

:

1

.

.

.

.

:

MR

: 1992 5 1998 9

21 (5 ,

16 , 55) 7 , 7 , 2 ,

1 , 3 , 가 가 가 1 .

MR

: 7 6 가 T1 T2

T1 T2 . 1 T1

, T2 ,

. 7 2 2 가

9 T1 6

가 T2

7 5 . 3 2

, 가 가 T1 ,

T2 .

:

MR

16

- 18 % (1-4).

Enzinger (3)

1992 5 1998 9

21

MR

(lipoma-like), (sclerosing), (inflam-

matory), (dedifferentiated) . Evans 26 77 55 가 5 ,

(5) , , , , 가 16 . 13 , 3 ,

2 , 1 .

Enzinger (3) 7 , 2 , 1 , 2가

가가 (1,6,7), 3 (2 ,

(MR) 1) 가 가 1 .

가 (8-10).

(SI) (homogeneity), (sep-
ta). MR 1.0T unit (SMT -
100X, Shimadzu, Kyoto) 1.5T unit (Signa Horizon; GE
Medical System, Milwaukee, WI)T1 (450-650msec/9-20msec/2-4, repe-
tition time/echo time/excitations) T2 (1500-

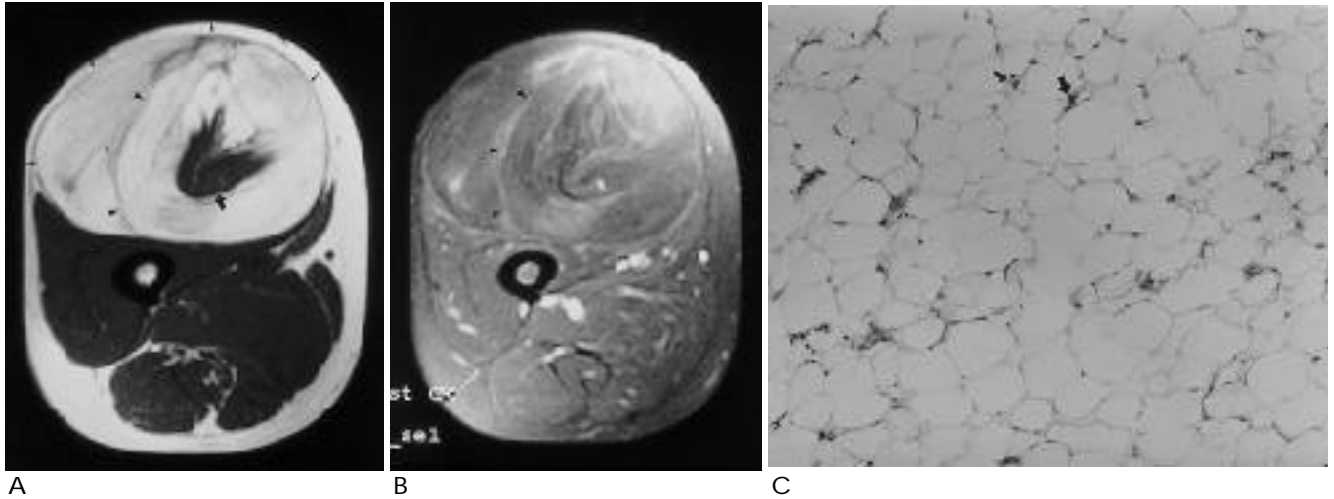


Fig. 1. A 59-year-old woman with well differentiated liposarcoma in the thigh.
A. T1-weighted axial image shows well defined mass (small arrows) in anterior compartment of the thigh with same signal intensity as that of fat. Intratumoral septa (arrowheads) and entrapped rectus femoris muscle (large arrow) are noted.
B. Enhanced fat suppression axial image shows septal enhancement (arrowheads).
C. Photomicrograph (H&E, × 100) shows lipoblasts with deeply staining nuclei (arrows).

