
<	>
:	
:	
1995 10 2000 10	
12 , 10 , 2	52 .
2	smooth tip k- 2.5mm terminal
threaded schantz pin	
: 2.7 83%	125, 114.
Neer 가 83%	4 K-
pin tract	
1 2	
:	
가	
	terminal threaded pin
:	
:	

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50, X- 가, C- 가, 70 80. 가 80% lateral greater tuberosity cortex, 가 anterior cortex. (Fig 1)

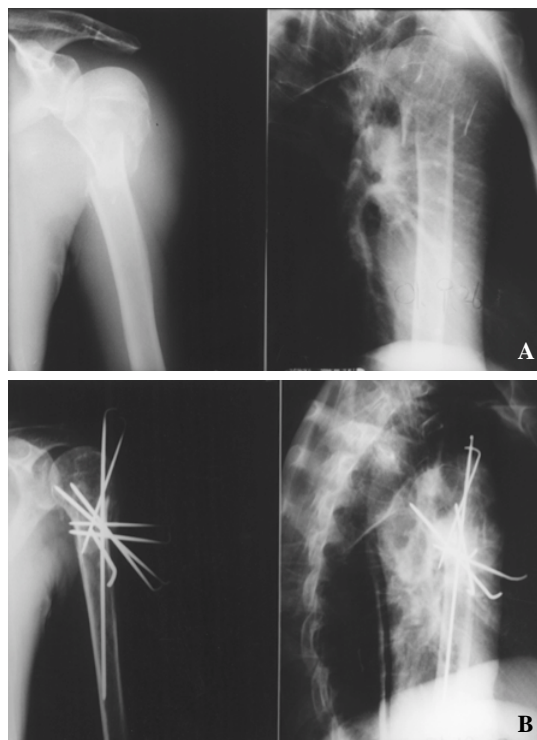


Fig. 1-A : The preoperative radiograph shows comminuted proximal humerus fractures.
1-B : Postoperative radiograph shows pinning status. These pin are passed two pins through lateral cortex, two pins from greater tuberosity and additional three pins through anterior and lateral cortex for extra stability

1,2,7,9) 가 10,11,12) 6,13) 12 1995 10 2000 10 가 , 가 , 가 17 6 2 가 12 , 18 76 52 . 45. , 가 1cm Neer 2 5 , 3 5 , 4 2 . 3 , 6 , 가 3 . 2 2.5 mm terminal threaded schantz pin smooth tip 2 mm k-

가 , 3 , 8-
10
가 ,
18 (6 - 24) , 2.7
83% ,
5-7 125_o (80_o -170_o), 114_o (

Table 1. Neer 's criteria for evaluation of results*

1. pain(35 units)		Extension	3
a.None/ignores	35	45	2
b.Slightly, occasional, no compromise in activity	30	30	1
c.Mild, no effect on ordinary activity	25	15	0
d.Moderate, tolerable, Makes concessions, uses aspirin	15	Abduction(coronal Plane)	6
e. Marked, serious Limitations	5	180	5
f. Totally disable	0	170	4
2. Function(30 units)		140	2
a.Strength		100	1
Normal	10	80	0
Good	8	less	
Fair	6	External rotation (from anatomical position with elbow bent)	
Poor	4	60	5
Trace	2	30	3
Zero	0	10	1
b.Reaching		less	0
Top of the head	2	Internal rotation (from anatomical position with elbow bent)	
Mouth	2	90	5
Belt buckle	2	70	4
Opposite axilla	2	50	3
Brassiere hook	2	30	2
c.Stability		less	0
Lifting	2		
Throwing	2		
Poundint	2	4. Anatomy(10units)(rotation, angulation, joint incongruity, retracted tuberosities, failure of metal, myositis, non-union, avascular necrosis)	
Pushing	2		
Hold overhead	2		
3. Range in Motion(25 unit)			
Flexion(sagittal plane)		None	10
180	6	Mild	8
170	5	Moderate	4
130	4	Marked	zero to 2
100	2		
80	1	Total points	100 units
less	0		

*Excellent,above 89 units; satisfactory,80 units; unsatisfactory,70units; failure,below 70units

Table 2. Complications of percutaneous closed pinning of 12 displaced fractures of the proximal humerus.

complication	Number of cases(9)
Migration of K-wire	4
Back-out	2
Forward migration	2
Pin tract infections(all resolved)	2
Valgus deformity	1
Nonunion	2

70%-150%) , Neer 가 13)(Table 1) 83%(10) ,
(Table 2) 4 K-pin-tract
1
1
Neer 가 가
1
4-5%
9,10,15) 가
가 가 가
11,12) 가
3,5,11,14),
75% 50
10,12,13) 가

