

좌골신경통에서 진단 및 치료를 위한 요추 신경근 주사의 효과*

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= Abstract =

The Effect of Percutaneous Injection of Lumbar Nerve Roots in Diagnosis and Treatment of Sciatica

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Clinical evaluation and imaging studies such as magnetic resonance imaging, computed tomography, and/or myelography can localize the pathologic process in most patients with lumbar radiculopathy. However, these studies occasionally fail to demonstrate exactly the cause and site for ongoing radicular symptom. So we evaluated 54 patients for the efficacy of selective nerve root blocks to identify a symptomatic nerve. The lumbar nerve root injections were performed at L3 root in 1 patients, at L4 root in 4 patients, at L5 root in 46 patients, and at S1 root in 3 patients. Among them, forty two patients were done before operation (HNP 32, stenosis 5, spondylo - listhesis 5), 9 patients were done after operation due to poor results (root injury 2, infection 2, adhesion 1, incorrect diagnosis 4), and 3 patients had improved radiculopathies following nerve root injection (HNP 2, stenosis 1). The results of the nerve root injections and of the operations were not affected by age and sex. There was a good correlation between the response of the nerve root injection and the result of the operation ($p < 0.05$). The concentration of bupivacaine 0.5% has no additional effect comparing to 0.25% (70%/73.5%) solution in spite of its adverse effect causing transient motor weakness. Additional use of depomedrol (50mg) proved to be no more beneficial. Three patients had improved symptoms for a long period after nerve root injection which consequently made operation unnecessary. Five patients with previous history of operations had moderate pain relief. In summary, lumbar nerve root injection can be used as a functional diagnostic tool to predict operative result and as a treatment modality following failure of a previous surgery.

KEY WORDS : Radiculopathy · Radiculography · HNP · Diagnosis · Nerve injection.

서 론

가 . CT MRI 가

CT, MRI

가 가 .

가 .

*

가 . 가 4 , 5 가 46 , 1
가 3 5
가 85.2% 가 . 가
29 , 가 21 ,
가 4 . 42
54
가 29 가 5
가 2 ,
가 6 .
54 가 20gauge (spinal
66 needle) (Fig. 1).
12 0.2ml
가
1
pucaine 1ml
depomedrol 50mg pucaine
1ml . Pucaine 0.5%

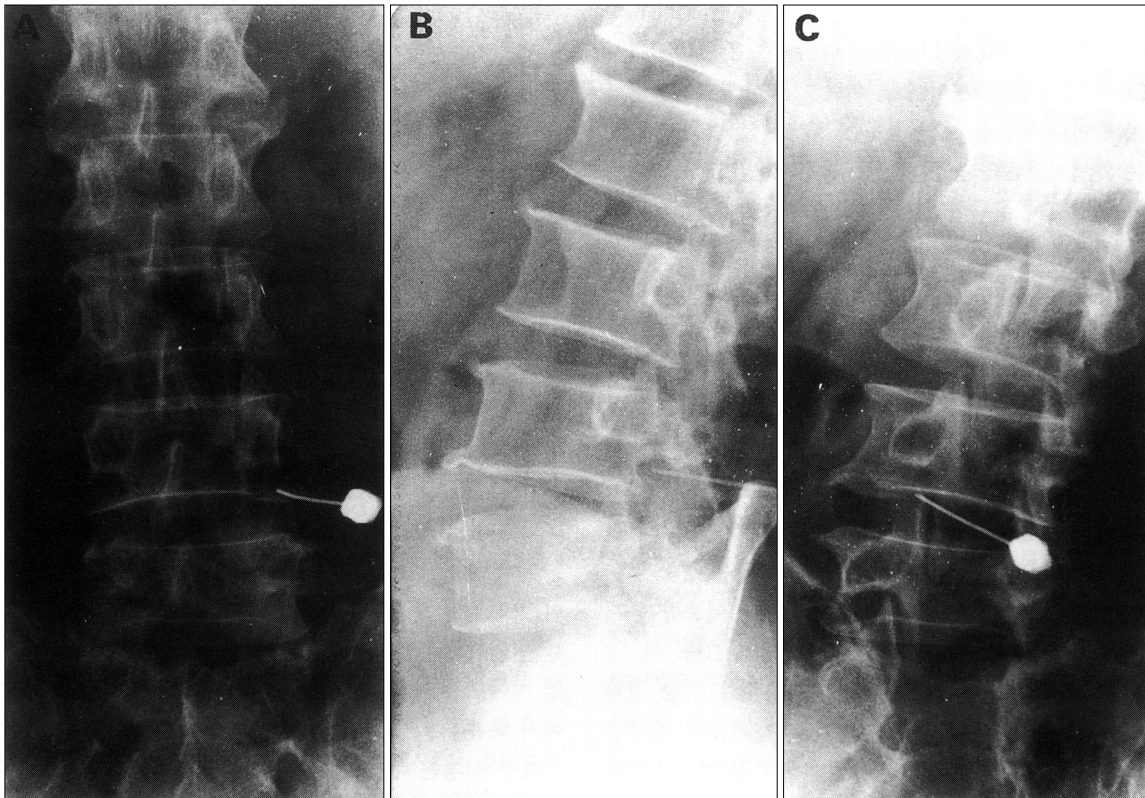


Fig. 1. Plain AP(A), lateral(B), and oblique(C) film demonstrating correct position of the needle at the lower margin of L4 pedicle for the nerve root infiltration.

