

## MR 1

. . . . . 2 . 3

: MR . 12 . MR  
 : MR , 가 , X -  
 CT : 6 , 3 , 2 , 1 .  
 4 , 10 T2 가 .  
 , 5 4 X -  
 CT 가 , 2 MR .  
 : MR  
 , MR .

가  
 (involutional change)가  
 (1, 2). Milgram (1)  
 3가 , 가  
 , 가  
 가 ,  
 가 ,  
 .  
 가 .  
 , MR (3-6).  
 12 MR  
 X - CT  
 .  
 MR  
 , X - CT  
 . MR T1  
 , T1 , T2  
 가

1995 1999 12  
 . 6  
 19-56 ( 34 ) . 6  
 (curettage)

6 MR  
 .  
 X - MR , 5  
 CT . MR 1.5T Signa Horizon (General  
 Electrics, Milwaukee, WI, U.S.A.) 1.5T Magnetom  
 (Siemens, Erlangen, Germany) T1 T2  
 T2 , 5  
 T1  
 (frequency - selective fat supression technique)

1 가

2

3

가 , T1 T2 2/3 ' MR 2 ' 2 ' MR 3 ' 2/3

**Table 1.** MR Findings of Intraosseous Lipomas

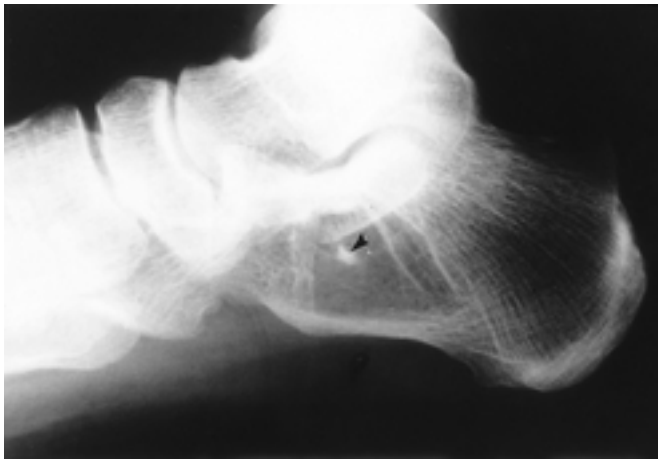
Case	Age/Sex	Location	MR Type	High SI on T2WI*	Cystic portion	Calcification	Gd-E	Diagnostic method
1	56/M	Calcaneus	2	S	-	+	NA	MRI
2	36/M	Calcaneus	3	L	+	+	+	Pathology
3	23/M	Proximal tibia	3	L	+	+	NA	Pathology
4	35/M	Calcaneus	3	L	-	+	NA	Pathology
5	43/F	Lunate	2	N	-	+	NA	Pathology
6	33/F	Calcaneus	2	S	-	+	NA	MRI
7	28/F	Acetabulum	3	L	+	+	-	Pathology
8	19/F	Mid tibia	2	S	-	+	NA	MRI
9	47/F	Iliac Wing	2	S	-	+	+	Pathology
10	26/M	Calcaneus	2	S	-	-	+	MRI
11	30/M	Calcaneus	3	L	+	-	+	MRI
12	33/F	Mid tibia	2	N	-	+	NA	MRI

T2WI : T2-weighted image, Gd-E : gadolinium enhancement

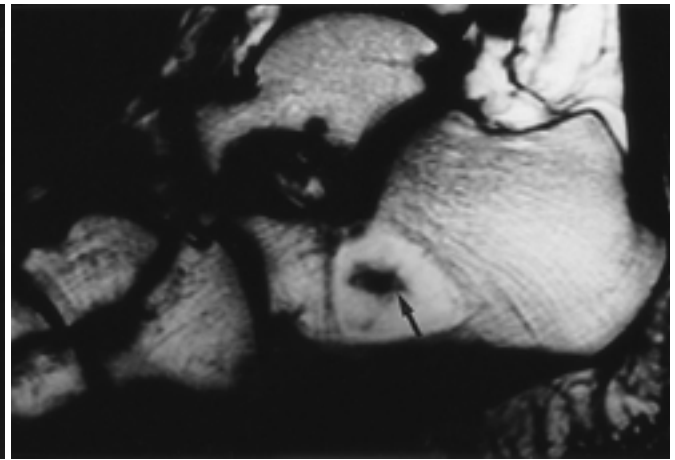
N : none, S : relatively small area, L : relatively large area

