

50

12.9 (12~30)

MRI

2.

가 가

가

4 mm

11-

gauge Jamshidi needle (Manan Medical, Northbrook, III)

1/3

needle

가

가

(barium)

가

8).

1

1987

12

Galibert 9)

1

가 가

1.9).

3. 가

가 ,

가 VAS

(visual analogue scale, 0~100 mm) VS (verbal scale, McGill-Melzack scoring system, 0=no pain, 1=mild pain, 2=troublesome pain, 3=severe pain, 4=very severe pain, 5=excruciating pain)¹⁵⁾

1.

(3, 90, 180, 360)

2000 3 2002 2

가 가 () , , 2 , 4 , 6 ,

12

136 , 12 가 가 108
 . 108 (12 , 96 ;
 42~84 , 67.4) 119 156

SAS
 6.12 version Mixed model , p 0.05

가

-3.19 (-0.19 ~ -5.47)

(-3.35)

(-3.21)

가 49.1% 가

가 35.2%

8.4%,

6.5%,

0.8%

23

(1

150)

2

가

가 76 (48.7%),

가 80 (51.2%)

(11

Table 1. Changes over time in both visual analog scale (VAS) and verbal scale (VS, McGill-Melzack scoring system)

	Days 0	Days 3	Days 90	Days 180	Days 360
VAS	83.75 (± 0.85)	18.37 (± 0.86) [*]	29.55 (± 0.84) [*]	20.17 (± 0.75) [*]	13.29 (± 0.72) [*]
VS	4.06 (± 0.06)	1.21 (± 0.06) [*]	1.93 (± 0.05) [*]	1.26 (± 0.06) [*]	0.59 (± 0.06) [*]

Mean (\pm standard error), ^{*}p<0.01 (pairwise comparisons from baseline)

2)가 104 (66.7%) 가
가 142 ,
가 14 .
7.8 cc (3.6~11.8) .
VAS 83.75 3
18.37 , VS (McGill-Melzack scoring system)¹⁵⁾
4.06
3 1.21 VAS VS
가 3 . 90 ,
180 , 360
(Table 1).
12 8 26

-3.57 (-2.13 ~ -4.25) (Fig. 1).
57 (36.5%) 가
(29), (20
) , (7), (2), (2)
(3 2)
. 3 (, ,)

3 가
가 가 ,
(Table 2).
1987 Galibert ⁹⁾
,
,
,
,
,
1,6,10,12,14,19)
,
가
,
가
,
MRI 27

Table 2. Changes over time in vertebral body height (mm). The height was checked at three portions of the vertebral body (anterior, middle, posterior)

	Preop.	Postop.	Last f/u
VHA [†]	20.35 (± 0.47)	22.86 (± 0.40) [*]	20.85 (± 0.54) [*]
VHM [‡]	17.62 (± 0.43)	20.54 (± 0.39) [*]	18.85 (± 0.53) [*]
VHP [§]	23.45 (± 0.43)	26.08 (± 0.41) [*]	24.75 (± 0.52) [*]

Mean (\pm standard error)

^{*}p<0.01 (pairwise comparisons from baseline)

[†]VHA: anterior vertebral body height

[‡]VHM: middle vertebral body height

[§]VHP: posterior vertebral body height

13.3%
가
2 가
가
90% 24
가 3,10,18) Barr ²⁾
95% , Jensen ¹²⁾
24 90% 가
가
Cotten ⁵⁾, Weil ¹⁸⁾
Cotten ⁶⁾
가 , Tohmeh ¹⁷⁾