solution 20
가 34 0.25% solution
가
excellent, 50%
가
good
fair,
poor 가
1
excellent,
good,
fair,
poor

결 과

0.5% pucaine 20 14 (70%)
0.25% pucaine 34 25 (73.5%)
가 0.5%
pucaine 14
depomedrol 37
17 12 (70.)
5%) 가 27 (73%)
가
26 ,
28 20 (76.9%)
가 19 (67.8%)
가
42

가 (Table 1).

가

2

가
(Table 2).

가
Chi - square
($p < 0.05$)(Table 3).

1

18

1 2

가 7

, 1

가

가 11

Table 1. Comparison of results between nerve root injection and operation according to age and sex

		E+E*	E+P	P+E	P+P	Total
Sex	Male	16	2	4	4	26
	Female	12		4		16
Age	10	2				2
	20	7	2			9
	30	7		3	1	11
	40	4		1	1	6
	50	5		2	2	9
	60	3		2		5
Total		28	2	8	4	

* : injection result + operation result (P=poor, E=excellent)

Table 2. Comparison of results between nerve root injection and operation according to diagnosis and type of operation

Diagnosis	Operation name	Injection result + operation result			
		E+E	E+P	P+E	P+P
HNP	Endoscopy		2		
	Discectomy	22		6	2
Stenosis & spondylolisthesis	Laminectomy	3			2
	PLIF	3		2	
Total		28	2	8	4

E=excellent, P=poor, PLIF=posterior lumbar interbody fusion

Table 3. Comparison of results between nerve root injection therapy and operation

Root injection	Poor response	Fair response	Good response	Excellent response	Total
Poor response	3			1	4
Fair response	1			1	2
Good response	2		3	2	7
Excellent response	5	1	2	21	29
Total	11	1	5	25	42

가

가

9

(Table 4).

4

가

3

가

가 1

1

4

3

가

1

7

0.5% bu -

pivacaine

20

14

Table 4. Summary of patients who underwent nerve root injection therapy due to poor operative results

Sex / Age	Preoperative diagnosis	Level	Operation name	Cause of operation failure	Result of injection	Duration of effect*
M/58	Spondylolisthesis	L4/5,R	PLIF	Root injury	Excellent	Long
F/47	HNP	L4/5,L	PHL	Root injury	Excellent	Long
M/66	Stenosis	L4/5,R	PHL	Infection	Excellent	Short
F/59	HNP	L4/5,B	PHL	Infection	Excellent	Long
M/21	HNP	L4/5,R	PHL	Adhesion	Excellent	Long
F/40	Stenosis	L4/5,L	PHL	Thoracic stenosis	Poor	
M/53	Stenosis	L4/5,R	PHL	Unknown	Excellent	Long
M/38	HNP	L4/5,R	ENDO	Unknown	Poor	
M/23	HNP	L4/5,L	PHL	Unknown	Poor	

* ; short=within one or two days, long=more than 1 week

HNP=herniated nucleus pulposus, PLIF=posterior lumbar interbody fusion, PHL=partial hemilaminectomy, ENDO=endoscopic discectomy

가 .

7)9)11)18) 5

5 6cm

고 찰 4cm 1%

xylocaine 18 - gauge

45

가 가 . , CT,

MRI 5 가

가 10) 가

가 1)15) MRI

가 (superior articular process)

MR myelography 2)16)

6)8)13)

가

가

가

가 van Akkerveeken 19)

Macnab¹⁴⁾ Schutz . Dooley⁴⁾

16)

가 1

1 가 85%

가

가

가 1

, , 가 , , 가

11)18)

가

5)9)19) MRI 가

1% lidocaine van Akke - caine 0.5% bupiva -
rveeken 19) 0.5% marcain bupi -
vacaine
0.5% solution

0.25% solution

White²¹⁾가

1ml 7)9)

Castro 3) 0.5ml 가 가 4)17)18)

가 3

가 가 가

가 84% 가 20)

가

22)

steroid

16)18)21)

가

Schutz 16) 15 13 4 가 5 가 5

Haeisen 7) 55 73% 3

Herron⁹⁾ 71 가

53% 가

(good) 23% (fair), 24%
(poor) . van Akkerveen 19)

85% 가

Dooley 4)

요 약

1995 11 1996 8 54

가 가

가

가

- : 1997 2 24
- : 1997 4 7

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