

## CT MR

1

. . . . .

: .  
:

CT MR , , ,  
 , ,  
 : 6 cm , 11.2 cm  
 . ,  
 가 . 가 ,

가  
 :  
 , 가  
 가 .

0.2% 2072 15  
 15% 가 . CT MR 9  
 (1-4). 가 20 63 45 .  
 가 ,

(leiomyosarcoma) (malignant  
 mixed Mullerian tumor) (5, 6)가 , CT MR  
 . CT Somatom Plus - S (Siemens, Erlangen,  
 , 10 mm 8 mm  
 (computed tomography; 120  
 CT ) (magnetic resonance: MR ml iopromide (Ultravist 300;  
 ) . Schering, Berlin, Germany) 3  
 ml . MR

1.5 T (Magnetom Vision Plus; Siemens  
 Medical Systems, Erlangen, Germany) ,

T1 (TR/TE=400 - 600/ 11 - 19 msec)

, T2  
 (TR/TE=2,000 - 2,200 msec /80 - 90 msec)

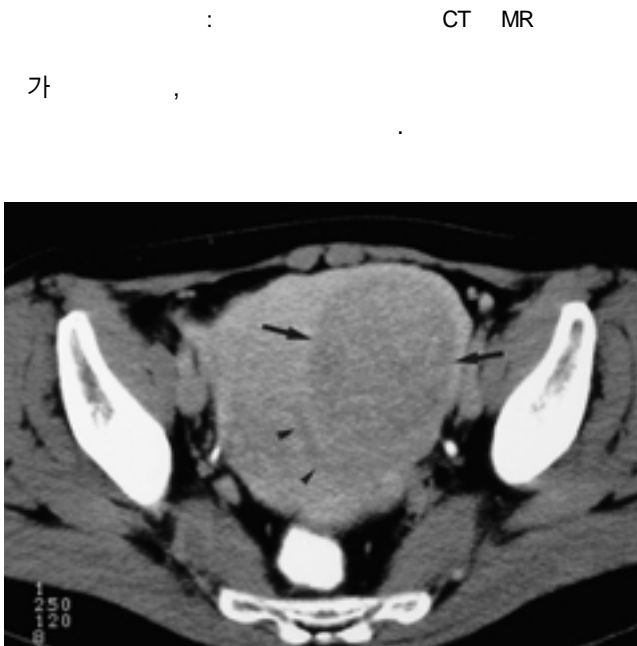
1991 1 2001 3

가

2002 7 31

2002 9 9

T2 (TR/TE= 3,000 msec /99 msec) . MR gadopentetate dimeglumine (Magnevist; Schering, Berlin, Germany) 0.1 mmol/kg 219×350 mm , matrix size 220×512 5 mm 1.5 -2.5 mm 가



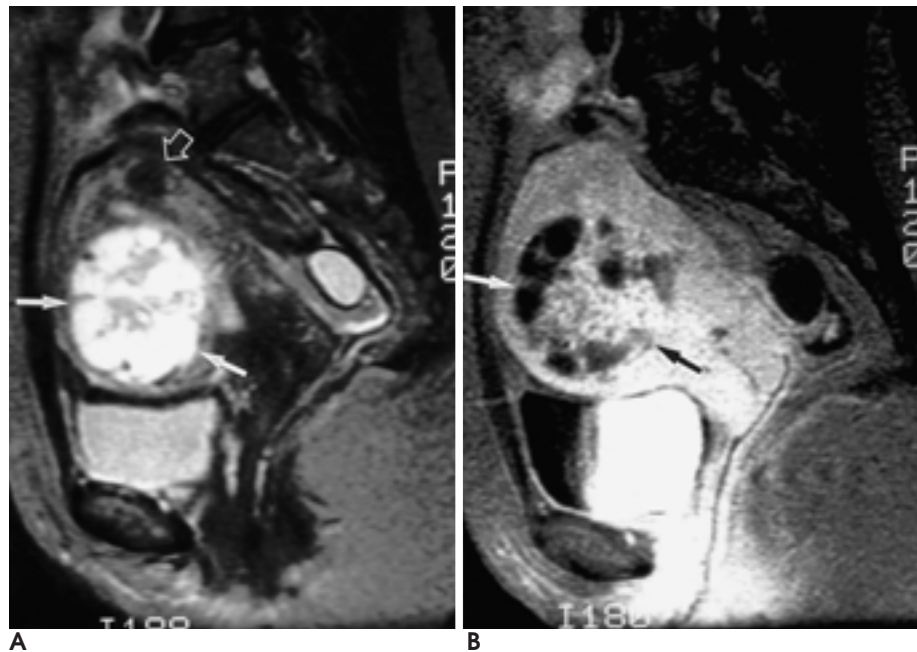
**Fig. 1.** Low-grade endometrial stromal sarcoma in a 40-year old woman. Contrast-enhanced CT scan shows a relatively well-defined low attenuated intramural mass (arrows), which cannot be differentiated from leiomyoma by this CT scan only. The endometrial cavity (arrowheads) is not widened.

