnostic and therapeutic approach to abnormal uterine bleeding cases.

Key Words: Hysteroscopy; uterine hemorrhage; dilatation and curettage

ÖZET Amaç: Bu çalışmanın amacı, anormal uterin kanamalı kadınlarda, uterin patolojilerin tanısında ofis histeroskopisi ile dilatasyon ve küretajı kıyaslamaktı. **Gereç ve Yöntemler:** Bu retrospektif çalışma, İzmir Atatürk Eğitim ve Araştırma Hastanesi, 3. Kadın Hastalıkları ve Doğum Kliniğinde, Haziran 2005-Mart 2006 tarihleri arasında gerçekleştirildi. Çalışmanın ilk aşamasında olgulara dilatasyon ve küretaj uygulandı. Çalışmanın ikinci aşamasında dilatasyon ve küretajdan ortalama 6.3 hafta (minimum 3 hafta-maksimum 7 hafta) sonra, multipl biyopsilerle ofis histeroskopisi yapıldı. Bu arada operasyon endikasyonu olan hastaların preoperatif hazırlıkları yürütüldü. Genital malinite ve gebelikle ilgili kanaması olan hastalar çalışma dışında bırakıldı. Dilatasyon küretajı ve ofis histeroskopisinin duyarlılık, özgüllük, pozitif ve negatif kestirici değerleri, ayrı ayrı tablolar oluşturularak karşılaştırıldı. **Bulgular:** Toplam 86 hasta (14 postmenopozal, 72 premenopozal) çalışmaya dahil edildi. Bunların 62'si dilatasyon ve küretaj ile normal olarak değerlendirilirken, sadece 20'si ofis histeroskopisi ile normal olarak değerlendirildi. Seksen altı olgunun 34'ünde endometriyal polip, 4'ünde submukozal miyom saptandı. Endometriyal polip tanısı 24 olguda dilatasyon küretajı ile, 28'inde ise ofis histeroskopisi ile konuldu. Submukozal miyom olgularının tanısı ve tedavisi ofis histeroskopisi ile gerçekleştirildi. Uterin kavitenin değerlendirilmesinde histeroskopi altın standart olarak kabul edildiğinde, dilatasyon ve küretajın duyarlılığı %36, özgüllüğü %100, pozitif kestirici değeri %100 ve negatif kestirici değeri ise %32 bulundu. Histopatolojik inceleme referans olarak alındığında, dilatasyon ve küretajın ve ofis histeroskopisinin duyarlılıkları sırasıyla %34 ve %94 saptandı. Her iki yöntemin özgüllük ve pozitif kestirici değerleri %100, negatif kestirici değerleri ise sırasıyla %25 ve %80 bulundu ($p< 0.001$). **Sonuç:** Ofis histeroskopisi, anormal uterin kanamalı olgulara tanı ve tedavi yaklaşımında dilatasyon ve küretajdan daha değerli bir yöntemdir.

Anahtar Kelimeler: Histeroskopi; uterin kanama; dilatasyon ve küretaj

Turkiye Klinikleri J Med Sci 2009;29(3):675-80

In modern gynecology, the developments in non-invasive or minimal invasive diagnostic methods increase the importance of hysteroscopy in the diagnosis and treatment of intrauterine problems.[1,2] Abnormal uterine bleeding (AUB) is one of the major indications of hysteroscopy.[3,4] Office hysteroscopy seems to be the best diagnostic and therapeutic method in determining the etiology of AUB by allowing the direct inspection of the uterine cavity and treatment of any pathology.[3,5,6]

The false negativity rate of any endometrial biopsy method including dilatation and currettage (D&C) is 2-6%. In 60% of the cases, only less than half of the uterine cavity can be sampled during D&C.[3] Due to these reasons, the state of D&C as the "gold standard method" in AUBs is questioned.[7]

The aim of this study was to compare D&C with office hysteroscopy in the diagnosis of uterine pathologies in women with AUB and to evaluate diagnostic and therapeutic advantages of office hysteroscopy.

MATERIAL AND METHODS

This retrospective study was performed between June 2005 and March 2006 in the Clinic of Obstetrics and Gynecology in our hospital setting. Cases with genital malignancy or pregnancy were excluded. An informed written consent was received from all study patients before procedures.

