

Uterus, endometrium	Uterus, US	Uterine neoplasms, US	Ultrasound(US), technology
21	6	11	
17 (81%),	8		
(38%),	16 (76%)	6 (75%),	3
(14%)	4 (67%),	2 (33%),	
4 (67%)	1 (50%),	1 (17%)	
6 (55%),	7 (64%),		10
(91%)	7 (100%),	10 (91%)	8
4	-		
86.8%		90.9%	85.2%

: Uterus, endometrium
 Uterus, US
 Uterine neoplasms, US
 Ultrasound(US), technology

: 1998 8 1 , : 1998 9 21 , : 1998 12 11 , : 1999 3 10
 : , (442-749) 5,
 Tel. 82-331-219-5856, Fax. 82-331-219-5862

10-15 ml , 20-30 .

tamoxifen , , ,

가 1 10-15% 가 가 , 4mm,

가 [1-3]. 7mm , 4mm (diffuse), (focal), (uniform), (polypoid) .

75% , , , , ,

[1, 3]. 가 1 cm

가 가 (,), , , ,

[4-7]. 가 - 2 .

가 가 [8-12]. (15), (5), (1) (1), (6), (11) (atypia)

가 가 가 40% (1: , 2:), FIGO (grade I : well differentiated, grade II : moderately differentiated, grade III : poorly differentiated) (Ia : , Ib : 1/2 , Ic : 1/2) [13].

1994 6 1998 5 4 test, t-test Fisher-exact test 가 chi-square

21 , 6 , 11 가 .

Ultramark-9 HDI (Advanced Technology Laboratories, Bothell, Washington), 5 MHz 21 63 , 40.9 , 45.2 가 8-French . 7 1 (unopposed estrogen) , 2 ta-

:
 moxifen 가 , 6 34 (Fig. 1C). 3 (14%) (Fig.
 38 , , 6 1C), - 6 4 (67%)
 (Table 1). 5-15mm(9.5mm) . 3 (75%)
 21 17 (81%) (Fig. 1D), 4 (67%)
 , 6-15mm(10.7mm) . 11 (65%)
 (Fig. 1A), 16 (76%)
 . 8 (38%) 0.9 cm, 3 cm 1
 (Fig. 1B), 5 , 3 , 2 1 (50%)
 0.7-4.5 cm . 8 6 , - 1 (17%)
 (75%) , 2 (25%) 11 6 (55%)

