

1

2 3

:
:
11
8
/
6 3 1
1
11 8-20cm(12.7cm)
4 3 3 가 1 6
5 , 1 10
T1 가 8 , 가 2 , 1
T2 10 , T1
1 3
7 1
10cm
T1

0.7-1%
1925 Sampson 200 가
(1-4).
(5).
(1-2). Brenner, (3-5),
가 11
가 가

1
2
3

1999 2 19

1999 8 10

1994 6 1998 11

11

2-4MHz

1.5T Signa (GE Medical Systems, Milwaukee, U. S. A) T1 (TR/TE 450-700/8-14) T2 (TR/TE 4000-9230/102-105) Gadolinium-DTPA (Magnevist, Schering, Berlin, Germany) 0.1mmol/kg (fat suppression technique) T1 (field 5% 1/3 of view) 24-36cm, 256 x 256, 5-8mm, 2-5 mm (pelvic coil) 95% 1/3-2/3, 2/3 3mm

Ultramark 9 HDI (Advanced Technology Laboratories, Bothell, WA) 5.0MHz

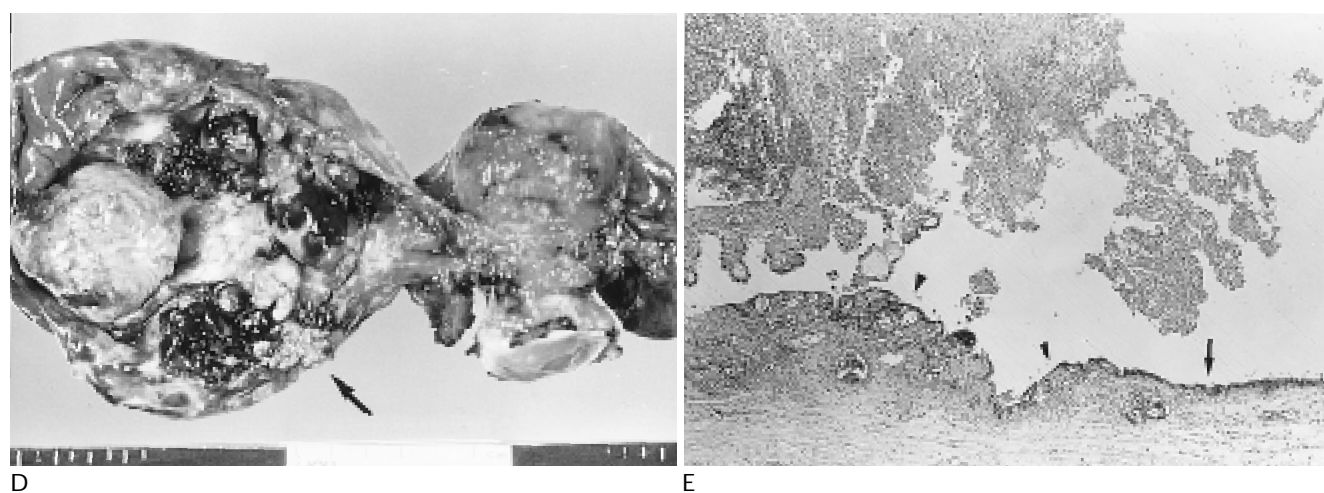
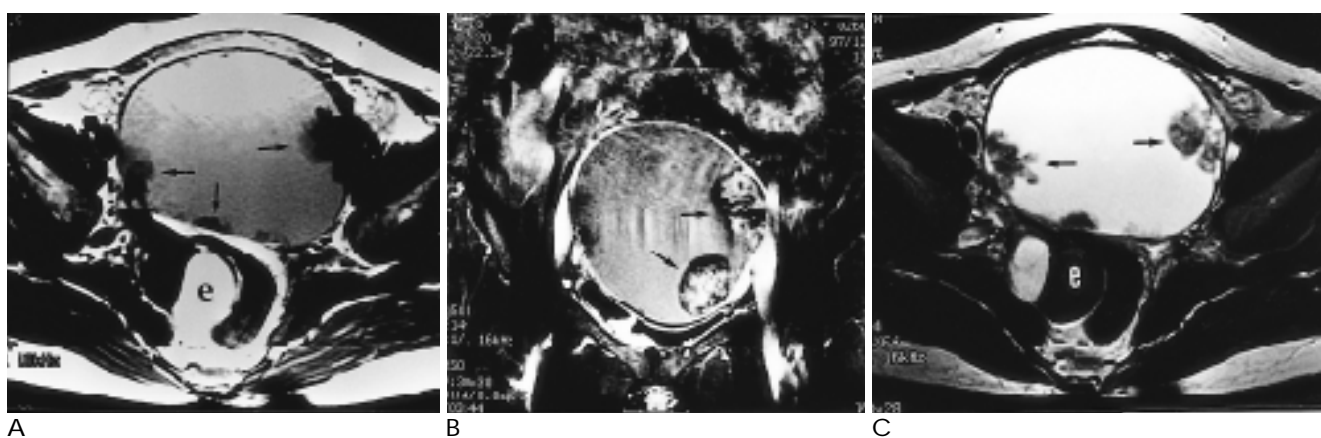
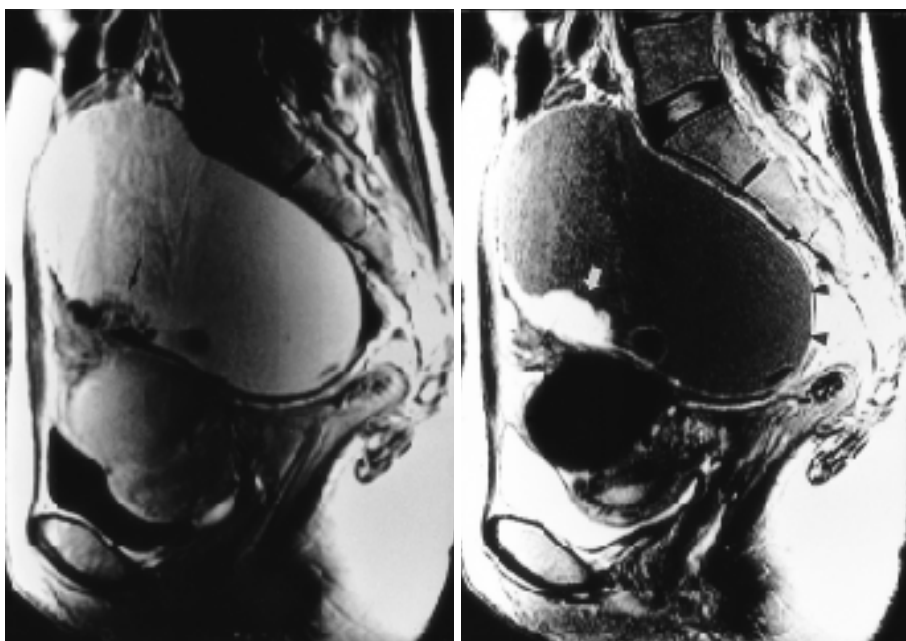