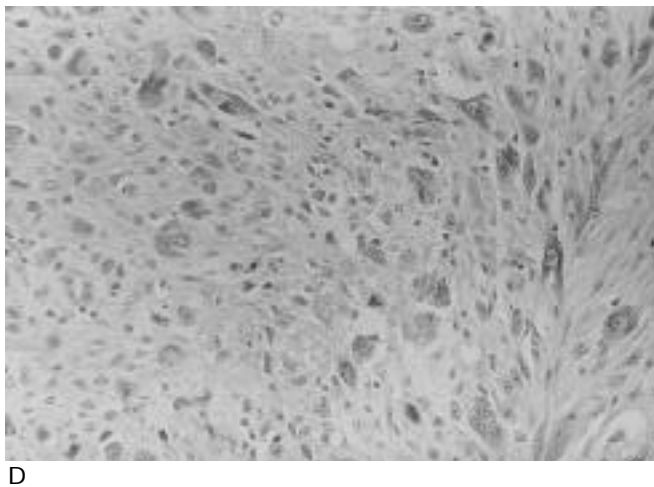
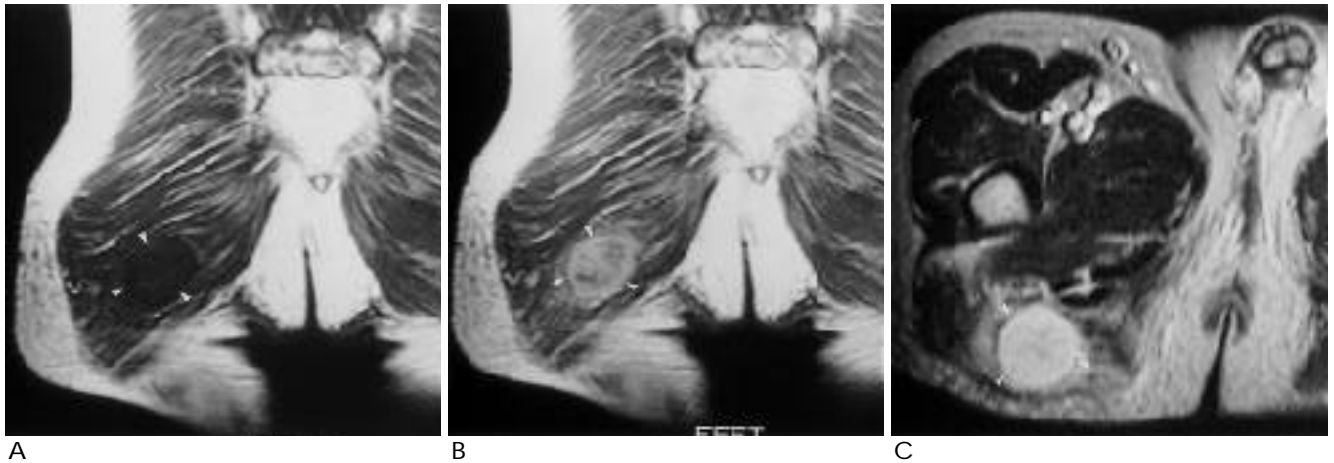


Fig. 2. A 71-year-old man with recurrent mass in the buttock.
A-C. Round mass (arrowheads) in the buttock shows low signal intensity on T1-weighted image (A), heterogeneous enhancement on enhanced image (B), and heterogeneous high signal intensity on T2-weighted image (C).
D. Microphotograph (H&E, × 200) represents dedifferentiated type. Primary mass was well differentiated liposarcoma, sclerosing type.