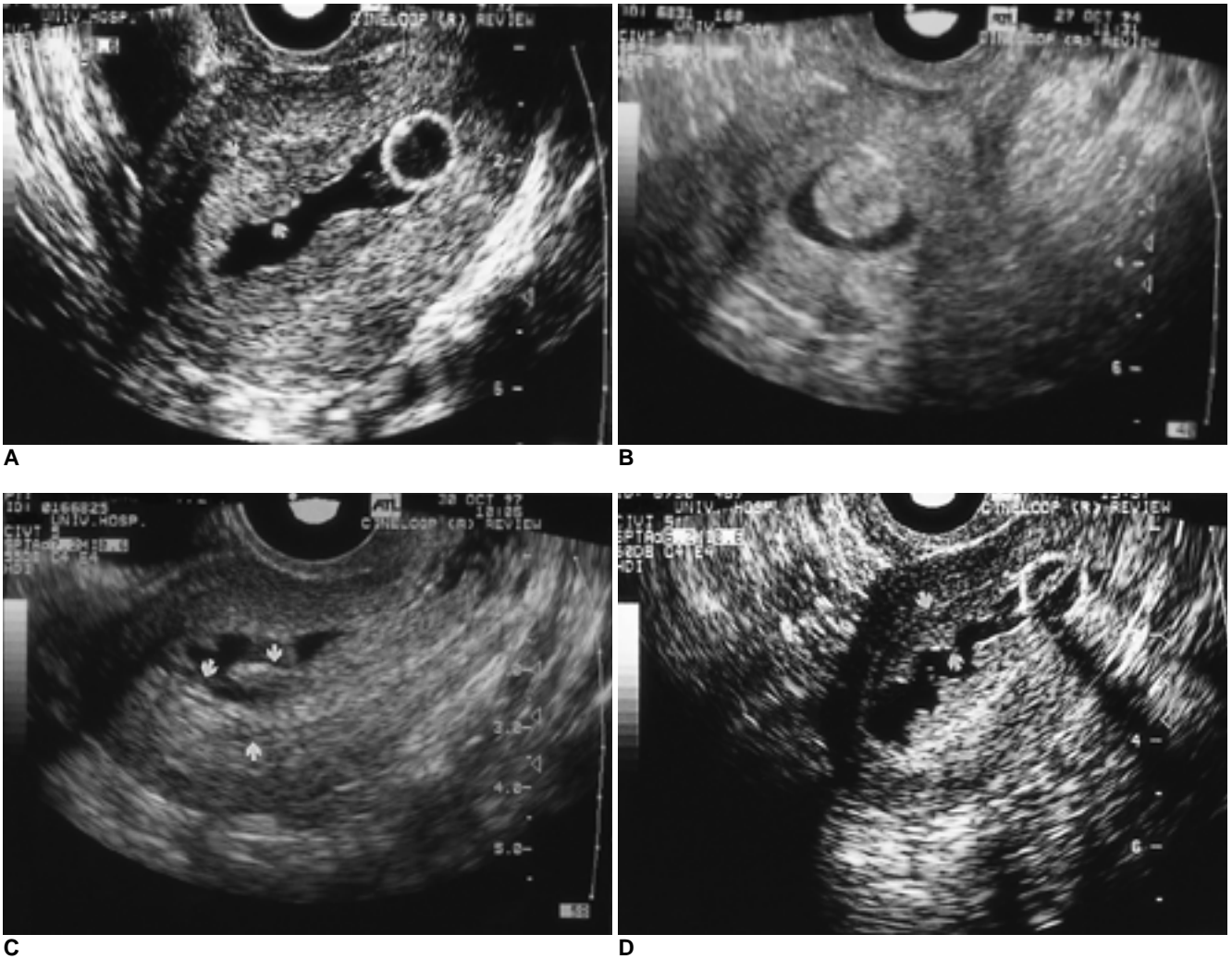


Fig. 1. Endometrial hyperplasia **A.** A 44 year-old patient with endometrial hyperplasia without atypia. Longitudinal scan of the uterus shows a diffuse uniform endometrial thickening(12 mm, arrows) with regular surface and inhomogeneous hyperechogenicity. Obliteration of endometrial cavity is absent. **B.** A 41 year-old patient with hyperplastic polyp. Transverse scan of the uterus shows a 2.6 cm polypoid mass with regular surface and inhomogeneous hyperechogenicity in the uterine corpus. **C.** A 28 year-old patient with endometrial hyperplasia. Longitudinal scan of the uterus shows a focal endometrial thickening(15 mm, arrows) with irregular surface, a 4.5 cm polypoid mass(not shown), and obliteration of endometrial cavity. **D.** A 27 year-old patient with atypical endometrial hyperplasia. Longitudinal scan of the uterus shows a diffuse polypoid endometrial thickening(15 mm, arrows) with irregular surface.

Table 1. Sonohysterographic Findings of Endometrial Hyperplasia and Cancer

Sonohysterographic findings	E. hyperplasia No.(%)	Atypical E. hyperplasia No.(%)	E. cancer No.(%)
E. thickening	17(81%)	4(67%)	6(55%)
Thickness(mean)	10.7mm	9.5mm	19mm
Diffuse / focal	11(65%) / 6(35%)	2(50%) / 2(50%)	6(100%) / 0(0%)
Uniform / polypoid	10(59%) / 7(41%)	1(25%) / 3(75%)	1(17%) / 5(83%)
E. surface contour			
Regular / irregular	16(76%) / 5(24%)	4(67%) / 2(33%)	1(9%) / 10(91%)
E. mass	8(38%)	2(33%)	7(64%)
E. mass surface contour			
Regular / irregular	6(75%) / 2(25%)	1(50%) / 1(50%)	0(0%) / 7(100%)
Echogenicity			
Low-isoechoic	11(52%)	3(50%)	7(64%)
Hyperechoic	10(48%)	3(50%)	4(36%)
Echo texture			
Homo- / inhomo-geneous	8(38%) / 13(62%)	2(33%) / 4(67%)	5(46%) / 6(55%)
Obliteration of E. cavity	3(14%)	1(17%)	10(91%)
Disruption of E.-M. interface	0(0%)	0(0%)	4(45%)
Total	21	6	11