+ : present, - : absent, NA : not available

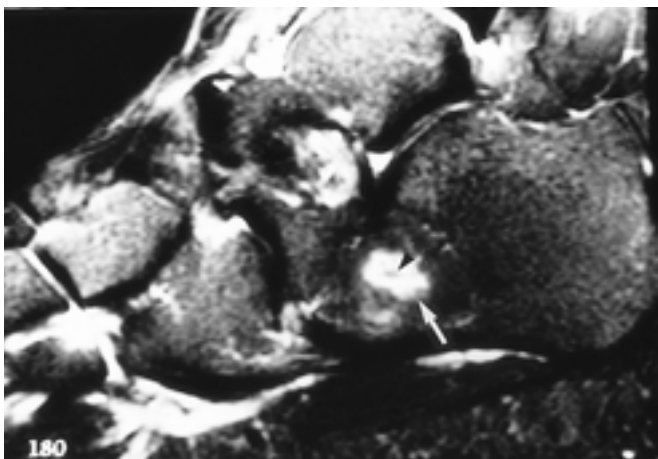
\*area of high signal intensity on T2-weighted or fat-saturated T2-weighted image distinguishing from cystic area



**A**



**B**



**C**

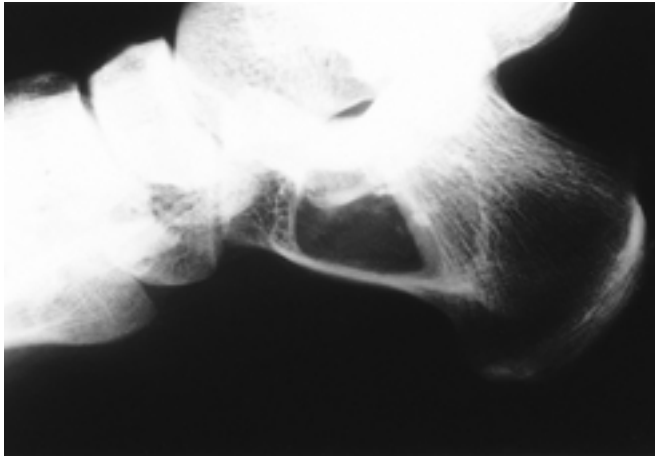
**Fig. 1.** Case 1. Intraosseous lipoma of calcaneus.

**A.** Plain radiograph reveals a well-defined radiolucent lesion with central calcification (arrowhead) in the triangular area of the calcaneus.

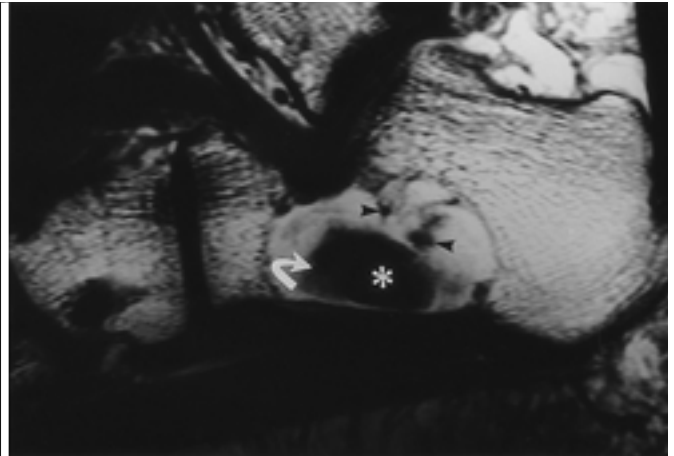
**B.** Sagittal T1-weighted image shows hyperintense peripheral portion and hypointense central portion (arrow).

**C.** Sagittal fat-saturated T2-weighted image reveals decreased signal intensity in the peripheral portion. Central portion (arrow) shows increased signal intensity containing star-shaped decreased signal intensity (arrowhead) representing calcification.

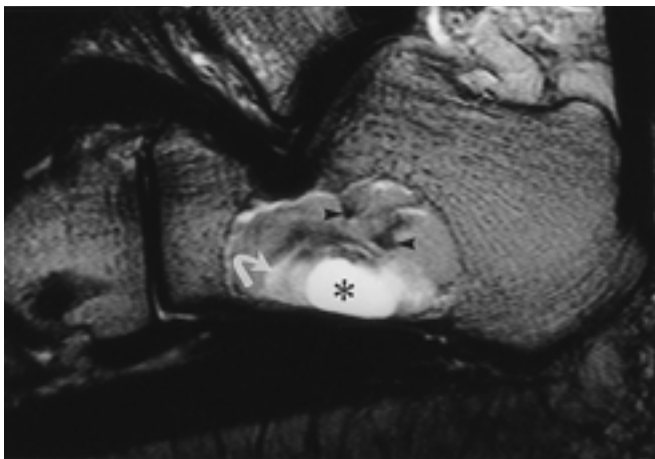
X- CT  
(Fig. 1 - 3), 2  
X- CT . 12 MR  
MR 가 .  
6 가 , 3 , 2  
(Table 1).  
가 MR 1  
. 10 T2  
가 (Fig. 1 -  
3), 5 3 가  
(Fig. 2). 1 0.1%  
. MR 3  
5 4  
1 T2 가 가 , X-  
. 10 T1 T2 ,