Initially all cases were evaluated with pelvic examination and transvaginal ultrasonography (General Electric Logic 200 6.5 mHz). Then, D&C was performed in all cases. After a mean duration of 6.3 weeks (min. 3 weeks- max. 7 weeks) following D&C office hysteroscopy was performed. All procedures were done by the same investigators. Meanwhile preoperative preparations of patients with operation indication were carried out. All collected data were recorded on standardized forms.

Hysteroscopies (diameter 2 mm, length 26 cm, Forward Oblique Telescope 30°, Bettochi Continuous-Flow Operating Sheath 4.2 mm, semirigid, 5 Fr., length 34 cm instruments, Storz, Germany) were performed in the operation room with intravenous or intratechal general anesthesia or spinal/cervical local anesthesia or without any anesthesia. Uterine cavity was distended with 0.9% NaCl solution. In case of electrocautery, 5% mannitol solution was used. Speculum or tenaculum was not used during the hysteroscopy process. During hysteroscopy vagina was entered with direct vision through the introitus, portio uteri was found and uterine cavity was entered along the endocervical canal. Endocervical canal, fundus, ostia, anterior and posterior walls were observed. Hysterescopies with total inspection of the endometrial cavity and endocervical canal were considered adequate. Hysterescopies in which no anatomical or endocervical pathology could be observed, were considered normal. Presence of adhesion, polyp, submucosal myoma, pressure effect or any other abnormality in the uterine cavity was considered abnormal hysteroscopy. Irregular shedding, proliferation, menstruation and secretion phase of endometrium were considered normal histopathologic findings in endometrial sampling performed by D&C. Presence of endometrial hyperplasia, myoma uteri and polyps were considered abnormal findings of D&C. Endoscopic biopsies were taken from all cases except myomas and polyps. Fifty-two cases underwent total abdominal hysterectomy after hysteroscopy. Their indications were menometrorrhagia resistant to medical therapy, myoma uteri and postmenopausal bleeding with adnexial cyst or polyp.

Diagnostic values of D&C and office hysteroscopy were compared by calculation of sensitivity, specificity, positive predictive value and negative predictive value (PPV and NPV) setting the tables separately. Statistical analysis was done with SPSS version 13.0. A p value less than 0.05 was considered significant.

RESULTS

A total of 86 cases aged 45.1 ± 7.2 years (min. 27, max. 63) were included in the study. Of these 72 were in the premenopausal period and 14 were in the postmenopausal period.

The duration of AUB in premenopausal and postmenopausal women were 22.8 (min. 2 months,

max. 10 years) and 7.7 (min. 1 month-max. 2 years) months, respectively. The bleeding pattern was menometrorrhagia in 65.1%, metrorrhagia in 18.6% and postmenopausal bleeding in 16.3% of the cases.

D&C revealed a pathology in 24 cases (27.9%) whereas office hysteroscopy revealed in 66 (76.7%). Considering histeroscopy the gold standard for examining the intrauterine cavity, sensitivity of the D&C was 36%, specificity 100%, PPV 100%, NPV 32% (Table 1). When histopathological examination was taken as the reference test, sensitivities of D&C and office hysterescopy were 34% and 94% respectively. Specificity and PPV of both methods were 100%, but the negative predicitve values were 25% and 80% respectively ($p< 0.001$) (Table 2).

Of 34 polyp cases, 24 were diagnosed with D&C and 28 with office hysteroscopy. Only six cases were treated with D&C, however the other 28 were treated with office hysteroscopy. Four submucosal myoma cases with inconclusive D&C result were also diagnosed with office hysteroscopy and myomectomies were performed. While 62 of 86 cases were considered normal with D&C, only 20 were normal with office hysteroscopy (Table 2, Table 3). D&C yielded in false negative diagnosis in 42 (48%) cases.

The only complication with hysteroscopy was partial laceration of the posterior cervical canal wall during cervical dilatation with Hegar dilator. Since she already had hysterectomy indication due to benign condition, immediate hysterectomy was performed. All cases except this were discharged at the early postoperative period of office hysteroscopy.

TABLE 1: Results of D&C and hysteroscopy.