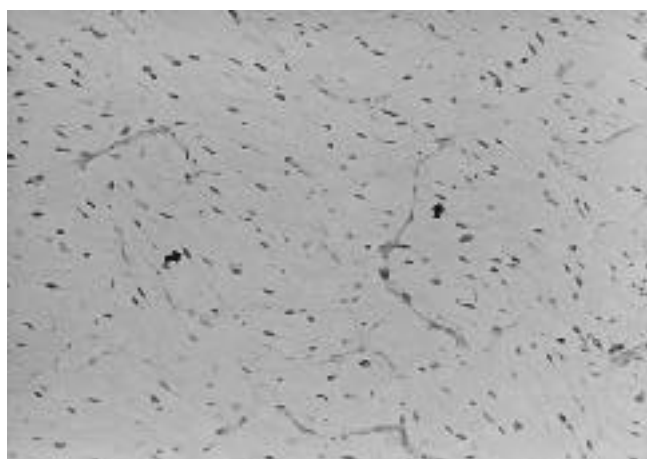
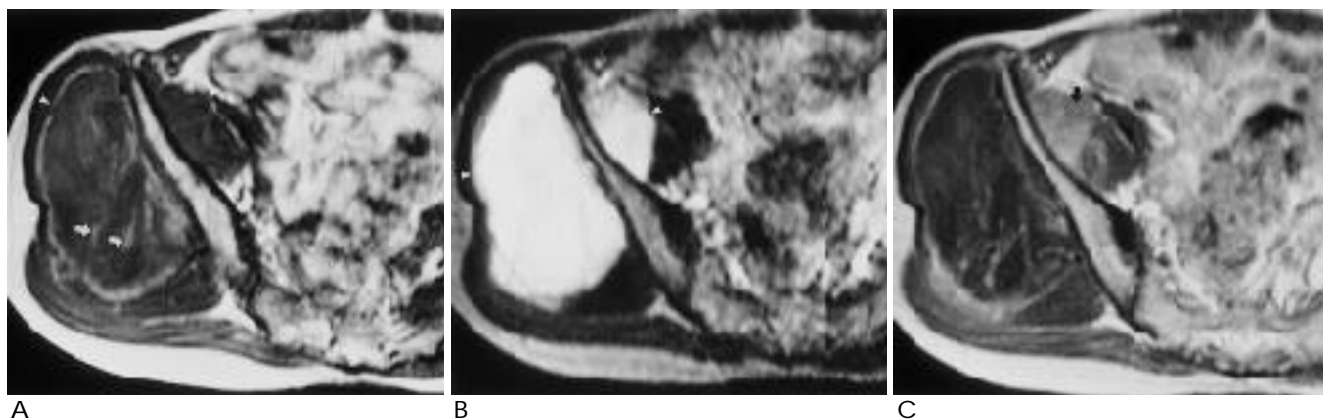


Fig. 3. A 58-year-old woman with myxoid liposarcoma in the buttock.

A. T1-weighted axial image shows isointense masses (arrowheads) to the muscle containing septa (arrows) with high signal intensity.

B. T2-weighted axial image shows homogeneous high signal intensity of the masses (arrowheads).

C. The mass shows heterogeneous enhancement (arrow) after administration of Gd-DTPA.

D. Photomicrograph (H&E, × 100) shows small spindle cells (arrows) in the myxoid background.

D

3000/60-80/2-4) Gd-DTPA (Magnevist, Schering, Germany, 0.1 mmol/Kg) . 9 T1 , 6
 matrix 256 × 256, FOV 15-20mm 5-10mm 2-5mm T2 가 T1
 MR T2 (Fig. 3)
 7 6 가 T1
 T2 T1 T2 (Fig. 4). 1
 가 (Fig. 1). 1 T1 T2
 (dedifferentiated type) 6) 가 가 1 (Fig. 5) 1 (Fig.
 (Fig. 2) (sclerosing type) 7 2 2 MR
 1 가 (ilium)

