

— : MR CT —

가^{3,4)} (endosteum) (periosteal osteosarcoma), (parosteal osteosarcoma), (periosteal Ewing's sarcoma), (lymphoma) . MR 8

가 8

7 3 CT 5 7

(MR) 8 , 6

, 1 , 1

(Table 1). 28 35

, (CT) (15 , 60) 19 9

4 3 ,

26 18 (3 ,

72) 7 6

⁵⁾ MR CT

CT MR (半) 가 (concentric) , (concentric) ,

CT

1991 2002 11 , MR 1996

2003 6 MR 16

28 10

26 12

가 가

Table 1. The Cases of Skeletal Sarcomas Examined with MR in Tubular and CT in Flat Bones

Skeletal sarcomas	Tubular bone with MR	Flat bone with CT	Total
Mesenchymal sarcomas	16	12	28
Osteogenic sarcoma	8	5	13
Chondrosarcoma	8	7	15
Small round cell sarcoma	10	16	26
Ewing's sarcoma	7	8	15
Lymphoma	3	6	9
Rhabdomyosarcoma	0	1	1
Neuroblastoma	0	1	1
Total	26	28	54

Table 2. The MR Findings of Mesenchymal and Small Round Cell Sarcomas in Tubular Bones

Sarcomas \ Findings	Tubular bone destruction		Total
	Eccentric	Concentric	
Mesenchymal	12	4	16
Small round cell	0	10	10
Total	12	14	26

Note. p value for X² test ; p > .01

Table 3. The CT Findings of Mesenchymal and Small Round Cell Sarcomas in Flat Bones

Sarcomas \ Findings	Flat bone destruction		Total
	Eccentric	Concentric	
Mesenchymal	10	2	12
Small round cell	3	13	16
Total	13	15	28

Note. p value for X² test ; p > .01

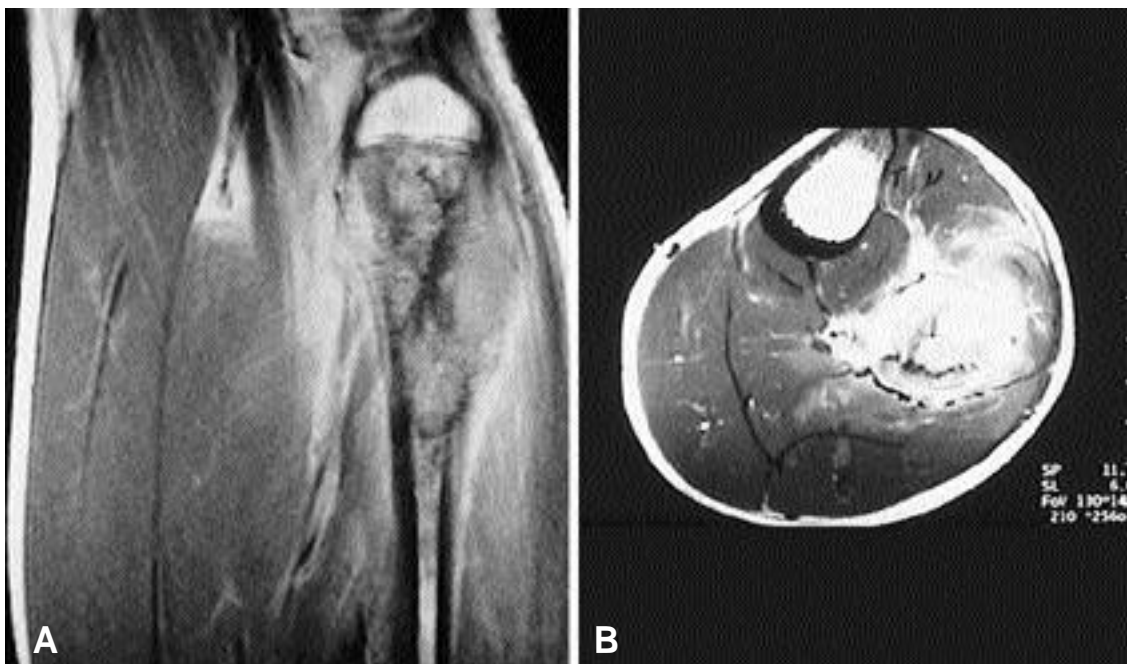


Fig. 1. 13-year-old male patient, Ewing 's sarcoma in the proximal metadiaphysis of the fibula. **A, B.** The longitudinal image of T1-weighted MR scan shows circumferential (concentric) bone destruction and soft tissue mass (**A**). The transverse image of T2-weighted MR scan shows intraosseous and extraskelatal high signal areas considered as sarcoma and linear multiple dot-like dark signals compatible with permeative bone destruction as well as concentric destructive pattern (**B**).

