Results of 90 Consecutive Navicular Fractures

Presenting:

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BACKGROUND:
Navicular fractures (NF) are uncommon. The purpose of this study was to compare the results of operative and non-operative treatment in patients with a NF.

METHODS:
A retrospective analysis was undertaken on patients diagnosed with NF between March 2002 and June 2007 at a Level I teaching trauma center. Clinical outcome consisted of complications and functional ability.

RESULTS:
88 patients with 90 fractures were identified. There were 56 men and 32 females with a mean age of 38 (range 17-72) and BMI of 28.2 (range 18.7–48.9). 21 (23.3%) injuries were isolated. 10 (11.1%) injuries were open. Treatment consisted of non-operative (49, 55%), ORIF (37; 41%), and primary arthrodesis (PA, 4; 4%). 11 (30%) of ORIF cases required bone grafting. Use of bone graft was related to reduction quality ($\rho=0.473$, $p=0.002$). Complications included 1 DVT, 1 AVN, 3 nonunions, 7 infections (with 2 osteomyelitis, 3 antibiotic therapies, and 2 I&D), 18 longitudinal arch collapse, and 56 post-traumatic arthrosis. Operative group had significantly more post traumatic arthrosis than nonop group ($\chi^2=0.000$). Secondary surgery was 25 HW removals (16 for irritation, 5 for prominent or broken plates), 9 arthrodeses, 2 debridement for infection, and 4 repeat ORIF. Pain was present at final follow up in 90 (43.3%) feet. 62 (69%) patients were able to wear normal shoes, which was related to return to work without restrictions ($\rho=-0.508$, $p=0.000$). Work status was 64 without restrictions, 17 with restrictions, and 5 did not return to work. Inability to return to previous work was related to pain ($\rho=-0.394$), post-traumatic arthrosis ($\rho=-0.280$), and poor reduction quality ($\rho=-0.384$) at sig < 0.01. Increased BMI (>35) was related to pain ($\rho=0.250$) and poor reduction quality ($\rho=0.326$) at a sig < 0.05.

CONCLUSIONS:
Even though navicular fractures are uncommon, operative treatment of displaced fractures is fraught with complications. Obesity, pain, and post-traumatic arthrosis determine shoe wear, return to function, and employment status.