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Essex-Lopresti

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= Abstract =

Essex-Lopresti's Axial Pinning in the Treatment of Intraarticular Calcaneal Fracture.

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Fracture of the calcaneus is the most commonly encountered among fracture of tarsal bone and it is difficult to obtain accurate reduction because the calcaneus has cancellous trabecular enclosed with thin cortical bone. In the past, the result of treatment was poor. Recently, closed reduction and axial pin fixation for tongue type fracture and open reduction and internal fixation for joint depression type fractures are considered as generally accepted treatment methods. The purpose of this study is to evaluate the efficacy of axial pin fixation in joint depression(group A) and tongue type(group B). Retrospective study was performed in 20 patient(23 feet) with intraarticular calcaneal fractures which were treated with axial pin fixation from July 1993 to June 1996. Minimum follow up period was 1 year(average 20 months).

The obtaining results were as follows :

1. Cause of injury was fall down in the 18 cases(90%).
2. We obtained excellent or good results from the performance of operation within 2 weeks on

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1996 40



We propose our experience obtained in 23 cases that axial pin fixation was a good method for treatment of intraarticular fracture, joint depression type as well as tongue type.

Key Words : Calcaneus, Intraarticular fracture, Axial pinning.

[illegible]**Table 1.** Salama 's criteria

Excellent	Patient satisfied. Asymptomatic broadening of the heel Normal mobility of joints. No pain
Good	Patient satisfied but occasional pain. Walking ability unaffected Slight limitation of inversion-eversion. Mild flat foot.
Fair	Patient not entirely satisfied. Walking ability reduced Limitation of tarsal movements Pain after exertion Special shoes.
Poor	Patient not satisfied. Walking ability markedly reduced. Severe limitation of joint movements. Change of occupation.

1993 7 1996 6 Essex-Lopresti

1 (20) 가가

20 23 .

30 가 6 가

가 16 , 가 4 .

18 가 ,

6 가 .

1 가 14 , 2 가 7 , 2 가 2

(Table 3). Essex-Lopresti¹³⁾



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Table 2. Relationship between clinical results and Essex-Lopresti's classification.

	Excellent	Good	Fair	Poor	Total
Joint depression	2	5	5	1	13
Tongue	1	8	1		10
Total	3	13	6	1	23

Table 3. Relationship between clinical results and time interval from injury to operation

Time interval	Excellent	Good	Fair	Poor
1 weeks (group A)	2	2	2	
(group B)	1	7		
1 2 weeks (group A)		3	3	
(group B)		1		
2 weeks (group A)				1
(group B)			1	
Total	3	13	6	1

Table 4. Relationship between clinical results and preoperative Böhler angle.

	Excellent	Good	Fair	Poor
Reverse (group A)		2	3	
(group B)		1	1	
0 ° 10 ° (group A)		1	1	1
(group B)		5		
11 ° 20 ° (group A)	2	2	1	
(group B)		2		
21< (group A)				
(group B)	1			
Total	3	13	6	1

Table 5. Relationship between clinical results and postoperative Böhler angle.

	Excellent	Good	Fair	Poor
0 ° 10 ° (group A)			2	
(group B)				
11 ° 20 ° (group A)		1	1	
(group B)		1	1	
20 < (group A)	2	4	2	1
(group B)	1	7		
Total	3	13	6	1

Salama²⁴⁾ 가
1 , 8 , 1
2 , 5 , 5 , 1
(Table 2).
23 1 ,
6 4 (67%), 8 (100%)
가 , 2
2 , 가
가 가
(Table 3). Böhler
5 , 2
, 0° 10 가 3
5 , 11° 20 가 5 ,
2 , 21° 1
(Table 4). 가 Böhler
11° 8 7
, Böhler 0° 10 가
2 , 11° 20 가 2 ,
2 , 21°
9 , 8 , 가
7 , 9
(Table 4,5). , Böhler
21° , 9 6
(67%), 8 (100%)
13 10 12 18
2mm 가 6 ,
2 4mm 가 3 , 4mm 1 가
2mm 50%
(Table 6).



Table 6. Relationship between clinical results and postoperative joint incongruency (CT: Group A)

	Excellent	Good	Fair	Poor
0-2 mm	2	1	2	1
2-4 mm		2	1	
4mm <			1	
Total	2	3	4	1

Böhler 19 °
 3 Böhler 25 ° 2 1
 2 2 1
 53 2 1
 Böhler -5 ° -15 ° 8
 27 ° 10 ° Böhler
 가 5mm() 1
 1mm ()
 ()
 1
 16 2