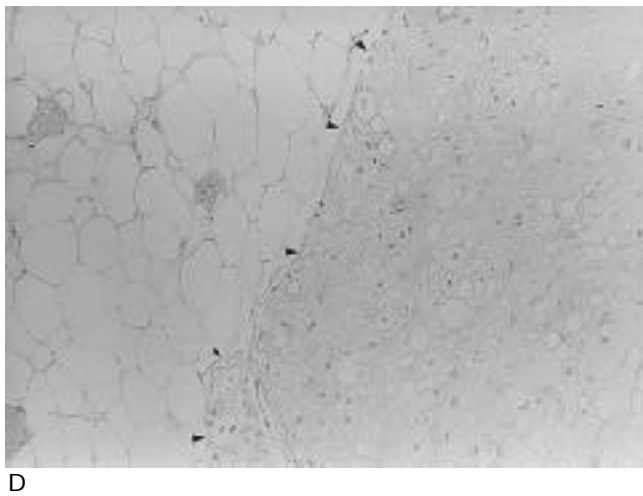
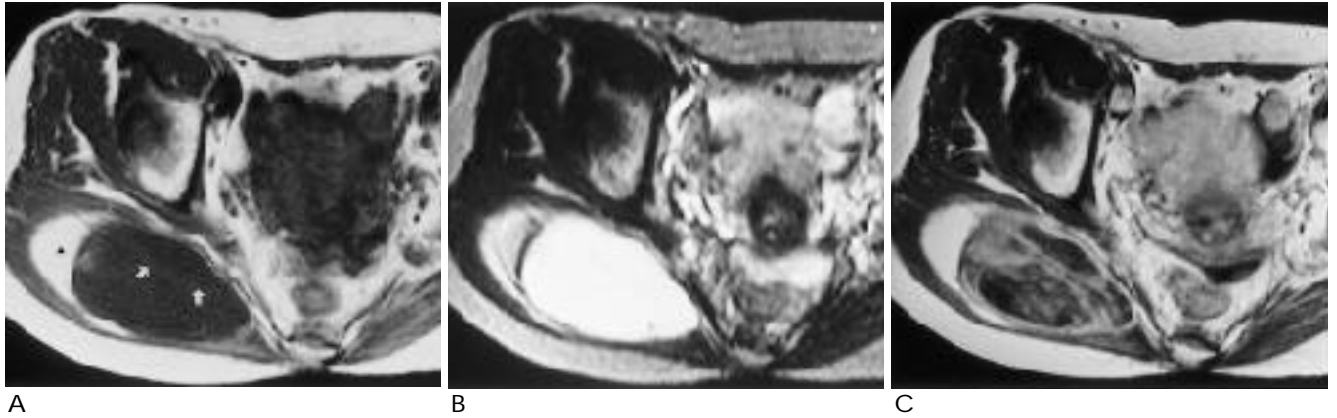


Fig. 4. A 43-year-old woman with mixed liposarcoma in the buttock.

A, B. T1-(A) and T2-weighted (B) axial images show mass with two components; lateral one () with signal intensity equal to the fat, medial one (open arrow) with low signal intensity on T1-weighted image and homogeneous high signal intensity on T2-weighted image. Hyperintense septa in the mass is noted on T1-weighted image (arrows).

C. Enhanced scan shows heterogeneous enhancement of medial one.

D. Microphotograph (H&E, $\times 100$) demonstrates sharply defined border (arrowheads) between well differentiated type (left side) and myxoid type (right side).

가 (de novo primary dedifferentiation) (14, 15). MR 가 3가 (lipoblast), T1 가 T2 (11-13) 9 가 MR (11). (4, 7 5 가 (11, 12). 가 . Sundaram (13) 71% T1 가 Arkun (11) T2 가 (67%) 가 가 가 (pleomorphic sarcoma) (secondary dedifferentiation) 790

