Scaphoid Waist Fracture

A 35-year-old male office worker fell on an outstretched hand, injuring his dominant wrist. He had persistent pain about the radial aspect of the wrist. He reported no prior injury or symptoms proximally. On physical examination, mild swelling with tenderness was observed about the scaphoid in the snuffbox. Mild limitation of wrist range of motion existed. Anteroposterior (A), lateral (B), and oblique (C) radiographs are shown. What would you do?

David J. Bozentka, MD, and Adam Griska, MD: For this acute, nondisplaced, stable fracture of the scaphoid waist, we would offer the patient a trial of nonoperative management. If any question as to the nature of the fracture existed, we would obtain a computed tomography scan, but in this case we feel the radiographs are sufficient, with no displacement or comminution noted.

We would opt for 6 weeks in a long-arm thumb spica cast followed by 6 weeks in a short-arm thumb spica cast, or longer if needed. Although some authors have reported good results with a short-arm cast only,\textsuperscript{1,2} with or without the thumb included,\textsuperscript{3} a randomized, controlled trial by Gellman et al\textsuperscript{4} remains the best direct comparison, demonstrating superior results with the initial use of a long-armed thumb spica cast.

We would proceed with surgical fixation only if satisfactory evidence of healing was not present 12 weeks after injury. Using this technique, known as aggressive conservative management, Dias et al\textsuperscript{2} demonstrated no overall benefit to early fixation and an excellent success rate of fixation reserved for delayed unions, decreasing avoidable surgical risk.

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In a 2008 Level I randomized, controlled trial comparing operative vs nonoperative treatment of scaphoid waist fractures, Vinnars et al\(^1\) showed that the healing rates were similar and high for both groups. No advantage to early fixation was found, and the operative group had a higher complication rate, as well as cases of scaphotrapezial osteoarthritis.

In a 2010 meta-analysis, Buijze et al\(^3\) found some advantages to early fixation in terms of functional outcome, time to union, and time off work, but they confirmed similar union rates and a trend toward higher complication rates with surgery.

In the absence of other conditions, such as delayed presentation, high-level athletic competition, heavy manual labor, or the inability to financially tolerate at least 3 months of immobilization, we would not expose this patient to the unnecessary, albeit small, risk of early surgical fixation. We believe good evidence suggests that he has a high likelihood of achieving satisfactory results with cast immobilization alone, with no significant detriment to reserving surgical fixation for delayed union.

**John T. Capo, MD:** I would recommend early percutaneous screw fixation of this minimally displaced scaphoid waist fracture because it is a safe and cost-effective way to provide the patient with an accelerated return to activity. This active young man likely does not want to be immobilized for 12 weeks or more, and screw fixation would limit his immobilization to 4 to 6 weeks.

Several studies have demonstrated that although operative and nonoperative management techniques can have similar long-term functional results, early fixation allows us to achieve those results faster. In a randomized, controlled trial, McQueen et al\(^6\) demonstrated that early fixation led to significantly faster time to union (9 vs 13 weeks), as well as similar faster times to return to sport and to work. These results are consistent with other studies\(^7,9\) and were confirmed in a meta-analysis conducted in 2010 by Buijze et al\(^3\) who also concluded that early fixation leads to faster healing and quicker return to activity. In addition, when performed correctly, the complication rates of operative fixation have been shown to be minimal.\(^1,5\)

Furthermore, early screw fixation has been demonstrated to be more cost effective than immobilization for the treatment of this fracture. In 2006, Davis et al\(^10\) performed a cost/utility analysis that showed that surgical treatment is overall less costly to society ($7940 vs $13,851 per patient) when lost productivity is a factor. The key factor to cost savings is when the patient is unable to perform work activities with cast immobilization. When only direct costs were considered, surgical fixation is still cost effective compared with other well-accepted therapies. In an era of ballooning health care costs and limited health care budgets, cost must be considered when choosing between 2 equally effective treatments.

For the sake of the patient and for the benefit of our health care system, I would recommend early screw fixation to allow him to recover from his injury as quickly as possible.

**REFERENCES**