	Hysteroscopy		
D&C	**Abnormal**	**Normal**	**Total**
Abnormal	24 (100%)	0(0%)	24 (100%)
	(36.4%)	(0%)	(27.90%)
Normal	42 (67.7%)	20 (32.3%)	62 (100%)
	(63.6%)	(100%)	(72.10%)
Total	66 (76.7%)	20 (23.3%)	86 (100%)
	(100%)	(100%)	(100%)

TABLE 2: Comparison of D&C and hysteroscopy considering the histopathological examination as the reference test.

	Histopathology		
	Abnormal	**Normal**	**Total**
Hysteroscopy			
Abnormal	66 (100%)	0 (0%)	66 (100%)
	(94.3%)	(0%)	(76.7%)
Normal	4 (20%)	16 (80%)	20 (100%)
	(5.7%)	(100%)	(23.3%)
D&C			
Abnormal	24 (100%)	0 (0%)	24 (100%)
	(34.3%)	(0%)	(27.9%)
Normal	46 (74.2%)	16 (25.8%)	62 (100%)
	(65.7%)	(100%)	(72.1%)
Total	70 (81.4%)	16 (18.6%)	86 (100%)
	(100%)	(100%)	(100%)

TABLE 3: Findings obtained by hysteroscopy.

	n	**%**
Normal	20	23.3
Pressure	34	39.5
Polyp	20	23.3
Polyp + Pressure	8	9.3
Submucosal myoma	4	4.7
Total	**86**	**100**

The histopathologic examination of hysteroscopic biopsies or operation materials revealed that 16 (18.6%) cases were normal, 22 (25.6%) had myoma, 16 (18.6%) had polyp, 10 (11.6%) had adenomyosis, 4 (4.7%) had polyp and adenomyosis, 4 (4.7%) had myoma and adenomyosis, 8 (9.3%) had polyp and myoma, 2 (2.3%) had hyperplasia, 2 (2.3%) had otolytic endometrium and 2 (2.3%) had inactive endometrium and chronic cervicitis.

CONCLUSION

The importance of hysteroscopy is increasing in the management of AUB cases and uterine cavity

pathologies.[1,2] In our study, hysteroscopy seemed to be a more valuable diagnostic method than D&C. Considering histeroscopy the gold standard for examining the intrauterine cavity, sensitivity of the D&C was 36%, specificity 100% and PPV 100%, NPV 32%. When histopathological examination was taken as the reference test, sensitivities of D&C and office hysterescopy were 34% and 94% respectively. Specificity and PPV for both methods were 100%, but the NPVs were 25% and 80% respectively ($p< 0.001$). Ceci et al reported the sensitivity, specificity, NPV and PPV of hysteroscopy as 98%, 95%, 98% and 96%, respectively. They concluded that diagnostic efficacy of office hysteroscopy was better than D&C.[5]

Towbin et al evaluated the diagnostic efficacy of office hysteroscopy in 141 AUB cases and reported myoma uteri and polyp in 58% of menorrhagia and 49% of metrorrhagia cases.[8]

Uterine sampling capacity of D&C is not adequate. D&C can sample less than 60% of uterine cavity in AUB cases. In 16% the situation is much less favorable that only less than 25% of the cavity could be sampled.[3] D&C alone can diagnose only 10-25% of endometrial pathologies.

The risk of uterine perforation during office hysteroscopy is 0.6-1.3% and haemorrhagia is 0.4%.[9,10] The complication rate in our study was 1.16% (1/86). This complication was a cervical canal laceration and did not necessitate the postponement of the procedure.

BenYehuda et al compared hysteroscopy with D&C retrospectively in 373 cases and reported no difference in the diagnosis of endometrial hyperplasia and carcinoma.[11] On the other hand Townsend et al reported that hysteroscopy was more accurate in the diagnosis of endometrial polyps and submucous myomas.[12]

Garuti et al analyzed the diagnostic capacity of hysteroscopy for endometrial pathologies (as normal or abnormal) and reported its sensitivity, specificity, NPV and PPV as 94%, 88.8%, 96.3% and 83.1%, respectively.[13] On the other hand, without biopsy the sensitivity of hysteroscopy for endometrial carcinoma was reported as 58.8% and PPV as 20.8%.[14]

Pal and Shushan performed hysteroscopy and hysteroscopic biopsy in AUB cases with negative results after endometrial sampling with D&C and reported a similar rate of endometrial carcinoma.[15-17] Reported incidence of focal lesion ranges between 46-74% in AUB cases. For this reason, early hysteroscopy and hysteroscopic biopsy seems to be the most appropriate approach in the management of AUB.[18]