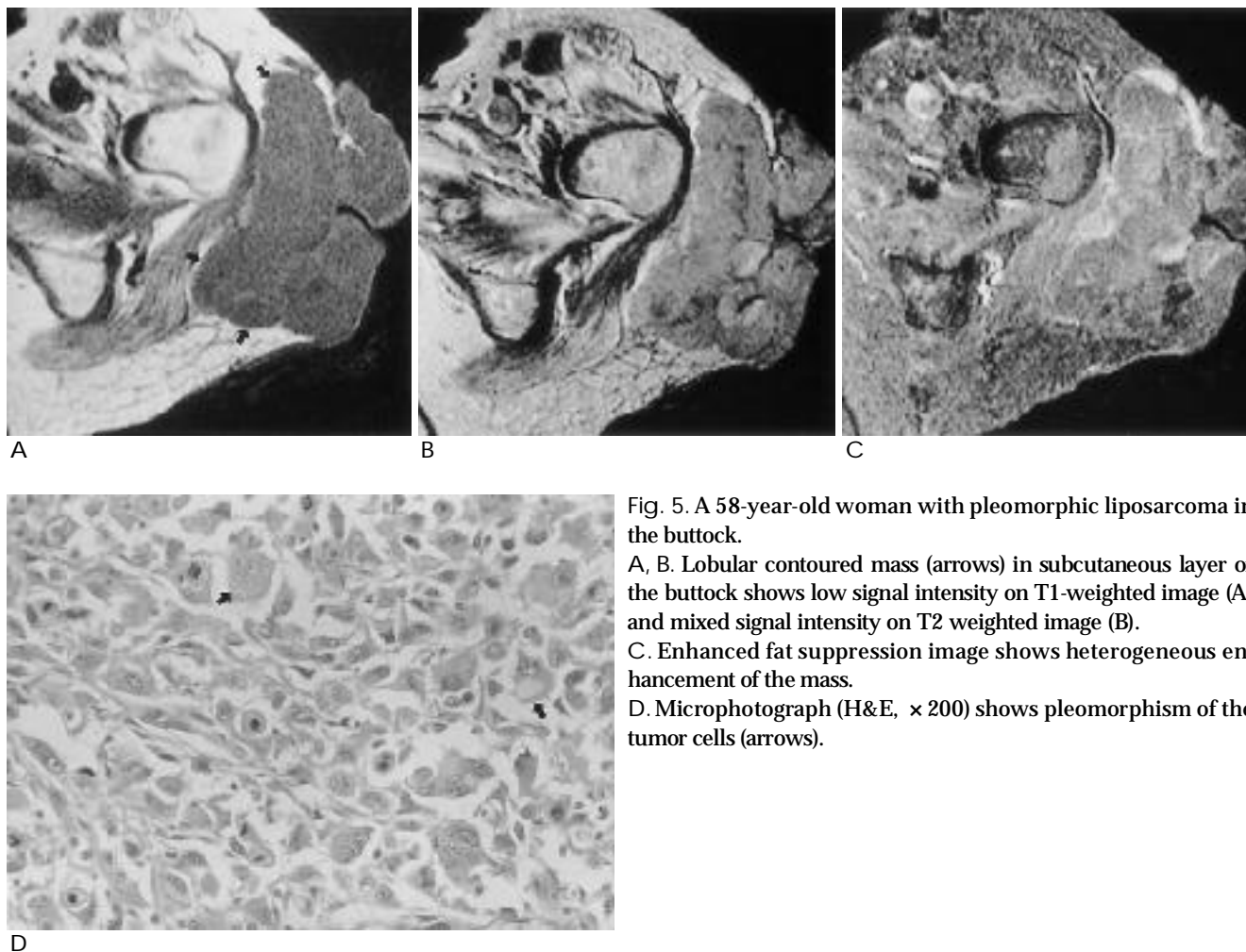


Fig. 5. A 58-year-old woman with pleomorphic liposarcoma in the buttock.

A, B. Lobular contoured mass (arrows) in subcutaneous layer of the buttock shows low signal intensity on T1-weighted image (A) and mixed signal intensity on T2 weighted image (B).