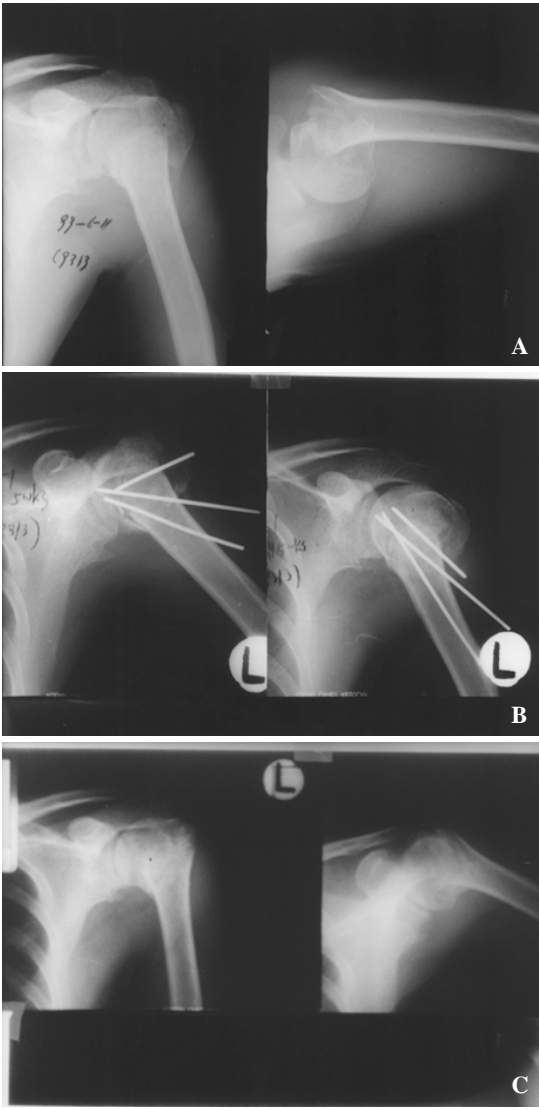


Fig. 2-A : The preoperative radiograph of 58-year-old man shows comminuted proximal humerus fractures.
2-B : Immediate postoperative radiograph shows reduction with K-wires.
2-C : Radiograph take at postoperative six months shows bony union.

2 12 10 (83.3%)
2.7 (Fig 2, 3),
Neer 4 2
1

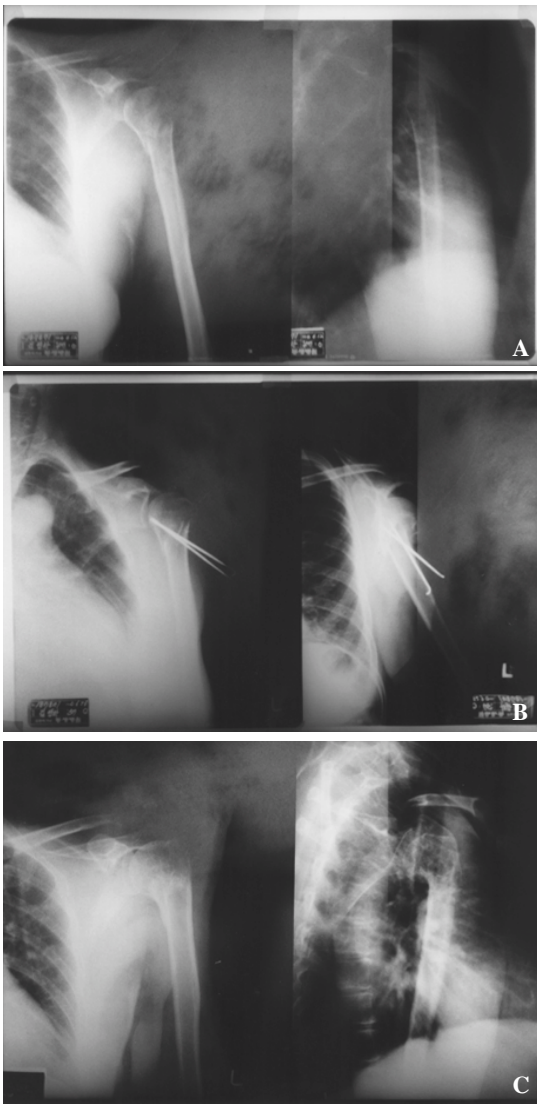


Fig. 3-A : The preoperative radiograph of 56-year-old woman shows fracture of the proximal humerus.
3-B : Immediate postoperative radiograph shows reduction and percutaneous K-wire stabilization of fractures.
3-C : one year after operation, the fracture was united and K-wires were removed.

가 , 1 가
가
50%

가 가
K-
1
15.
4 smooth tip k-wire
2cm
C-
threaded
threaded
oozing
smooth K-wire
smooth K-wire 가
가
가
threaded tip
K-

terminal threaded pin

Neer

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Abstract

Closed percutaneous K-wire stabilization for fractures of the proximal humerus.

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Purpose : The purpose of this study is to analyze the result and complications of treatment using percutaneous K-wire stabilization for fractures of the proximal humerus.

Materials & Method : To be eligible for the study, total 12 patients of displaced two, three or four part fractures of the proximal humerus were treated, 10 females and 2 males with a mean age of 52 years (range 18-76 year).

Reduction was obtained by longitudinal traction combined with posterior pressure on the humeral shaft. After reduction, minimum two 2.5mm terminal threaded pin or smooth tip K-wire was inserted.

Results : Union rate of 83.3% was observed at an average 2.7 months. Range of motion of shoulder was 125° of forward flexion, 114° of abduction. Patients of 83.3% had good or excellent functional result. Four patients had a mild, superficial pin tract infection associated with loosening of the pin. The infections resolved with removal of pin and oral antibiotics. Valgus deformity was developed in a patient however the patient subsequently had a good functional result and nonunion were developed in two cases.

Conclusion : The technique of closed reduction and percutaneous pinning is quite demanding procedure, although it may appear to be deceptively simple. The good indications for the use of this procedure seems to patients with severe comminuted fractures, old age with osteoporosis. For the more rigid fixation, terminally threaded pins should be used, not smooth pin.

Key words : Fractures, proximal humerus, percutaneous K-wire stabilization

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