Epstein suggested that hysteroscopy is more valuable than D&C in obtaining endometrial sampling in patients with postmenaupausal bleeding and endometrial cavity of 5 mm or more and any suspicious lesions in uterine cavity.[19]

Gimpelson compared D&C and hysteroscopy and hysteroscopic biopsy in 276 AUB cases and reported that results were similar in 223 (80.8%). While hysteroscopy revealed more information than D&C in 44 (16%) cases, D&C supplied more information than hysteroscopy only in 9 (3.3%) cases.[20]

Gebauer showed that D&C alone was not sufficient in the diagnosis and extirpation of endometrial polyps. In their study, D&C could diagnose only 43% of polyps whereas all were diagnosed with hysteroscopy.[21]

Word et al performed hysterectomy in cases with abnormal uterine bleeding who had undergone D&C and been considered to be normal previously. They revealed that 10% of the cases were diagnosed with endometrial carcinoma by histopathologic analysis of operation material.[22]

Stovall et al performed hysterectomy 16 months after D&C in 160 cases and reported that they obtained different findings in 34 (21%) cases.[23]

Hysteroscopy is more valuable than D&C since it allows direct visualization of the uterine cavity but without biopsy its sensitivity in the detection of endometrial hyperplasia is low.[20,24-29] In some studies, hysteroscopy was compared with hystopatho-

logy and found to be almost perfect in the diagnosis and treatment of intrauterine pathologies.[8,10,27,28]

Nagele et al analyzed the feasibility and acceptability of diagnostic hysteroscopy on 2500 outpatients. The most common indication was AUB (87%). Hysteroscopy was performed successfully in 96.4%. In 88.9% uterine cavity could be visualized completely. Local anaesthesia and cervical dilatation were performed to 29.8% most of whom were nulligravid, nulliparous and postmenopausal. Intrauterine pathologies were detected in 48%. The highest incidence was observed in those 50-60 (53.7%) age years. The most common pathology was uterine myoma (24.3%) but it was relatively lower in patients aged ≥60 (6.8%) years. In contrast, the incidence polyp increased with age (20.5% in cases aged >60). They concluded that hysteroscopy could be the routine gynecologic procedure of the 21th century.[30]

In conclusion, there is a debate for routine application of D&C in the management of AUB cases. The total uterine cavity can be visualized with office hysteroscopy and concurrent biopsy sampling is possible. It may be performed without anesthesia or with local anesthesia. It is more cost-effective and according to many patients more acceptable. In addition, its diagnostic efficacy is better than D&C. For all these reasons, office hysteroscopy and concurrent biopsy seem to be the most appropriate approach in the managenent of AUB cases.