Fig. 1. A 43-year-old woman with clear cell carcinoma arising in endometriosis of the left ovary. A, B. Axial T1-weighted and coronal Gd-enhanced T1-weighted MR images of pelvis show a 13 x 9cm unilocular cystic mass containing fluid of high signal intensity and multiple well-enhanced papillary nodules and solid areas (arrows) in the left ovary. A 4 x 3cm high signal intensity cystic mass (e) is noted in the right ovary. C. Axial T2-weighted MR image shows a high signal intensity cystic mass in the left ovary and a low signal intensity cystic mass (e) in the right ovary. D. Gross examination of the excised left ovarian mass reveals a smooth unilocular cystic mass (arrows) filled with chocolate-colored fluid, and with multiple papillary tumor nodules protruding in the lumen. Cystic mass of the right ovary is confirmed endometriotic cyst. E. Microscopic examinations reveals a clear cell carcinoma (arrowheads) with papillary features arising in the wall of an endometriotic cyst (arrow) which consists of endometrial-type epithelium and stroma (H&E stain, 40).

3mm , 가 13 26.3 , 7 43.8-2280 가 , 6
 509.9 . 11
 , 3 , (endometrial stromal
 sarcoma) 1 , 1 .
 8 , 2 , 1 , 9
 I, 1 II, 1 III .
 , (shading),
 (fluid-fluid level), (6).
 , , , ,
 12.7cm . 가 4 가 8-20cm
 3 , 가 3 가 1 ,
 6 , 5 .
 (mild),
 (moderate), 2 가 5 , 3 , 3
 (large) 가 1 10 .
 - 11 1 6 , 4 .
 , , , , ,
 , , , , ,
 (transition zone) , FIGO
 (Inter-national Federation of Gynecology and Obstetrics) , 1
 29 62 41.5 , 2
 . 3 , 4
 5 , 6 , 1 , 1 , 1
 1 . 9 CA 125 2 , T1
 , T2 10
 , T1 1 T2
 (Fig. 2).
 3
 T1



A

B

Fig. 2. A 29-year-old woman with mucinous tumor of borderline malignancy arising in endometriosis of the left ovary.

A. Sagittal Gd-enhanced T1-weighted MR image of pelvis shows a 13 x 11cm unilocular, cystic mass with high signal intensity and multiple solid area(arrows) in the left ovary.

B. Sagittal T2-weighted MR image shows low signal intensity(shading, arrowheads) of cystic mass.

, T2
 (Fig. 1).
 7 , 5 , 2 ,
 1 .
 , , / ,
 , 2 , 6
 , 1
 , 9
 (chocolate cyst) 9
 , 5
 , 1
 가 15%,
 2.5%
 (ma-
 lignant transformation)
 0.7-1%
 가 ,
 , 24-49%,
 11-28% (1-2),
 2가 가
 (atypical endometriosis)
 가 (1, 7-8).
 3-4% ,
 (reactive
 change)
 (endogeneous)
 가 가
 (exogeneous)
 가 ,

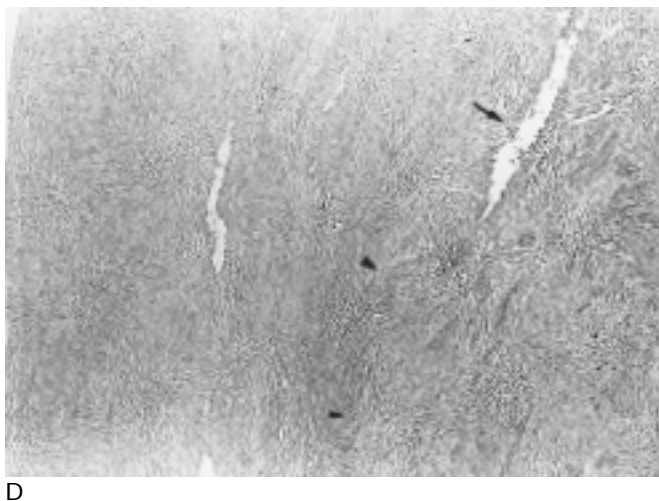
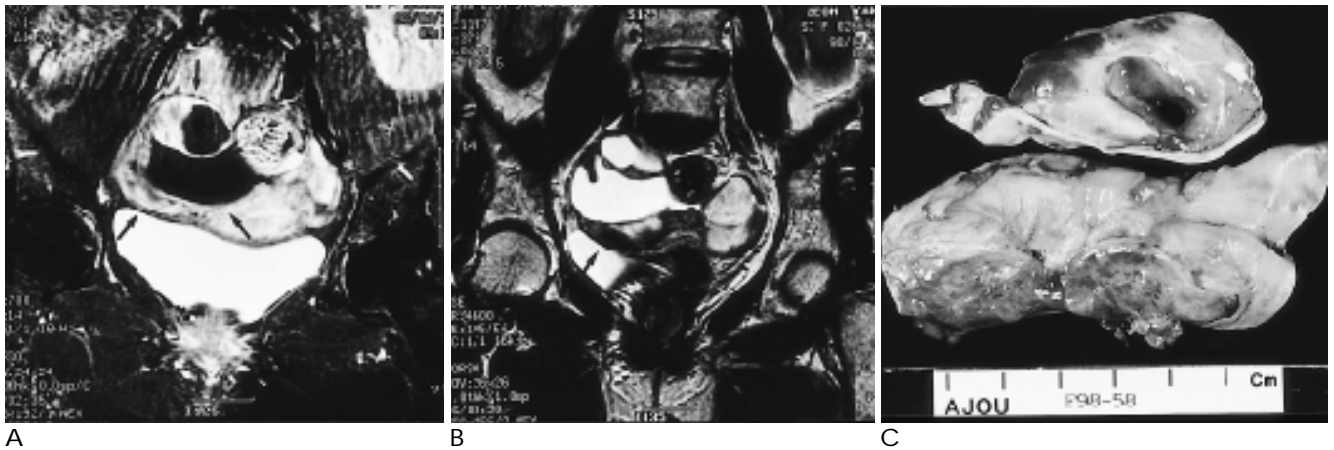