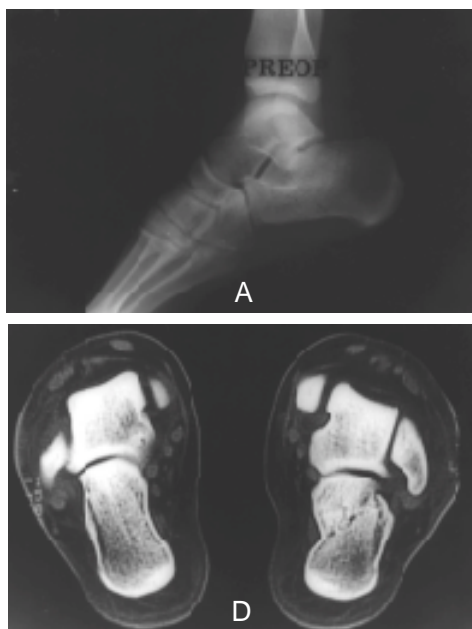
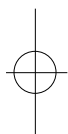


Fig 1. 16 years old female patient sustained intraarticular calcaneal fracture of right foot by fall down from the second floor.

A. Preoperative radiograph shows joint depression type intra-articular calcaneal fracture with 13° Böhler angle.

B. Immediate postoperative radiograph after closed reduction and axial fixation with two Steinmann pins shows 25 ° Böhler angle.

C,D. Postoperative 12 months radiograph, Böhler angle is 30 ° (C), and computed tomogram shows 2mm joint depression(D).



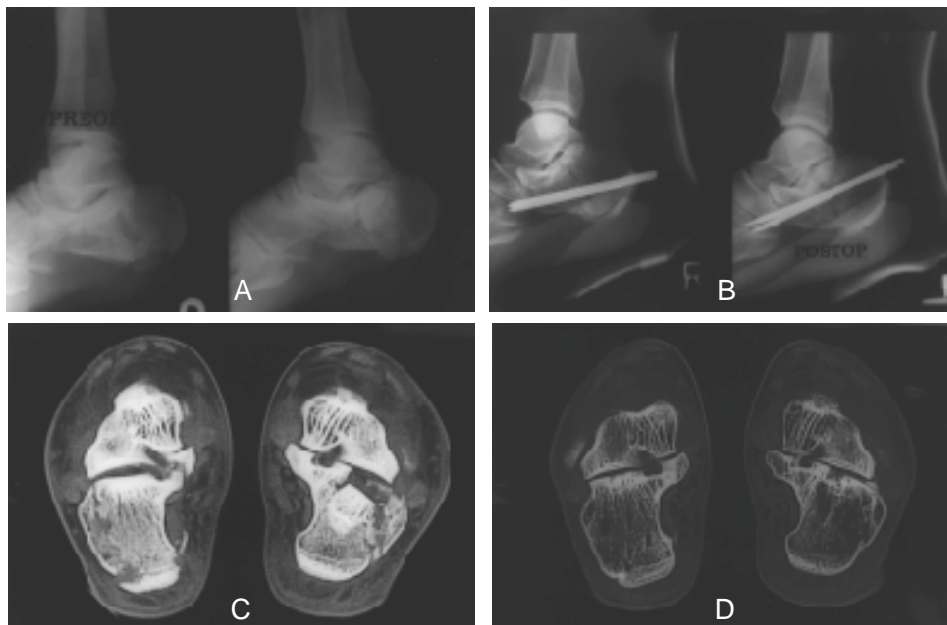


Fig 2. 53 year old female patient sustained intraarticular calcaneal fracture of both feet by fall down from 2 m height.

A. Preoperative radiograph shows tongue type intra-articular fracture with -5° Böhler angle(Rt), and joint depression type intra-articular fracture with -15° Böhler angle(Lt).

B. Immediate postoperative radiographs show increased Böhler angle, 27° in right and 10° in left.

C. Joint depression is 5 mm in preoperative C.T. scan.

D. Postoperative 12 months follow up C.T. scan shows 1 mm joint depression.

Anthonsen⁸⁾

가

(axial view)

가

가 Böhler

Barnard⁹⁾

Leonard²⁰⁾

2

95%

, Lance

19)

75%

가

78%

6 (26%) 가

Rowe²³⁾

Essex-Lopresti¹³⁾

Essex-Lopresti¹³⁾

(axial view),

Isherwood¹⁶⁾, Broden's view¹¹⁾,

Cave¹²⁾

1) 90%,

2) 75%
83%

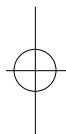


1) Böhler¹⁰⁾ , ,
 , 2) , 3) , Rowe²³⁾ 가
 4) Essex-Lopresti¹³⁾ , 5)
 6)
 Böhler¹⁰⁾ Hermann¹⁵⁾ Böhler 1 2 ,
 가
 Essex-Lopresti¹³⁾
 Böhler (spur of
 lateral border of talus) Essex-
 (congruity) King¹⁸⁾ Lopresti¹³⁾
 Böhler 가
 4)
 가
 가
 Steinmann

Steinmann

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- 가 6 12
 가
 4 7
 14)
 2 4 Steinmann
 1 21 °
 Böhler 1
 Kashiwagi¹⁷⁾가
 가





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