E.: Endometrial M.: Myometrial

6-40mm(19mm) . 5 (83%)
 (Fig. 2A), 10 (91%)
 (Fig. 2B). 7 (64%) 90.9%, 85.2%, 86.8%
 , 5 , 2 , 1-4.7
 cm . 1 , 6 ,
 7 (Fig. 2C).
 10 (91%)
 Ia가 3 , Ib가 6 , Ic가 2 ,
 8 4 - 가,
 (Fig. 2C). I 6 가
 , II 2 , III 3 , 6 가 . 75-80%
 1, 5 2 . , 55 65 [1].
 45.2
 , I 가
 가 (p>0.05). 가 가
 10.5mm, 19mm 30% ,
 (p=0.008). [2-4].
 (p=0.001, p=0.01), - , ,
 가 (p=0.000, p=0.000). , 가
 [2, 5-6].
 , ,
 11 10 , 27 4 가 , 4-10mm

:
 , 93.5%, 75%, 50.6%, 67%, 55%, 81%,
 96% [1, 4].
 가 , 가
 가 가 [5].
 가 가 [3, 6-7].
 가 , 10%

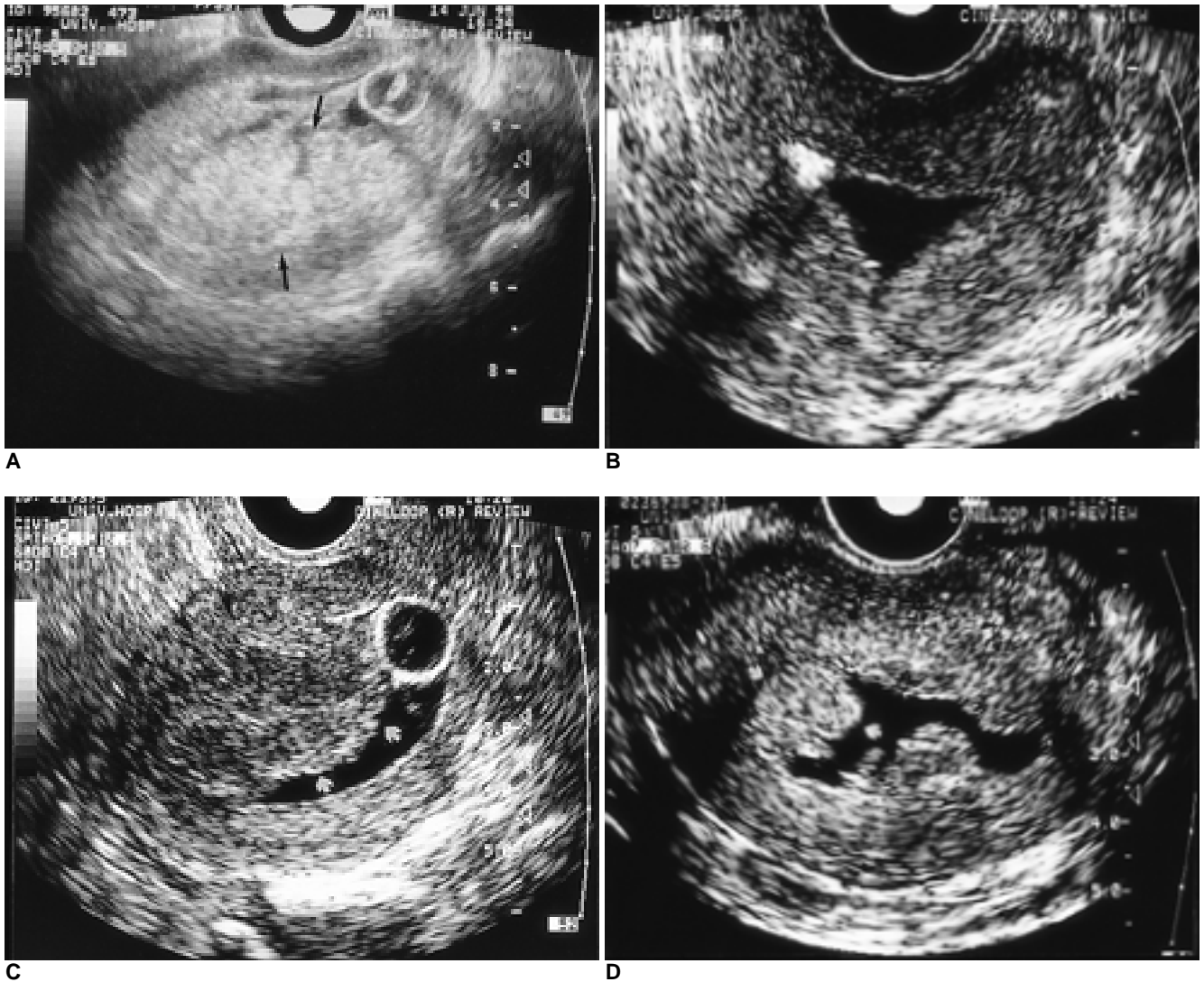


Fig. 2. Endometrial cancer. **A.** A 35 year-old patient with stage Ia endometrial cancer. Longitudinal scan of the uterus shows a diffuse polypoid endometrial thickening(40 mm, arrows) with irregular surface and obliteration of endometrial cavity. **B.** A 55 year-old patient with stage Ic endometrial cancer. Longitudinal scan of the uterus shows a normal thickness endometrium(3 mm) with irregular surface, a 1.2 cm polypoid mass with irregular surface in the uterine fundus(not shown), and obliteration of endometrial cavity. **C.** A 55 year-old woman with stage Ib endometrial cancer. Longitudinal scan of the uterus shows a 4.7 x 3 cm sized polypoid endometrial mass(arrows) with irregular surface and disrupted endometrial-myometrial interface(arrowheads). Surrounding endometrium has normal thickness(2 mm) and regular surface. **D.** A 49 year-old patient with stage Ia endometrial cancer. Transverse scan of the uterus shows a diffuse polypoid endometrial thickening(15 mm, arrows) with regular surface and iso- and hyperechogenicity. Obliteration of endometrial cavity is absent.

가 , 가
[1].
가
92-99%, 86-100%

[8-11].
가
가
[4].

가

[2].

가 , 가

[9].

가 가

가

