

Kirschner

Herbert

=Abstract=

Comparison between Kirschner's wire and Herbert's screw fixation in Scaphoid nonunion

Eung-Shick Kang, M.D., Ho-Jung Kang, M.D., Jeong-Min Lee, M.D.
Sang-Jin Shin, M.D., Soo-Bong Hahn, M.D.

Department of Orthopaedic Surgery Yonsei University, Colledge of Medicine

We reviewed the 30 cases of patients who underwent open reduction and internal fixation (O/R & I/F) with Kirschner's wire or Herbert screw with autogenous bone graft, compared and reported the results of treatment.

In 30 cases, O/R & I/F with Kirschner's wire combined with cancellous bone graft was done for 14 cases, and O/R & I/F with Herbert screw combined with bone graft for 16 case. We reviewed the duration of union, complication and the results of treatment by the Maudsley criteria.

Among 30 cases, all cases were male and average duration 34 months.

In union time, Kirschner's wire fixation group had 25.3 weeks. In distal Herbert screw insertion group with cancellous bone graft, union was achieved at 18.5 week, in block bone graft group, 21.1week. It took 22 weeks for proximal insertion group.

Among 14 cases with Kirschner's wire fixation 10 had an excellent or good result, while among 16 cases with Herbert's screw fixation 14 had such results according to Maudsley & Chen protocols.

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we concluded that Herbert screw fixation was the better method in treatment of scaphoid nonunion. This method had a shorter duration for union and better results compared with Kirschner's wire fixation. In addition, cancellous bone grafting had a shorter duration for bony union than block bone grafting.

Key words : Scaphoid fracture, Nonunion, Open reduction and internal fixation

가 가 29, 30
 가 가
 가
 19)
 3, 4, 12, 13, 18, 22)
 Herbert
 5, 21)
 16 K-
 14, Herbert
 가
 가
 가 (cancellous bone)
 가 (bone block)
 3
 Herbert Fisher¹⁰⁾가
 1994 1 1998 12 가
 가 (snuff box)
 30
 Kirchner Herbert
 Maudsley Chen 가¹⁵⁾
 가 (Table 1).

Table 1. Method of assessment in treatment result (by Maudsley)

Result	Clinical			Economic	Radiologic	
	Pain	Tenderness	Stiffness		Union	Appearance
Excellent	-	-	-	normal work	+	normal
Good	mild	-	mild	slight limitation of work	+	fair
Fair	discomfort	+	restrict in full motion	some work avoided outline	-	good
Poor	+	+	limitation	change to lighter	-	poor

	가	Herbert	가 (scapholunate angle)	가 (intras-
29	가	Herbert	가 (scapholunate angle)	가 (intras-
가	26 , K-	28.4	K	46.5
가	가	18	32.5	, Herbert
가	가	3	48.7	29.5
가	가 15	3	64.4	47.5
가	3	3	, Herbert	69.5
			Herbert	48.2
	, 1		Herbert	9
	가 9	, 2	18.5	가 (bone block)
			5	가 21.1
			22	, Herbert
	Herbert	4 , K-	14	1 12
	1		Herbert	
9	6			13
	3	26	2	10
	Herbert	8	가	2
		, K-	Herbert	
	8	20	가	Maudsley
			Herbert	Chen
			Herbert	가

Table 2. Results in treatment according to fixation method

Fixation method	Herbert screw	Kirschner's wire
Location Proximal 1/3	4	1
Mid	9	8
Distal 1/3	3	5
Grafted bone Cancellous	11	14
Bone block	5	0
Approach Dorsal	2	0
Volar	14	14
Duration of union (week) Cancellous	18.5	27.3
Bone block	21.1	-
Immobilization (week)	6 - 8	8 - 20
Complication nonunion	0	1
malunion	1	0
pin-site infection	0	4
Technical failure	1	0

16 14
 , K-
 14 10
 , 1
 K 1
 4 K
 , Herbert
 - 72
 1 , 가
 가 1 (Table 2).

2 K
 , 27
 60 , 10
 가 (Fig. 1. A-C).
 2. 2
 26 3
 가

Herbert
 . 8
 1. 1
 20
 41 1
 (Fig. 2. A-C).

3 ,



A



B



C

Fig. 1. A. Preoperative roentgenography showing scaphoid nonunion. B. Immediate postoperative X-ray showing fixation of scaphoid by 2 K-wires. C. Postoperative 27 weeks X-ray showing a bony union.

11) 가 , 가 , 가 , Titanium , Cooney 가 , Russe 가 , 86%, Matti 91%, (dorsal peg graft)¹⁷⁾ 50% Herbert 8 , K 20 95% Herbert 14 , Herbert 9 18.5 , 5 21.1 , Herbert 가 가 . Herbert 10) , K , AO 2 Herbert 1988 Stark²⁰⁾ K 22 97% 가 가 , 가 , 가 10) K 1994 1 1998 12 Herbert 14 K Herbert 16 가 , K 14 4 1. K 14 13 92.9% , Herbert 16 가 가 2. 가 10) Herbert 3

3. 가 Maudsley 가 ,
 Herbert 16 9 , 5
 , 2 , K
 14 4 , 6 ,
 3 1
 , Herbert 가
 K
 , Herbert K

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