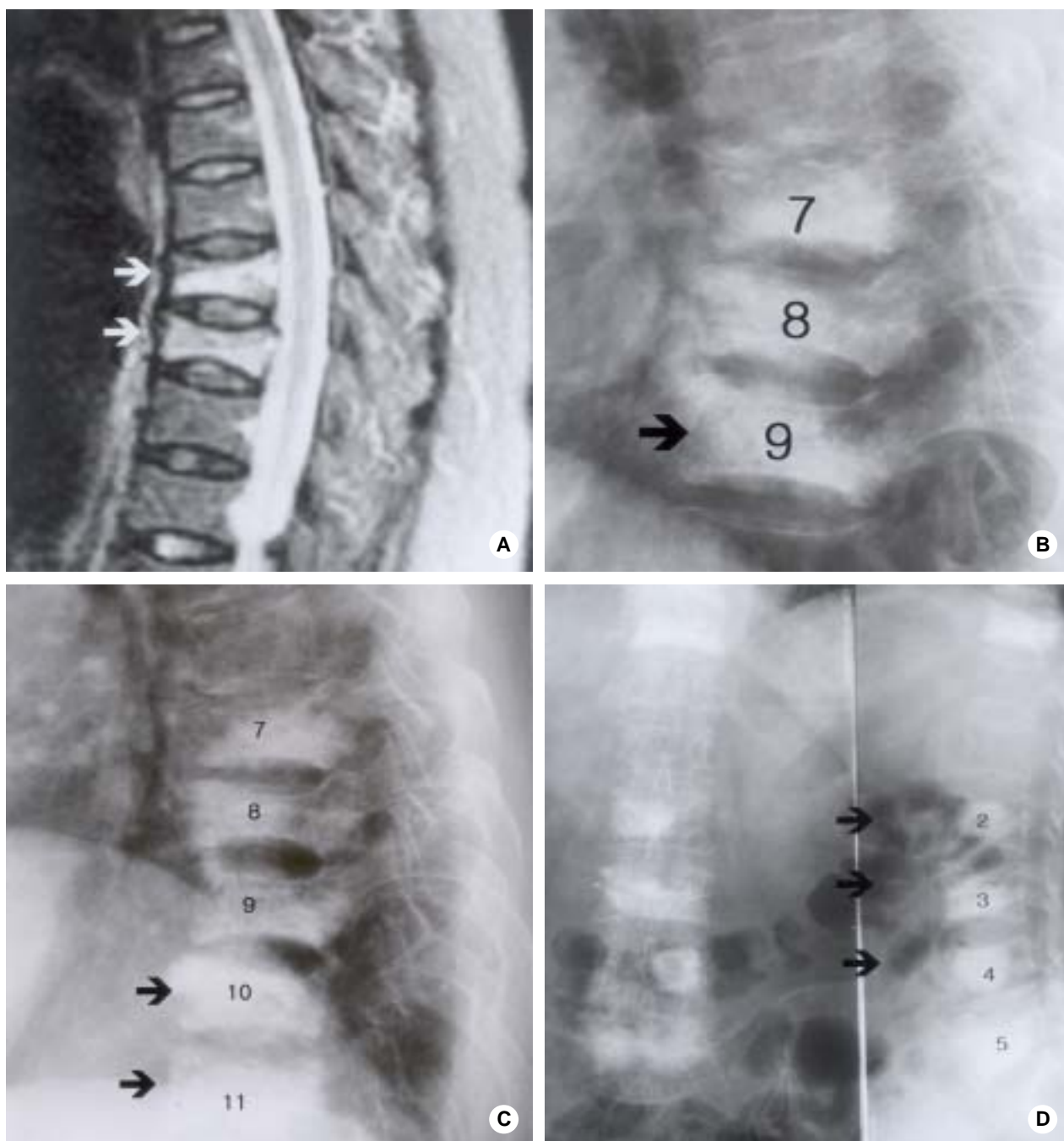


Fig. 1A-D. 63 years old female patient who received vertebroplasty in four times during three months. Her preoperative T-score (L1-4) was -4.00

(A) Preoperative T-spine MRI showing recent compression fracture at T7 and T8

(B) Additional fracture at T9 three days after the initial vertebroplasty.

(C) New fractures at T10, T11 and L5 two months later the second vertebroplasty

(D) Another compression fracture at L3 after five days from the third vertebroplasty
The L2 and L4 are included for prevention

(unipedicular)

(bipedicular)

0~10%

9,10,18)

가

PMMA 가 , PMMA , (azygos vein , ,), monomer , 3 TLSO , , 8,12) Mathis 17)) 2~3% , Padovani 16) 1 36.5% . , Jensen¹²⁾ , PMMA PMMA 가 7) PMMA bone mineral cement, hydroxyapatite/tricalcium phosphate, coral bone 4,6) (biodegradable) calcium phosphate , 가 MRI 가 T1 , T2 fat suppressed T2 image Short T1 Inversion Recovery (STIR) 가 Gardos ¹¹⁾ 12 8 26 .

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