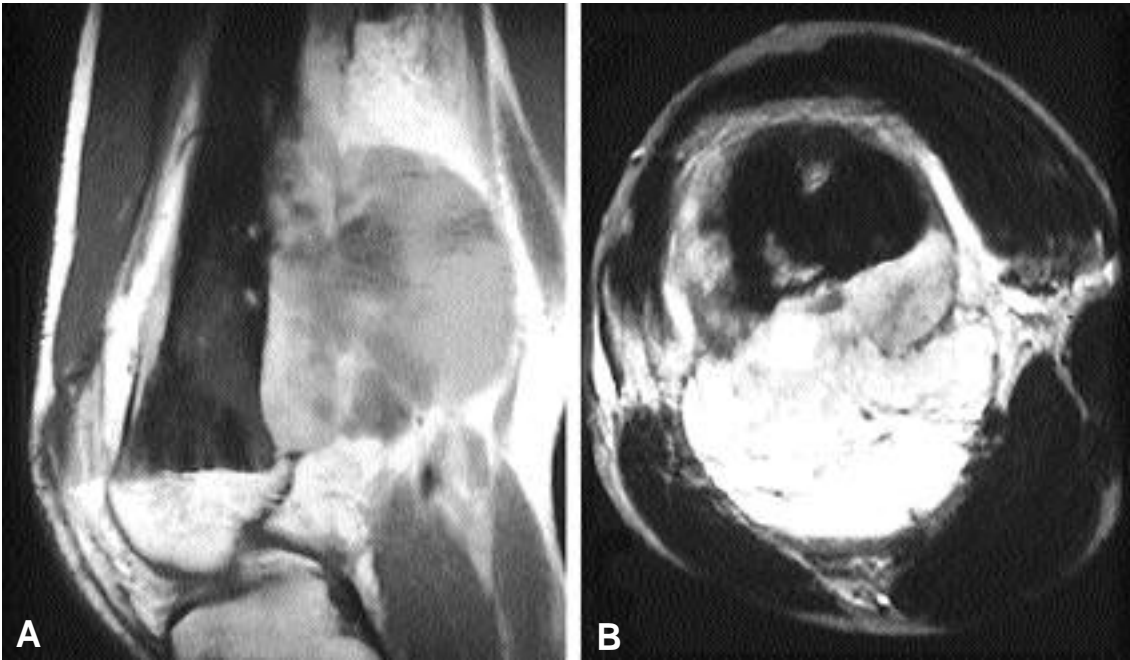


Fig. 2. 16-year-old male patient, conventional osteosarcoma in the distal metadiaphysis of the femur. **A, B.** The sagittal image of T1-weighted MR scan shows eccentric bone destruction and bulky soft tissue mass (**A**). The axial image of T2-weighted MR scan shows posterior eccentric bone destruction and soft tissue mass (**B**)

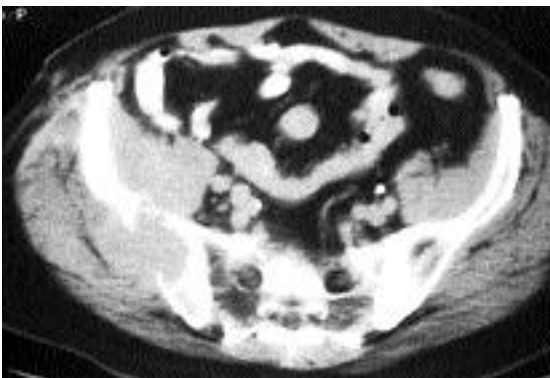


Fig. 3. 53-year-old male patient, mesenchymal lymphoma in the right pelvic iliac bone. The axial CT scan shows bilateral (concentric) bone destruction and soft tissue mass.