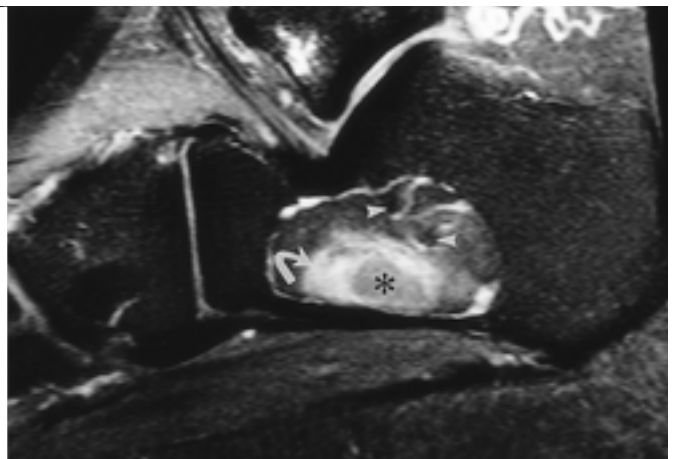
A



B



C



D

**Fig. 2.** Case 2. Intraosseous lipoma of calcaneus.

**A.** Plain radiograph reveals a well-defined quadrangular osteolytic lesion with thin sclerotic margins and mottled calcific shadows in the triangular area of the calcaneus.

**B, C, D.** MR images reveal fat-containing lesion with a well-defined intralesional cyst (asterisk). Pericystic region (curved arrow) shows low signal intensity on T1-weighted image (B), increased signal intensity on T2-weighted image (C), and moderate contrast enhancement on fat-saturated contrast-enhanced T1-weighted image (D), suggesting necrotic or myxomatous degeneration. Calcific deposition (arrowheads) is also seen.



**Fig. 3.** Case 9. Intraosseous lipoma of left ilium.

**A.** Plain radiograph shows a large osteolytic lesion with sclerotic lobulated margins and calcific densities in the medial portion of the left ilium.

**B, C.** T1-weighted MR image (B) and fat-saturated T2-weighted image (C). The mass is composed of predominantly fatty tissue. Calcification (arrow) shows low signal intensity on both images. Fat-saturated T2-weighted image reveals some small focal areas of increased signal intensity (arrowheads) suggesting necrotic or myxomatous degeneration.

(2, 3, 7).  
5 70 30 가 (1, 12).  
(myxoid degeneration)  
, (ilium) , (long . Milgram (1) 66  
tubular bone) (8, 9). , 3가 가  
(solitary bone cyst) 가 가 ,  
(3, 10, 11). 가 , . Chow (12) 9  
가 , Milgram  
, Boylan (7)  
(transitional neoplasm)  
X- 가  
(intertrochanteric area)  
(1). 가 (8). CT  
가 ,

가

(6, 13 - 15). Ramos (16) CT (1). T1 T2

T1 T2

가 MR X- CT , MR

MR 가 가 X- CT 가 , 2 MR

가 MR 1

T1 , T2

(12, 20).

(17 - 19). 10 가

T1 , T2

(1, 2, 14).

T1 T1

T2 가 T1

MR Blacksin

(5) 4 MR

MR

Milgram(1) 61 가

11 가 9

가

Milgram 61 5 MR

(long tubu - 6 MR 6

lar bone)

12 6 가

3 가 MR 1 가 , MR

가 MR 2 가

Milgram MR

가 (true cyst)

Milgram (1) 61 20

MR 3 5

Milgram

Milgram

4

1. Milgram JW. Intraosseous lipomas: a clinicopathologic study of 66 cases. *Clin Orthop* 1988;231:277-302
2. Milgram JW. Intraosseous lipomas: radiologic and pathologic manifestations. *Radiology* 1988;167:155-160
3. Richardson AA, Erdmann BB, Beier-Hanratty S, et al. Magnetic resonance imagery of a calcaneal lipoma. *J Am Podiatr Med Assoc* 1995;85:493-496
4. Levin MF, Vellet AD, Munk PL, McLean CA. Intraosseous lipoma

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