Table 1 가 40 - 46 ( 43 ) , 가 20 - 63 ( 47 ) .

**Table 1.** Clinical and Imaging Findings of Six Patients with Endometrial Stromal Sarcomas

Case no/age	Histopathologic Grade	Imaging modality	Symptom	Diameter (cm)	Location	Morphology	Endometrial cavity	Necrosis	Hemorrhage
1/46	Low	CT	No	7	M	Well-defined	Not widened	-	-
2/40	Low	CT	No	4.5	M	Well-defined	Not widened	-	-
3/42	Low	MR	No	6.5	M	Well-defined	Not widened	-	-
4/20	High	MR	Vaginal bleeding	11.5	E + M	Lobulated	Widened	+	-
5/58	High	MR	Vaginal bleeding	10	E + M	Lobulated	Widened	+	+
6/63	High	CT and MR	Vaginal bleeding	12	E + M	Lobulated	Widened	+	+

M: myometrium, E: endometrium



**Fig. 2.** Low-grade endometrial stromal sarcoma in a 42-year old woman.  
**A.** Sagittal T2-weighted image shows a relatively well-marginated hyperintense mass (arrows) with multiple low signal intensity septa-like structure in the anterior wall of uterus. The endometrial cavity is not distended. A small hypointense myometrial nodule (open arrow) is also seen in the posterior uterine wall, suggesting intramural leiomyoma.  
**B.** Sagittal contrast-enhanced fat-suppressed T1-weighted image shows that the most part of the mass (arrows) is not well-enhanced except for internal multiple septa-like bands.

6 cm 4.5 cm 7 cm

가  
(Fig. 1). MR

T2

T1  
(Fig. 2).

10 cm 12 cm 11.2

cm

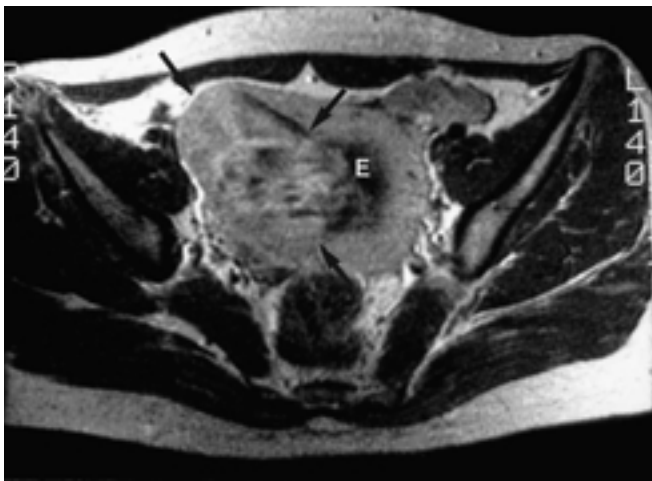
(Fig. 3).

