Operative Treatment of Jones Fractures (Type 87,5.2A) is Not Associated with Earlier Clinical or Radiographic Healing

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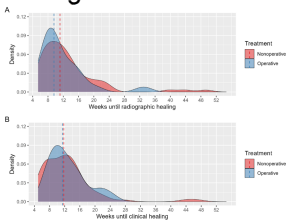
INTRODUCTION: The purpose of this study was to compare the time to radiographic and clinical healing between patients with proximal metadiaphyseal fifth metatarsal fractures (Zone 3, or true Jones fractures) treated operatively and those treated nonsurgically.

METHODS: This was a retrospective cohort study of patients presenting to a single large, urban, academic medical center with “Jones” fractures between December 2012 and April 2022. Jones fractures were defined as 5th metatarsal base fractures occurring in the proximal metadiaphyseal region, just distal to the articulation of the 4th and 5th metatarsals on the oblique radiographic view (Zone 3). Clinical healing was defined as the timepoint at which the patient had returned to their baseline ambulatory status without pain, and there was an absence of tenderness to palpation on physical examination. Radiographic healing was defined as the presence of bridging callus across at least three cortices.

RESULTS:

A total of 2,450 patients presented with 5th metatarsal fractures during the study period, and 166 fractures (6.8%) were categorized as true Jones fractures. Among the patients with Jones fractures, 120 patients with 121 Jones fractures received care at our institution beyond the initial acute presentation and were included in the analysis (mean age 46.5 +/- 18.5 years). Among the included patients, 99 fractures (81.8%) were initially treated nonoperatively and 22 fractures (18.2%) were treated operatively. There was no evidence of any difference between groups with respect to the time to clinical healing (12.7 +/- 7.1 weeks for the nonsurgical group versus 12.8 +/- 4.8 weeks for the operative group, p = 0.931) or the time to radiographic healing (13.2 +/- 8.1 weeks for the nonsurgical group versus 11.7 +/- 5.9 weeks for the operative group, p = 0.331) (Table 3).

DISCUSSION AND CONCLUSION: Contrary to popular opinion, operative treatment of true Jones fractures was not associated with faster or more reliable radiographic union or time to clinical healing compared to patients treated nonsurgically. The rate of delayed union in true Jones fractures was found to be lower than previously described, and there was no evidence of any difference in delayed union rate with nonsurgical treatment compared to operative management.



Characteristic	N = 99[1]
Initial presentation setting	
Emergency department	35.7%
Urgent care	36.7%
Office	27.6%
Initial weightbearing restriction	
Non-weightbearing	74.7%
Partial weightbearing	5.1%
Weightbearing as tolerated	20.3%
Treating office weightbearing restriction	
Non-weightbearing	61.4%
Partial weightbearing	9.1%
Weightbearing as tolerated	29.5%
Splint or cast	36.4%
CAM or walking boot	81.8%
Hard sole shoe	33.3%
Duration of foot immobilization (weeks)	9.0 +/- 4.8

[1] %; Mean +/- SD

Characteristic	Treatment		
	Nonoperative, N = 95[1]	Operative, N = 26[1]	p-value[2]
Time to clinical healing (weeks)	12.7 +/- 7.1	12.8 +/- 4.8	0.931
Time to radiographic healing (weeks)	13.2 +/- 8.1	11.7 +/- 5.9	0.331
Delayed union (> 180 days)	4 (4.2%)	1 (3.8%)	>0.999

[1] Mean +/- SD; n (%)
[2] Welch Two Sample t-test; Fisher's exact test

Characteristic	Overall N = 121[1]	Initial Treatment		
		Nonoperative N = 99[1]	Operative N = 22[1]	p-value[2]
Age (years)	46.5 +/- 18.5	47.4 +/- 18.7	42.5 +/- 17.5	0.255
Sex				0.288
Female	83 (68.6%)	70 (70.7%)	13 (59.1%)	
Male	38 (31.4%)	29 (29.3%)	9 (40.9%)	
BMI	28.3 +/- 6.2	28.2 +/- 6.1	28.7 +/- 7.0	0.735
Race				< 0.001
Asian	11 (9.1%)	11 (11.1%)	0 (0.0%)	
Black	13 (10.7%)	9 (9.1%)	4 (18.2%)	
Other	18 (14.9%)	9 (9.1%)	9 (40.9%)	
Pacific Islander	1 (0.8%)	1 (1.0%)	0 (0.0%)	
Unknown	14 (11.6%)	14 (14.1%)	0 (0.0%)	
White	64 (52.9%)	55 (55.6%)	9 (40.9%)	
Smoking status				0.657
Daily	13 (10.8%)	12 (12.2%)	1 (4.5%)	
Former	19 (15.8%)	16 (16.3%)	3 (13.6%)	
Never	88 (73.3%)	70 (71.4%)	18 (81.8%)	
Charlson Comorbidity Index				0.640
0	92 (76.7%)	76 (77.6%)	16 (72.7%)	
1	17 (14.2%)	14 (14.3%)	3 (13.6%)	
2	8 (6.7%)	5 (5.1%)	3 (13.6%)	
3	2 (1.7%)	2 (2.0%)	0 (0.0%)	
6	1 (0.8%)	1 (1.0%)	0 (0.0%)	
Follow-up duration (weeks)	18.4 +/- 17.8	17.0 +/- 16.8	24.7 +/- 21.3	0.124

[1] Mean +/- SD; n (%)
[2] Welch Two Sample t-test; Pearson's Chi-squared test; Fisher's Exact Test for Count Data with simulated p-value (based on 2000 replicates)