Fig. 3. A 57-year-old woman with endometrial stromal sarcoma arising in endometriosis of the right ovary.
 A. Gd-enhanced coronal T1-weighted MR image of pelvis shows a 8 × 7cm multilocular cystic mass(arrows) with low signal intensity cystic portion and inhomogeneously enhanced solid area in the right ovary.
 B. Fast spin echo T2-weighted MR image shows a high signal intensity cystic portion and inhomogeneous high signal intensity solid area.
 C. Excised specimen reveals a multilobular mainly cystic mass with broad based, sessile mural nodules projecting to the cyst lumen, filled with serous fluid.
 D. Microscopic examinations reveals an endometrial stroma (arrowheads) sarcoma arising from the stroma of endometriotic cyst (arrow), lined by single layer of endometrial-type epithelium (H&E stain, 40).

가 (9-10). , , ,
25 60 , 38 60 , . (re-
46-51 , activation) , ,
10-20 (1-2). 가
(1-2). (2). 1
, 2 , 41.5 ,
, , . 3 ,
, , 4 ,
1 2 , 1 . (ex-
가 tragonadal site)

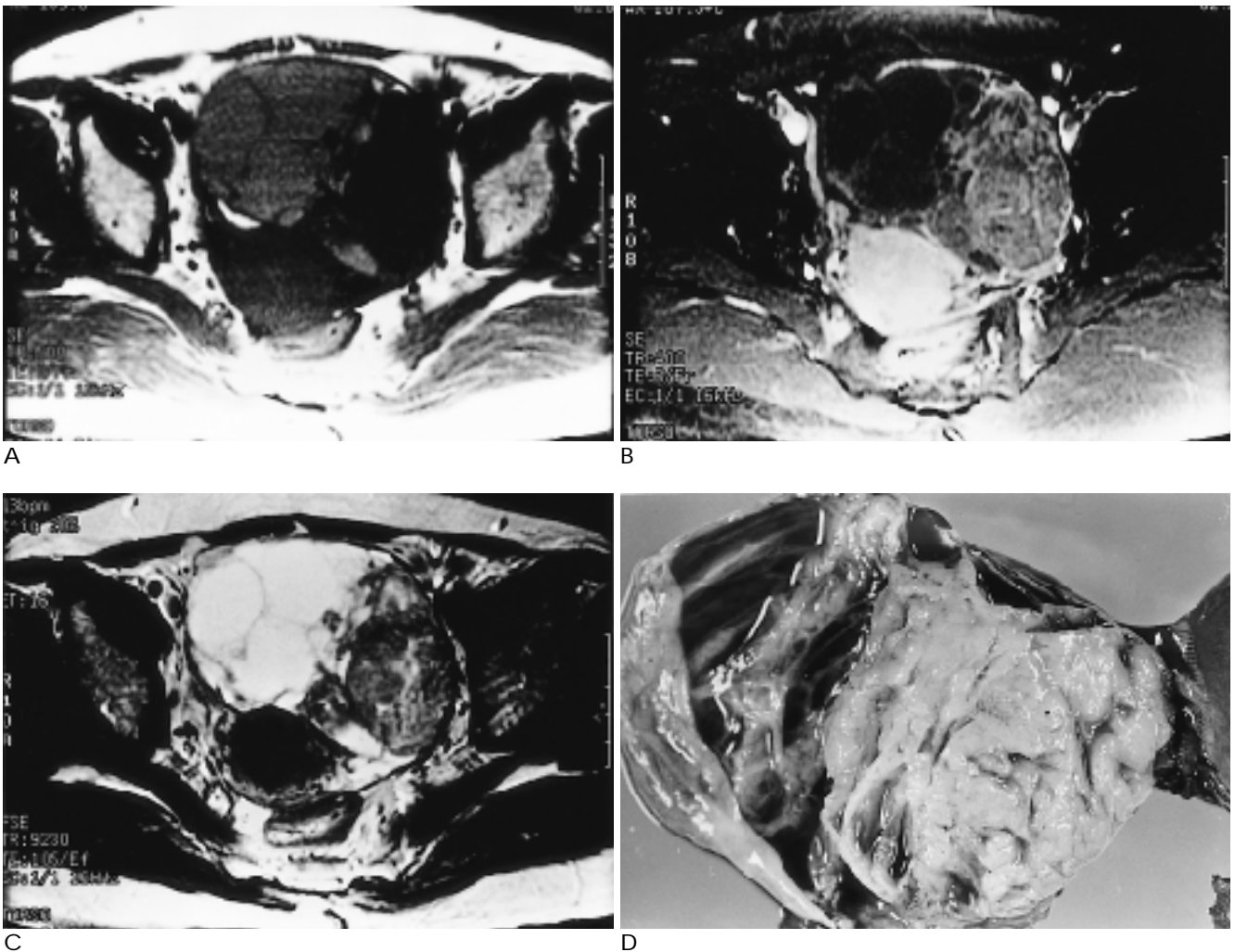


Fig. 4. A 62-year-old woman with endometrioid carcinoma arising in endometriosis of the left ovary.
A, B. Axial T1-weighted and Gd-enhanced T1-weighted MR images of pelvis shows a 11 x 7cm multilocular, mixed cystic and solid mass with low signal intensity cystic portion and well-enhanced solid portion in the left ovary.
C. Axial T2-weighted MR image shows a high signal intensity cystic portion and inhomogeneous high signal intensity solid area.
D. Gross examination of the excised left ovarian mass reveals a multicystic area filled with dark brownish fluid and gray soft multilobular solid mass.

가 (rectovaginal septum), , 10 (91%)

, (100%)

가 , 8 (73%) T1

가 Brenner

69%, 13.5%, 11.6%,

6% (1), (Fig. 4),

6 (55%) (23%)

(malignant mixed mesodermal tu-
mor)

(1-2, 10),

1 (Fig. 3). 1.6-

3.5% , T1

0-17%, 0-24%가

(1, 5).

1925 Sampson

(3), 1953 Scott가

(4),

(11).

가 가 가

10cm (1-2),

1/2 가 (2).

9 (82%)

(cauliflower-like)

(1, 11).

가 10cm

가

(1-2).

가

10cm

, T1

(12-13).

(14),

11

, 10 (91%)

가 10cm /

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Radiologic Findings of Malignant Tumors Arising from Ovarian Endometriosis¹

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Purpose : To determine the radiologic characteristics of malignant tumors arising from ovarian endometriosis.