C. Enhanced fat suppression image shows heterogeneous enhancement of the mass.

D. Microphotograph (H&E, ×200) shows pleomorphism of the tumor cells (arrows).

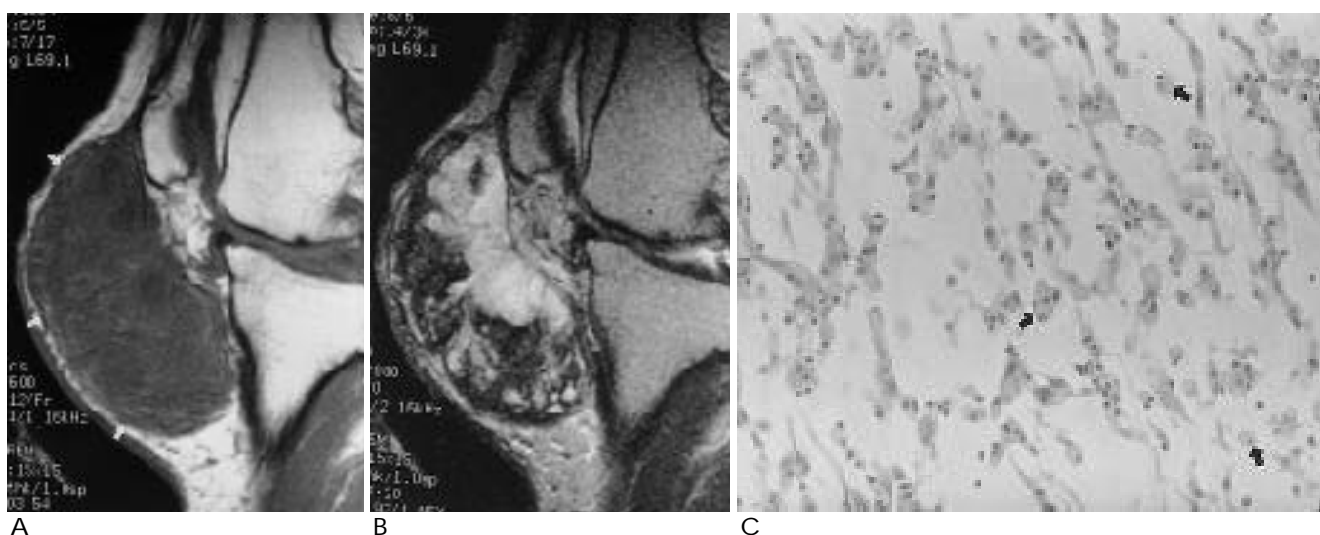


Fig. 6. A 74-year-old woman with round cell liposarcoma in the infrapatellar area.

A. T1-weighted sagittal image shows infrapatellar mass (arrows) with low signal intensity.

B. T2-weighted image shows mixed high and low signal intensity on the mass.

C. Microphotograph (H & E, ×200) shows round shaped tumor cells (arrows).

가
(11-13).
T2
T1
T1
T1
T2
가
가
MR

1. Springfield D. Liposarcoma. *Clin Orthop* 1993;289:50-57
2. Reszel PA, Soule EH, Coventry MB. Liposarcoma of the extremities and limb girdles: a study of 222 cases. *J Bone Joint Surg [Am]* 1966;48:229-244
3. Enzinger FM, Weiss SW. *Soft tissue tumors*. 2nd ed. St Louis: Mosby, 1988:346-382
4. Kransdorf MJ, Moser RP Jr., Meis JM, Meyer CA. Fat-containing soft-tissue masses of the extremities. *RadioGraphics* 1991;11:81-106
5. Evans HL. Liposarcoma: a study of 55 cases with a reassessment of its classification. *Am J Surg pathol* 1979;3:507-523
6. Reitan JB, Kaalhus O, Brennhovd IO, Sager EM, Stenwig AE, Talle

