

(3)

Multiple Spine Fractures of Young Adult (Over 3 Vertebrae)

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– Abstract –

Study Design: A retrospective study.

Objectives: To analyze the mode of injury, associated lesions, time of injury, and the checking times of MRI/CT and Bone scans in multiple spine fractures

Summary of Literature Review: CT was predominantly used to discover and identify the fracture levels of the spine. However, fracture level identification in the entire spine was limited. CT, MRI and Bone scans were used for diagnosing multiple spine fractures.

Materials and Methods: Between 1999 and 2004, 12 patients who had more than level 3 spine fractures were studied. The mode of injury, associated lesions, time of injury, and checking times of MRI/CT and Bone scans were analyzed.

Results: The causes of the spinal injuries were from a fall from height, from traffic accidents and from multi-complex forced trauma in 7, 4 and 1 cases, respectively. Most cases had no severe associated lesions. The accuracy of the plain roentgenograms was 26% and that of CT was 35.3%, and the average checking time was 1.5 days. The accuracy of MRI was 100% and the average checking time was 4.3 days. The accuracy of the bone scans was 100%, and the average checking time was 11.7 days. The fracture patterns consisted of 37, 7, 3 and 3 non-compression (74%), compression (14%), burst (6%) and fracture-dislocation types (6%), respectively. The major treatment methods used with these patients were conservative. The treatment methods in 4 cases were with the use posterior instrumentation.

Conclusions: MRI produced more accurate and faster results than the other methods of detection. The accuracy of the plain roentgenograms was 26%, which was relatively inaccurate. Therefore, if the patient complains of multiple back pains, the surgeon must check other diagnostic tools.

Key Words: Multiple spine fracture, Bone scan, CT, MRI

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가 5

3

가 1.6% 23.8%

2

¹⁾. 3

Jorgensen Joseph²⁾

4

Acaroglu Alanay³⁾ 2001 4

1

1999 1 2004 6

가 150 3

1 가 가 12

가, 8 , 4

Dai Jia⁴⁾ 17 59 40.3

60

가 12

^{1,5)}

, CT, MRI,

가 , 가

²⁾

, CT, MRI, .5 3

CT 가 ,

MRI

Table 1. Summary of cases

Age	Cause of injury	Date of Dx	Method of Dx	Lesion site	OP
45/M	High energy	HD # 4	MRI	C6,7, T5,6,7,10,11	-
45/M	Fall from 4m height	HD # 3	MRI	T12, L2, L4	-
43/F	Fall from 4m height	HD # 6	CT	L1,L2, L4	-
22/F	T.A.	HD # 10	Bone scan	C1,6, L2	-
19/F	T.A.	HD # 7	Bone scan	T4,T6,T7,T9,T11,T12,L1	-
17/F	Fall from 3th floor	HD # 2	CT	L1,L2,L3	+
44/M	Fall from 2m height	HD # 3	MRI	T5,6,9,11,12, L1,3	+
45/M	T.A.	HD # 1	MRI	T8,10, L2,4,5	-
34/M	Fall from 2m height	HD # 2	CT	L1,L3,L4.	+
30/M	Fall from 3m height	HD # 1	X-ray	T12,L1,L2	-
59/M	T.A.	HD # 29	Bone scan	T11, L2,L3	+
37/M	Fall from 3m height	HD # 1	X-ray	L1,L2 ,L3	-

M, Male; F, Female; T.A., Traffic accident; HD, Hospital Day.

44 44 ,
100% .

1. 4.
12 12
7 , 4 , 7
1 1 , 8
2~3 (Table 1). 3 . 4.1 .

2. 5.
12 , CT,
9 MRI, Bone scan 가 가 50
6 , 37 (74%) .
(14%)
가
3 (6%) .

3. - , -
가
3 (6%)가 50
13 (26%)
37 (74%)
가 .
MRI T2
74%
14%,
6% .

1) 가 12 2 (16.7%)
10
50 13 ,
26% .

2) CT 6.
CT 1.5
, 12 8
(67%). CT
34 12 , CT 35.3% .
12 4 , 3
1

3) MRI 8
MRI 4.3 (Fig. 1). 4 1
12 8 . MRI 3 , 2
38 38 , 1 3
100% . 5, 6, 9, 11, 12 ,
1, 3 7
1 T11 L3
(Fig. 2).
11.7 . 12 10
1, 3, 4



Fig. 1. T1 weighted sagittal MRI showing that spine of 15 year-old woman is non-contiguous 7 level fractures by traffic accidents.