85.2%, 86.8%

90.9%,

1 (Fig. 2D), 1

4

가
가

1. Osmer R, Puchta J, Suren A. Pathologic findings of the postmenopausal endometrium. In: Osmer R, Kurjak A, ed. *Ultrasound and the uterus*. New York: Parthenon, 1995: 31-44
2. Bronz L, Suter T, Rusca T. The value of transvaginal sonography with and without saline instillation in the diagnosis of uterine pathology in pre- and postmenopausal women with abnormal bleeding or suspect sonographic findings. *Ultrasound Obstet Gynecol* 1997;9:53-58
3. Kurjak A, Kupesic S. Malignant uterine tumors. In: Osmer R, Kurjak A, ed. *Ultrasound and the uterus*. New York: Parthenon, 1995:105-113
4. Dubinsky TJ, Parvey HR, Curtis M, Maklad N. Transvaginal hysterosonography: comparison with biopsy in the evaluation of postmenopausal bleeding. *J Ultrasound Med* 1995;14:887-893
5. Narsri MN, Shepard JH, Setchell ME, Lowe DG, Chard T. The role of vaginal scan in measurement of endometrial thickness in postmenopausal women. *Br J Obstet Gynecol* 1991;98:470-475
6. Hulka CA, Hall DA, McCarthy K, Simeone JF. Endometrial polyps, hyperplasia, and carcinoma in postmenopausal women: differentiation with endovaginal sonography. *Radiology* 1994;191:755-758
7. Sheth S, Hamper UM, Kurman RJ. Thickened endometrium in the postmenopausal woman: sonographic-pathologic correlation. *Radiology* 1993;187:135-139
8. Parson AK, Lense JJ. Sonohysterography for endometrial abnormalities: preliminary results. *J Clin Ultrasound* 1993;21:87-95
9. Dubinsky TJ, Parvey HR, Cormax G, Maklad N. Transvaginal hysterosonography in the evaluation of small endometrial masses. *J Ultrasound Med* 1995;14:1-6
10. Gaucherand P, Piacenza JM, Salle B, Rudigoz RC. Sonohysterography of the uterine cavity: preliminary investigations. *J Clin*