가  
(hematometra),  
node)

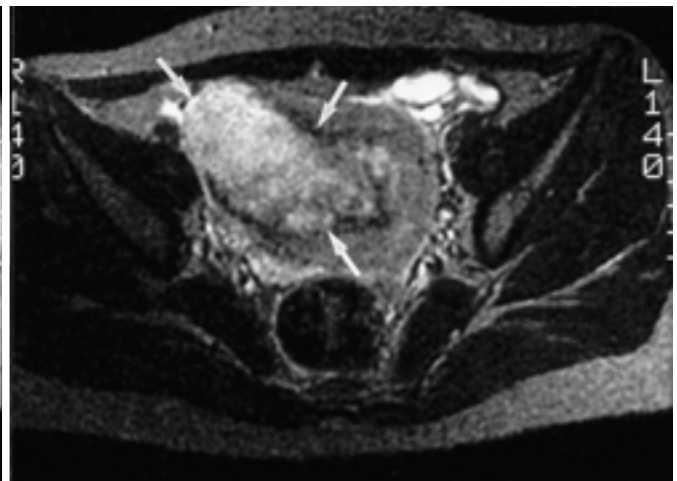
(obturator lymph  
(Fig. 4).

T1

, T2



A

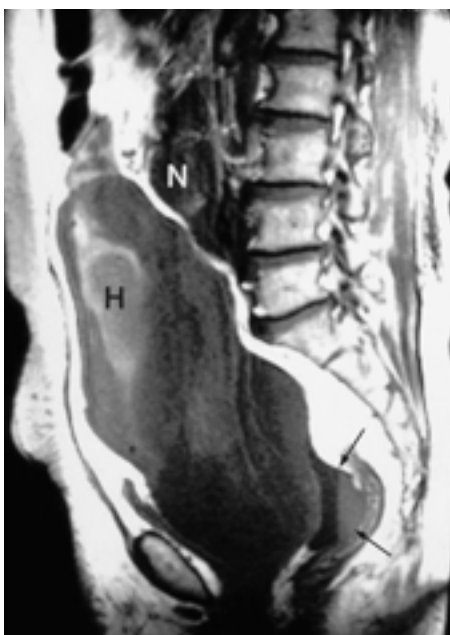


B

**Fig. 3.** High-grade endometrial stromal sarcoma in a 20-year-old woman, presenting with profuse vaginal bleeding.

**A.** Axial T1-weighted MR image shows a large lobulated intracavitary mass (arrows), widening the endometrial cavity (E). The mass shows slightly higher signal intensity than the myometrium.

**B.** Axial T2-weighted MR image clearly shows tumor invasion of the entire thickness of myometrium at the right-sided fundus (arrows).



A



B

**Fig. 4.** High-grade endometrial stromal sarcoma in a 63-year-old woman, presenting with vaginal bleeding.

**A.** Sagittal T1-weighted MR image shows a bulky lobulated encircling mass with low signal intensity. The fluid in the widened endometrial cavity has increased signal intensity, representing hematometra (H). Fluid-fluid level is noted in the cul-de-sac, suggesting hemoperitoneum (arrows) due to rupture of uterine mass.

**B.** Sagittal T2-weighted MR image again reveals a bulky heterogeneously hyperintense mass replacing the entire uterus. An enlarged lymph node (N) is demonstrated at the paraaortic space.

CT MR

ament), (3, 8).

T1

4 5

가 (2).

6 (polypoid) (infiltrative)

(unspecified uterine sarcoma)

가 (2, 9).

가

2 - 6% (8, 10, 11). Koyama (9)

T2 MR

가

40% 15%

(1). (myometrial bundles)

(endometrial stromal tumors) . Ueda (9)

가 : (intramyometrial worm - like nodular extension)

(endometrial stromal nodule)

가 (endometrial stromal sarcoma) (9).

(2, 4).

(high power field)

(mitotic figure)

(1 -

4).

가

(2, 4, 7).

가

(1, 3). 1

80% 5

CT

50% 가 5

가 (2).

가

(1).

(cur - MR

retage) (scraping)

가 Ueda

가 (12).

가 (8) T2 MR

(1).