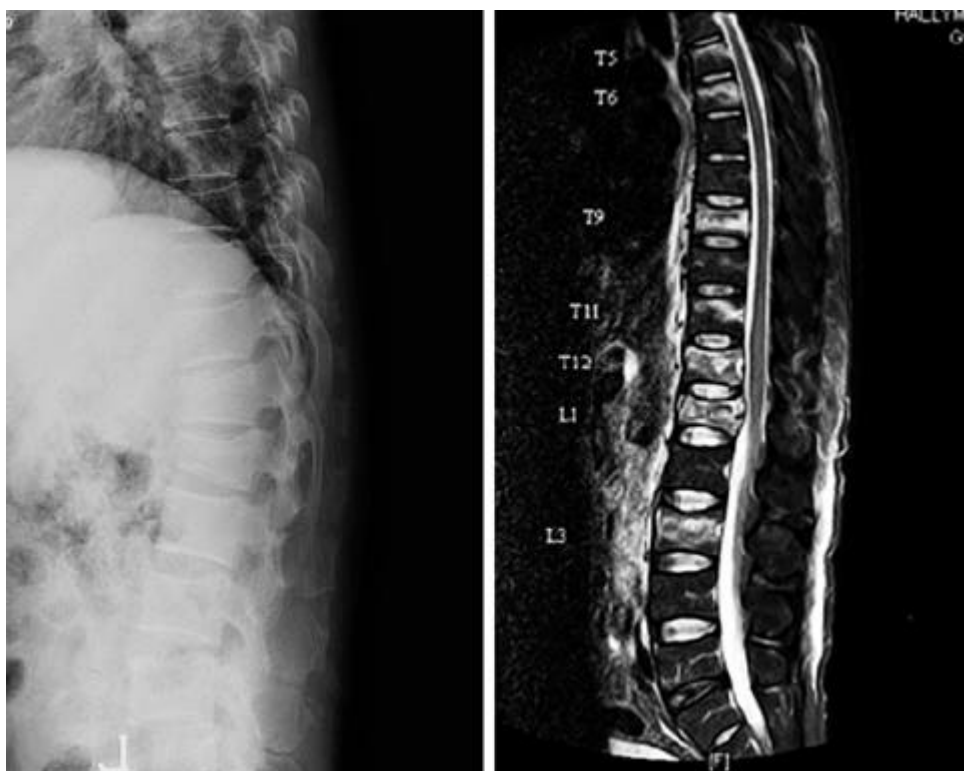


Fig. 2. 44 year-old man with non-contiguous 7 level fractures by fall from height.

2, 4, 3, 가 .

11, 2, 3, 1, 3, 4, 가, ^{2,4,8)} Korres ¹²⁾ 가 가

7. 가 . Henderson ¹¹⁾ 가 가

가 3 5, 7, 4, 가 1

G, A, 2~3

가

가 3

Kosven⁶⁾ Griffith ⁷⁾ 가

2, 3, 가 Alanay³⁾ 4, ⁴⁾ , Acaroglu

^{7,8)} 3, 가

⁸⁻¹¹⁾ Jorgensen Joseph²⁾ 4 12 9 가 6

가 Acaroglu Alanay³⁾ 2001 4 6 가

, Powell

⁵⁾ .5 가 가 ¹³⁾ 가

가 3 150 12, 5, 14, 15) 가 ¹⁴⁾ , 3 5 5

- ¹⁶⁾ Wittenberg ¹⁷⁾ 23.1% -
- 가 , 가
- CT MRI가 ^{4,5)} CT MRI CT
- 가 , 3 12
- 가
- ^{1,5,12)} CT 1.5 , MRI MRI 가
- 4.3 , 11.7
- MRI 26%
- , CT, MRI 가 37 (74%) 가
- 가
- 44.4%
- ¹²⁾ Jorgensen Joseph²⁾ (4)
- , Henderson ¹¹⁾
- 가
- ⁴⁾ Dai Jia⁴⁾ 43
- 23
- . Korres ¹²⁾ 81 15
- ⁴⁾ Jorgensen Joseph²⁾ 가
- ^{1,5)} 가
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: 3
 :
 : 1999 2004 , 150 1 가 가 3
 12 . 12 ,
 , CT, MRI,
 가
 : 7 , 4 , 1 ,
 26% . CT 1.5 12 8 ,
 35.3% . MRI 4.3 12 8 , MRI 100% .
 11.7 12 10 , 100% .
 74% , 14%, 6%, - 6%
 4
 : 3 12 ,
 , MRI 가
 26%
 : , , ,

:

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