Ultrasound 1995;23:339-348

11.

1997;14:175-181

12. Bernard JP, Leecuru F, Darles C, Robin F, Bievre P, Taurelle R.

Saline contrast sonohysterography as first-line investigation for women with uterine bleeding. *Ultrasound Obstet Gynecol* 1997;10:121-125

13. Gompel C, Silverberg SG. *Pathology in gynecology and obstetrics*. 4th ed. Philadelphia. J.B. Lippincott Company, 1994;239-258

J Korean Soc Med Ultrasound 1999; 18:91-97

= Abstract =

Usefulness of Sonohysterography in Differentiating Endometrial Cancer from Endometrial Hyperplasia

Eun Ju Lee, M.D., Min Jung Kim, M.D., Hee Sug Ryu, M.D.*

Department of Diagnostic Radiology, *Obstetrics and Gynecology, Ajou University, School of Medicine

PURPOSE: To characterize the sonohysterographic (SH) findings of endometrial hyperplasia and cancer and to determine the role of SH in differentiating endometrial cancer from hyperplasia.

MATERIALS and METHODS: The clinical, pathologic and SH findings of 38 patients with histologically confirmed endometrial hyperplasia (n=21), atypical hyperplasia (n=6), and cancer (n=11) were reviewed retrospectively. We evaluated the presence and morphologic characteristics (surface contour echogenicity, echotexture) of endometrial thickening and mass, obliteration of endometrial cavity, and disruption of endometrial-myometrial interface on SH.

RESULTS: SH findings of endometrial hyperplasia were endometrial thickening in 17 cases (81%), mass in 8 cases (38%), and regular surface of endometrium and mass in 16 (76%) and 6 cases (75%) respectively. Atypical hyperplasia showed endometrial thickening in 4 cases (67%), mass in 2 cases (33%), and regular surface of endometrium and mass in 4 (67%) and 1 case (50%) respectively. Obliteration of endometrial cavity was seen only in 3 cases (14%) of endometrial hyperplasia and 1 case (17%) of atypical hyperplasia and disruption of endometrial-myometrial interface was not seen. Endometrial cancer showed endometrial thickening in 6 cases (55%), mass in 7 cases (64%), irregular surface of endometrium and mass in 10 (91%) and 7 cases (100%) respectively, obliteration of endometrial cavity in 10 cases (91%), and disruption of endometrial-myometrial interface in 4 of 8 cases with myometrial invasion. Using endometrial thickening or mass with irregular surface and obliteration of endometrial cavity as the positive findings for SH diagnosis of endometrial cancer, we observed sensitivity of 90.9%, specificity of 85.2%, and accuracy of 86.8%.

CONCLUSION: The demonstration of the irregular surface with endometrial thickening or mass and obliteration of endometrial cavity through SH were suggestive of endometrial cancer. SH could be useful in the diagnosis and

Address for reprints : Eun Ju Lee, M.D., Department of Diagnostic Radiology, Ajou University, School of Medicine, San 5, Wonchon-dong, Paldal-gu, Suwon, 442-749, Korea.
Tel. 82-331-219-5856, Fax. 82-331-219-5862

