

MR : 2 1

(osteoporosis)

(insufficiency fracture)

가

2

가 . 2 . MRI T1, T2

T1 , T2

X -

(Fig. 1A),

가

가

가

. MRI

가

(1).

T1

, T2

H -

가
CT

가 T1, T2

(Fig. 1B, C).

MRI
가

(2).

MRI

1

(Fig. 1D).

가 MRI

2

2

63

가

10

1

66

가

2 - 4 ,

T - 2.4 SD, - 2.0 SD

(Patrick sign)가

(Fig. 2A). MRI

가가

가

6

가

가

X -

가

(Fig. 2B, C).

2

4

T - 1.8 SD

1

2000 5 24

2000 9 27

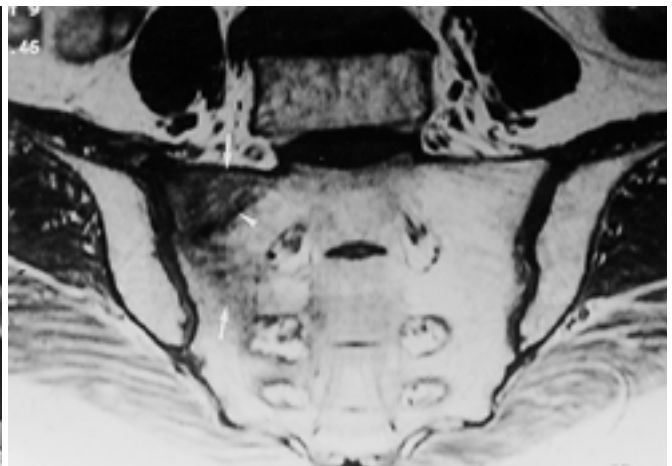
가 가

tance) (elastic resis -
stress)가 가 (physiologic
caneus), (tibia), (fibula), (thoracic vertebra)
1982 Lourie
(3)가
(2).
(fibrous dysplasia), (Paget
disease), (osteogenesis imperfecta),
(osteopetrosis),

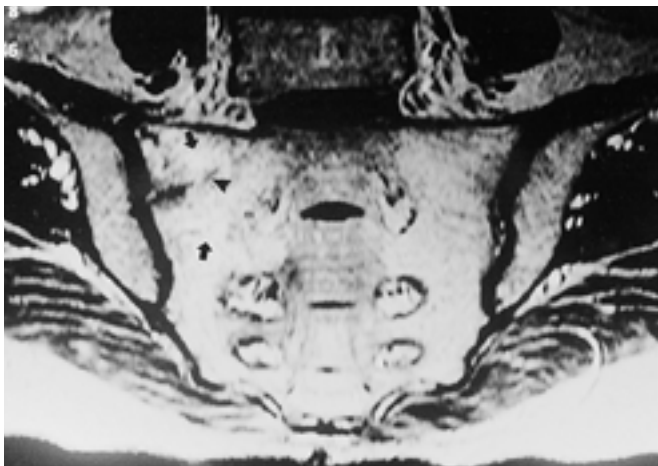
(2). 1
(4)
(5). X -
, (bowel)
가
H -
가
(pathognomonic) (2, 4, 5).
(sacroiliitis) (8).
MRI
가



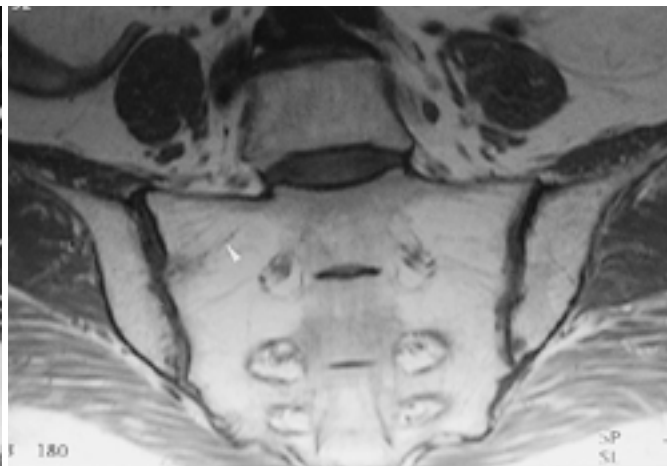
A



B



C



D

Fig. 1. 66-year-old woman with osteoporosis

A. Pelvic radiograph shows no obvious fracture.

B. Coronal T1-weighted MR image shows oblique linear low signal intensity (arrowhead) and ill-defined area of decreased marrow signal intensity in the right sacrum(arrows).

C. Coronal T2-weighted MR image shows linear low signal intensity (arrowhead), with surrounding increased marrow signal intensity in right sacrum(arrows).

D. T1-weighted image obtained after 1 year shows near complete clearing of marrow signal intensity change, with residual faint linear low signal intensity (arrowhead) in the right sacrum.



A



B



C

Fig. 2. 63-year-old man with osteoporosis and total hip replacement 10 years ago

A. Bone scan shows right sacral uptake.

B. Coronal T1-weighted MR image shows diffuse decreased marrow signal intensity in right sacrum.

C. Coronal T2-weighted MR image shows linear low signal intensity (arrowhead), with surrounding increased marrow signal intensity in the right sacrum (arrow).

CT MRI
가 . CT
가
가 (2). MRI
가 T2
,
가
(1, 2). MRI
,
가
CT 가 MR

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MR Findings of Sacral Insufficiency Fractures in Osteoporotic Patients: Two Cases Report¹

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Osteoporosis is one of the major causes of insufficiency fractures, and since plain radiographic findings are either unhelpful or misleading, insufficiency fracture in the sacrum is particularly difficult to diagnosis and to differentiate from other disease processes such as metastasis. We report the MR findings of two cases of insufficiency fracture of the sacrum. These were not demonstrable on conventional radiographs, but bone scintigraphy revealed unilateral sacral alar uptake, suggesting an active sacral lesion. Both T1 and T2-weighted MR images demonstrated fractures of the sacrum as bands of low signal intensity, with areas of surrounding increased signal intensity seen on the latter suggesting marrow edema.

Index words : Fractures, MR
Fractures, stress
Sacrum, fractures
Osteoporosis

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