가 (worm - like) (cord)

(node)

(2, 3). (atypia)

(broad lig -

MR

가 , CT

T2 MR

가

1. Lurain JR. *Uterine cancer*. In Berek JS, Adashi EY, Hillard PA, eds. *Novak's gynecology*. 12th ed. Williams and Wilkins, 1996:1092-

1099

2. Zaloudek C, Norris HJ. *Mesenchymal tumor of the uterus*. In: Kurman RJ, ed. *Blaustein's pathology of the female genital tract*, 4th ed. New York: Springer Verlag, 1994:457-528

3. Rosai J. *Female reproductive system*. In: Rosai J, ed. *Ackerman's surgical pathology*. 8th ed. Mosby, St. Louis, 1997:1419-1423

4. Norris HJ, Taylor HB. Mesenchymal tumor of the uterus. I. A clinical and pathological study of 53 endometrial stromal tumors. *Cancer* 1966;19:755-766

5. Muller CT MRI : 3 1993;29:501-503

6. 2 2001; 44:367-370

7. Evans HL. Endometrial stromal sarcoma and poorly differentiated endometrial sarcoma. *Cancer* 1982;50:2170-2182

8. Koyama T, Togashi K, Konishi I, et al. MR imaging of endometrial stromal sarcoma: correlation with pathologic findings. *AJR Am J Roentgenol* 1999;173:767-772

9. Ueda M, Otsuka M, Hatakenaka M, et al. MR imaging findings of uterine endometrial stromal sarcoma: differentiation from endometrial carcinoma. *Eur J Radiol* 2001;11:28-33

10. Yamashita Y, Takahashi M. *Computed tomography and magnetic resonance imaging of the endometrium*. In Anderson JC, ed. *Gynecologic imaging*. Churchill Livingstone, London, 1999;211-229

11. Outwater EK, Wilson KM, Mitchell DG. *Computed tomography and magnetic resonance imaging of the myometrium*. In Anderson JC, ed. *Gynecologic imaging*. Churchill Livingstone, London, 1999;251-268

12. Ueda M, Otsuka M, Hatakenaka M, Torii Y. Uterine endometrial stromal sarcoma located in uterine myometrium: MRI appearance. *Eur J Radiol* 2000;10:780-782

## CT and MR Imaging Findings of Endometrial Stromal Sarcomas<sup>1</sup>

Na Young Jung, M.D., Sung Eun Rha, M.D., Jae Young Byun, M.D.,  
Seung Eun Jung, M.D., Song-Mee Cho, M.D., Jae Mun Lee, M.D.

<sup>1</sup>Department of Radiology, The Catholic University of Korea

**Purpose:** To evaluate the imaging findings of endometrial stromal sarcoma (ESS) according to histopathologic grade.

**Materials and Methods:** Six patients with pathologically proven ESS were included in this study. The histopathologic diagnosis was low-grade ESS for three patients and high-grade ESS for the three others. Preoperative CT or MR images were evaluated in terms of tumor size, location, growth pattern, the presence of hemorrhage or necrosis, status of the endometrial cavity, and invasion of surrounding structures. The imaging features of ESSs, which varied according to their histopathologic grade, were compared.

**Results:** The mean maximal diameter of low-and high-grade ESSs was 6 cm and 11.2 cm, respectively. All three low-grade ESSs were located mainly in the myometrium, but two high-grade ESSs were situated in the endometrial cavity and associated with focal tumor extension into the myometrium. One high-grade ESS had completely replaced the uterus. Low-grade ESSs were relatively well-defined, but high-grade ESSs had an irregular and lobulated margin. Intratumoral hemorrhage and necrosis were, respectively, found in two and three high-grade ESSs. Widening of the endometrial cavity was noted in all three high-grade ESSs, and lymph node metastasis had occurred in one.

**Conclusion:** The imaging findings of ESS vary from a well-defined intramural mass to a bulky infiltrating mass, and depend on their histopathologic grade.

**Index words :** Uterine neoplasms

Uterine neoplasms, CT

Uterine neoplasms, MR

Sarcoma

Address reprint requests to : Sung Eun Rha, M.D., Department of Radiology, Kangnam St. Mary 's Hospital, College of Medicine,  
The Catholic University of Korea, 505, Banpo-dong, Seocho-gu, Seoul 137-040, South Korea.  
Tel. 82-2-590-2468 Fax. 82-2-599-6771 E-mail: serha@catholic.ac.kr