Materials and Methods : The radiologic findings of eleven patients with pelvic masses histologically confirmed as malignant ovarian tumors arising from endometriosis were retrospectively reviewed. All patients underwent MR, and six underwent ultrasonography. The findings were evaluated with regard to tumor size and shape, locularity, thickness and enhancement of the wall and septa, the presence of papillary nodule or solid portion, signal intensity of the locule, the presence of mass in contralateral ovary, ascites, local invasion, distant metastases, and the Pathologic diagnosis included clear cell carcinoma in six cases, endometrioid carcinoma in three, and mucinous cystadenocarcinoma of borderline malignancy and endometrial stromal sarcoma in one case each.

Results : Tumor size ranged from 8 to 20 (mean, 12.7) cm. The tumors were mixed in four cases, entirely cystic in three, predominantly cystic in three, and predominantly solid in one. Six cases were unilocular and five were multilocular. The wall and septa varied in thickness and regularity and were well enhanced in all but one case. In all cases papillary nodules or solid portions with similar enhancement to uterine myometrium were seen. On T1WI, the signal intensity of fluid was seen to be high in eight cases, low or intermediate in two, and of differing intensity in one. Ten cases showed high signal intensity on T2WI, whereas in one case in which high signal intensity was seen on T1WI, there was low signal intensity(shading). In three cases the contralateral ovary contained an endometrioma. Other features included ascites in seven cases and peritoneal seeding in one.

Conclusion : Malignant ovarian tumors arising from endometriosis showed radiologic features of malignancy: they were larger than 10cm, there was enhancement of the wall and septa, and a papillary nodule or solid portion was present. However, the presence of hyperintense fluid, as seen on T1WI, as well as shading, differing signal intensity, a non-enhanced wall and septa, and endometriosis on the contralateral ovary suggests that a malignant tumor may arise from an underlying endometrioma.

Index words : Ovary, neoplasms
Ovary, MR
Ovary, endometriosis

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