REFERENCES

1. Jennings JC. Abnormal uterine bleeding. Med Clin North Am 1995;79(6):1357-76.
2. Itzkowic D. Hysteroscopy. Its place in modern gynaecology. Aust Fam Physician 1992;21(4): 425-9.
3. Wieser F, Tempfer C, Kurz C, Nagele F. Hysteroscopy in 2001: a comprehensive review. Acta Obstet Gynecol Scand 2001;80(9):773-83.
4. Minareci PÇ, Batıoğlu AS. [Hysteroscopy]. Turkiye Klinikleri J Surg Med Sci 2007;3(40): 83-90.
5. Ceci O, Bettocchi S, Pellegrino A, Impedovo L, Di Venere R, Pansini N. Comparison of hysteroscopic and hysterectomy findings for assessing the diagnostic accuracy of office hysteroscopy. Fertil Steril 2002;78(3):628-31.
6. Kaya C, Pabuçcu R. [Applications of office mini-hysteroscopy: rationales and advantages]. Turkiye Klinikleri J Gynecol Obst 2008;18(1): 41-51.
7. Stock RJ, Kanbour A. Prehysterectomy curettage. Obstet Gynecol 1975;45(5):537-41.
8. Towbin NA, Gviazda IM, March CM. Office hysteroscopy versus transvaginal ultrasonography in the evaluation of patients with excessive uterine bleeding. Am J Obstet Gynecol 1996;174(6):1678-82.
9. Grimes DA. Diagnostic dilation and curettage: a reappraisal. Am J Obstet Gynecol 1982; 142(1):1-6.
10. Vilos GA, Lefebvre G, Graves GR. Guidelines for the management of abnormal uterine bleeding. SOGC clinical practice guidelines, No: 106, August 2001. J Obstet Gynaecol Can 2001;23(8):704-9.
11. 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 Oncol 1998;68(1):4-7.
12. Townsend DE, Fields G, McCausland A, Kauffman K. Diagnostic and operative hysteroscopy in the management of persistent postmenopausal bleeding. Obstet Gynecol 1993;82(3):419-21.
13. Garuti G, Sambruni I, Colonnelli M, Luerti M. Accuracy of hysteroscopy in predicting histopathology of endometrium in 1500 women. J Am Assoc Gynecol Laparosc 2001;8(2):207-13.
14. Lo KW, Yuen PM. The role of outpatient diagnostic hysteroscopy in identifying anatomic pathology and histopathology in the endometrial cavity. J Am Assoc Gynecol Laparosc 2000;7(3):381-5.
15. Pal L, Lapensee L, Toth TL, Isaacson KB. Comparison of office hysteroscopy, transvaginal ultrasonography and endometrial biopsy in evaluation of abnormal uterine bleeding. JSLS 1997;1(2):125-30.
16. Shushan A, Protopapas A, Hart R, Magos AL. Diagnostic and therapeutic advantages of hysteroscopic surgery in management of intrauterine lesions in postmenopausal women. J Am Assoc Gynecol Laparosc 2001;8(1):87-91.
17. Shushan A, Revel A, Laufer N, Rojansky N. Hysteroscopic treatment of intrauterine lesions in premenopausal and postmenopausal women. J Am Assoc Gynecol Laparosc 2002; 9(2):209-13.
18. Nagele F, O'Connor H, Baskett TF, Davies A, Mohammed H, Magos AL. Hysteroscopy in women with abnormal uterine bleeding on hormone replacement therapy: a comparison with postmenopausal bleeding. Fertil Steril 1996; 65(6):1145-50.
19. Epstein E, Ramirez A, Skoog L, Valentin L. Dilatation and curettage fails to detect most focal lesions in the uterine cavity in women with postmenopausal bleeding. Acta Obstet Gynecol Scand 2001;80(12):1131-6.
20. 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(3 Pt 1):489-92.
21. Gebauer G, Hafner A, Siebzehnrübl E, Lang N. Role of hysteroscopy in detection and extraction of endometrial polyps: results of a prospective study. Am J Obstet Gynecol 2001;184(2):59-63.
22. Word B, Gravlee LC, Wideman GL. The fallacy of simple uterine curettage. Obstet Gynecol 1958;12(6):642-8.
23. Stovall TG, Solomon SK, Ling FW. Endometrial sampling prior to hysterectomy. Obstet Gynecol 1989;73(3 Pt 1):405-9.
24. Brooks PG, Serden SP. Hysteroscopic findings after unsuccessful dilatation and curettage for abnormal uterine bleeding. Am J Obstet Gynecol 1988;158(6 Pt 1):1354-7.

25. 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(1):16-20.

26. Goldrath MH, Sherman AI. Office hysteroscopy and suction curettage: can we eliminate the hospital diagnostic dilatation and curettage? Am J Obstet Gynecol 1985;152(2): 220-9.

27. Valle RF. Hysteroscopic evaluation of patients with abnormal uterine bleeding. Surg Gynecol Obstet 1981;153(4):521-6.

28. Widrich T, Bradley LD, Mitchinson AR, Collins RL. Comparison of saline infusion sonography with office hysteroscopy for the evaluation of the endometrium. Am J Obstet Gynecol 1996;174(4):1327-34.

29. Vercellini P, Cortesi I, Oldani S, Moschetta M, De Giorgi O, Crosignani PG. The role of transvaginal ultrasonography and outpatient diagnostic hysteroscopy in the evaluation of patients with menorrhagia. Hum Reprod 1997; 12(8):1768-71.

30. Nagele F, O'Connor H, Davies A, Badawy A, Mohamed H, Magos A. 2500 Outpatient diagnostic hysteroscopies. Obstet Gynecol 1996; 88(1):87-92.