10
3 10 , CT 4
가
($p < .01$), (Fig. 3,4), (Table 3).

(mesoderm)

4 10 , MR
가 ($p < .01$), (Fig. 1,2), (Table 2).
CT 12
16

6,7)

1).

(sympa

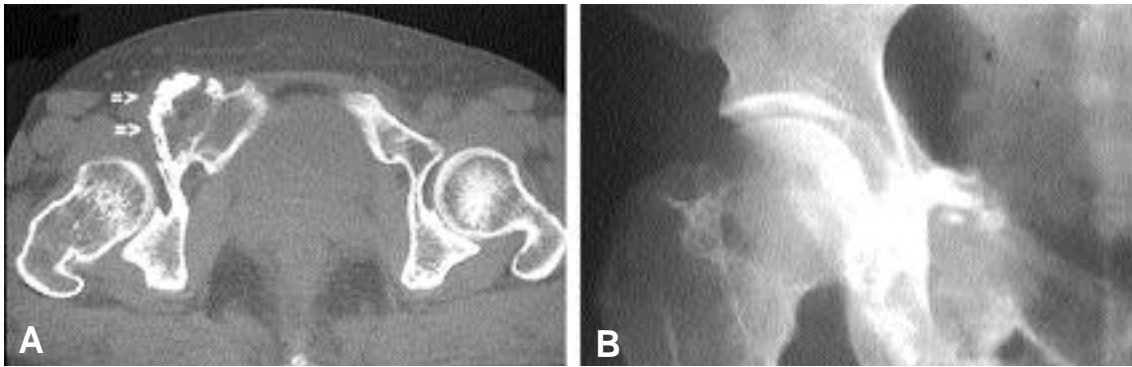


Fig. 4. 40-year-old female patient, conventional chondrosarcoma, peripheral type in the right pubic bone. **A, B.** The axial CT scan of the pubic bones shows eccentric bone destruction with some mineralization (=>) (**A**). The right pubic bone radiograph reveals semicircular calcified excrescence arising from the superior ramus of the pubic bone (**B**).

thetoblast) (neuroblastoma),
 (rhabdomyosarcoma),
 (primitive neuroectodermal tumor),
 (melanotic neuroectodermal tumor),
 (desmoplastic small round cell tumor),
 (ectomesenchymoma),
 (polyphenotypic small round cell tumor)
 7).
 가 (infiltrating osteolysis)
 (mineralization) (expanding osteolysis)
 MR
 (endosteum) 11 8 가 8 6
 가 10 8 가

. Baraga

¹⁰⁾

43

77%, (aggressive) 12%, (laminated) 61%, (spiculated) 35%, 44%, Reinus

¹¹⁾

Zelazny ¹²⁾

가

. MR

, CT

MR CT

가

CT

(central)

(circumferential)

가

MR

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Abstract

Skeletal Sarcomas Examined with MR in Tubular and CT in Flat Bones

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Purpose: Primary malignant bone tumors are classified with mesenchymal sarcomas (MS) such as osteosarcoma and chondrosarcoma and small round cell sarcomas (SRS) such as Ewing 's sarcoma and lymphoma. Radiological examinations for skeletal sarcoma were using MR scan in tubular bone sarcomas and CT scan in flat bone sarcomas recently. Both MR and CT scans show some findings of bone destruction and soft tissue mass but MR scans don't reveal a finding with mineralization relatively. So we investigated bone destructive pattern of skeletal sarcomas on both MR and CT scans for differentiation of MS and SRS.

Materials and Methods: There are 28 MS and 26 SRS examined with MR or CT scans. The findings according to bone destructive pattern were divided to eccentric and concentric in 26 cases of tubular bone sarcomas with MR scan and 28 cases of flat bone sarcomas with CT scan.

Results: MR images revealed eccentric destruction in 12 cases of 16 MS and concentric in all cases of 10 SRS (p>.01). CT images showed eccentric destruction in 10 cases of 12 MS and concentric bone destruction in 13 cases of 16 SRS (p>.01)

Conclusion: The findings divided to eccentric and concentric bone destructive patterns were useful for differential diagnosis of MS from SRS on both MR and CT scans.

Key Words: Skeletal Sarcomas, MR scan, CT scan

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