- K. Prognostic factors in liposarcoma. *Cancer* 1985;55:2482-2490
7. Edland RW. Liposarcoma: a retrospective study of fifteen cases, a review of the literature and a discussion of radiosensitivity. *AJR* 1968;103:778-791
8. Berquist TH, Ehman RL, King BF, Hodgman CG, Ilstrup DM. Value of MR imaging in differentiating benign from malignant soft-tissue masses: study of 95 lesions. *AJR* 1990;155:1251-1255
9. Demas BE, Heelan RT, Lane J, Marcove R, Hajdu S, Brennan MF. Soft-tissue sarcomas of the extremities: comparison of MR and CT in determining the extent of disease. *AJR* 1988;150:615-620
10. Kransdorf MJ, Jelinek JS, Moser RP Jr., et al. Soft-tissue masses: diagnosis using MR imaging. *AJR* 1989;153:541-547
11. Arkun R, Memis A, Akalin T, Ustun E, Sabah D, Kandiloglu G. Liposarcoma of soft tissue: MRI findings with pathologic correlation. *Skeletal Radiol* 1997;26:167-172
12. Jelinek JS, Kransdorf MJ, Shmookler BM, Aboulafia AJ, Malawer MM. Liposarcoma of the extremities: MR and CT findings in the histologic subtypes. *Radiology* 1993;186:455-459
13. Sundaram M, Baran G, Merenda G, McDonald DJ. Myxoid liposarcoma: magnetic resonance imaging appearance with clinical and histologic correlation. *Skeletal Radiol* 1990;19:359-362
14. Nascimento AG, Kurtin PJ, Guillou L, Fletcher CDM. Dedifferentiated liposarcoma a report of 9 cases with a peculiar neurallike whorling pattern associated with metaplastic bone formation. *Am J Surg Pathol* 1998;22:945-955
15. Henricks WH, Chu YC, Goldblum JR, Weiss SW. Dedifferentiated liposarcoma a clinicopathological analysis of 155 cases with a proposal for an expanded definition of dedifferentiation. *Am J Surg Pathol* 1997;21:271-281

Liposarcoma : MR Findings in the Histologic Subtypes¹

Jeong Hoon Lee, M.D., Jeong Eun Sohn, M.D., Soo Jeong Chung, M.D.,
Kie Hwan Kim, M.D., Soo Yil Chin, M.D.

Department of Diagnostic Radiology Korea Cancer Center Hospital

Purpose : To evaluate the MR imaging findings of liposarcomas of different histologic subtypes.

Materials and Methods : We evaluated MR images of 21 patients (5 men and 16 women, mean age, 55 years) with liposarcoma and correlated the findings with the results of histopathology. In the study group seven liposarcomas were well-differentiated, seven were myxoid, three were mixed, two were pleomorphic, and one was round cell.

Results : On T1 -and T2 - weighted images, six of seven well-differentiated liposarcomas showed signal intensity equal to the fat and hypointense septa, while the other showed low signal intensity on a T1 - weighted image, heterogeneous high signal intensity on a T2- weighted image, heterogeneous enhancement after the administration of contrast media and was dedifferentiate. Nine masses in seven patients with myxoid liposarcoma showed low signal intensity on T1-weighted images, six of the nine showed lace-like foci of high signal intensity. On T2 -weighted images, all masses showed homogeneous high signal intensity. After administration of contrast media, five of seven masses showed heterogeneous enhancement. Two of three mixed form were well-differentiated and myxoid types, and two subtypes were separable on MR. Pleomorphic, round cell, mixed type myxoid and pleomorphic and unclassified cases showed low signal intensity on T1-weighted images, heterogeneous high signal intensity on T2-weighted and heterogeneous enhancement.

Conclusion : Using MR imaging, well-differentiated and myxoid liposarcomas may be differentiated from other types.

Index words : Liposarcoma

Magnetic resonance(MR), tissue characterization

Soft tissues, MR

Soft tissues, neoplasms

Address reprint requests to : Jeong Hoon Lee, M.D., Department of Diagnostic Radiology Korea Cancer Center Hospital
#215-4 -Dong, -Ku, Seoul, 139-706, Korea.
Tel. 82-2-974-2501 Fax. 82-2-972-3093