

A Case Involving Hypnosis/Guided Imagery as an Adjunct Treatment of a Fractured Wrist

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A 26-year-old football player fell on his left wrist when he attempted a diving catch on artificial turf in the end zone in an NFL preseason game August 13, 1994. He experienced immediate wrist pain but remained in the game for another play, in which he attempted to catch another pass. The player was examined briefly on the sidelines, and more extensively in the locker room at half-time. The wrist was taped heavily, and the receiver did not re-enter the game.

Following the game his complaints were minimal. He was placed in an adhesive tape/cast wadding compression wrap. The next morning the player presented with exquisite tenderness on the radial side of the injured wrist. He had decreased motion secondary to pain. Most of the pain was localized in the "anatomical snuff-box" of the wrist. The player had mild to moderate swelling. He was treated with ice and placed in a wrist immobilizer.

Diagnosis and Clinical Management

The differential diagnosis prior to X-rays included the possibility of a wrist sprain, a scaphoid fracture, carpal bone dissociation, and a distal radial fracture. X-rays ob

tained the day after the injury revealed a nondisplaced comminuted fracture across the mid-portion ("waist") of the scaphoid. The athlete was placed in a short-arm cast that also immobilized the proximal phalanx of the thumb. The blood supply to the scaphoid is such that fracture healing is often impaired. It is not uncommon for a non-union or avascular necrosis of the scaphoid to develop (Leslie & Dickson, 1981). This may lead to an unstable wrist and can be very painful and debilitating for a professional athlete, thus jeopardizing his or her career. Long-term complications include severe arthritis (Mack et al., 1984).

In view of these factors, an aggressive treatment plan was developed. The primary component was surgery with an open reduction and internal fixation by the application of a Herbert screw in the left scaphoid (Herbert & Fisher, 1984). In addition, the athlete was involved in an intensive course of rehabilitation and hypnotherapy/guided imagery.

Surgery and Rehabilitation

The surgery was performed 4 days post-injury. Five days after the surgery the wound was healing well and active plantar flexion exercises

were begun. The player was instructed not to perform dorsi-flexion, or finger strengthening exercises with putty or rubber bands; this was to make sure the joint would not be loaded.

At this time he was placed in an Aquaplast thermo-moldable splint (Smith & Nephew Roylan, Inc., Chicago), and had electrodes from an Orthopak bone growth stimulator (BGS) applied around the surgical site on the wrist to assist in the healing of the fracture (American Academy of Orthopedic Surgeons, 1981). Cardiovascular activity in the form of running was initiated. This was tolerated well and progressed rapidly.

Six days after surgery the player caught several passes, pain-free. While in the splint, his activity increased daily. He wore a Scotchcast soft casting tape that was fabricated with the palm mostly open; the dorsum of the hand and wrist was reinforced with an "X-fan" made of hard fiberglass casting material (3M Scotchplast Plus) to prevent dorsiflexion. The thumb was enclosed just distal to the metacarpal-phalangeal (MCP) joint.

The player began practicing on a limited basis August 29. Several casts were fabricated over the next few days in order to maximize function and catching ability. When not in his cast, the player

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wore his splint. He also utilized the BGS unit approximately 20 hours a day.

Repeat X-rays were taken August 30. AP and lateral views revealed "a well-positioned screw, fracture line apparent, with no displacement" (personal communication, Stephen Nicholas, MD, associate orthopedic surgeon, New York Jets). On Sept. 1 the athlete participated fully in practice with no adverse effects and minimal pain. He participated in the NFL regular season opener 3 days later and caught 5 passes for 83 yards. X-rays were repeated Sept. 14 and showed "early signs of healing" (personal communication, Elliott Hershman, MD, chief orthopedic surgeon, New York Jets). The X-rays were repeated again Sept. 28 and showed "satisfactory healing with one small area of incomplete healing" (Hershman). The athlete was directed to discontinue the splint in the daytime but to wear it at night. Use of the BGS was also continued. He was cleared to wear only a dorsal Polyform thermomoldable splint (Smith & Nephew Roylan, Inc.) with protection over the scaphoid for football activity. Use of the dorsal splint was discontinued after the 5th game Oct. 2.

Hypnotherapy

The hypnotherapy sessions began the 2nd day after the injury. This athlete was very experienced in visualization and imagery practices utilized for peak performance. He had also been taught a pain control technique in which he would visualize his pain, inhale deeply, then "blow away" his pain by a forceful exhalation. This technique allowed him to attempt to catch an overthrown ball on the



next play after he had fractured his wrist.

In preparation for hypnotherapy, the athlete was given an in-depth anatomy lesson concerning the scaphoid bone. He was shown the wrist and hand of a skeleton, and the pictures of the scaphoid and its blood supply (radial artery) from available texts. Fracture healing was discussed from the cellular response to actual formation of bony callus. Emphasis was placed on the need for calcium, the importance of vascularization, and the formation of the collagen matrix. Illustrations and drawings were used as much as possible.

A script was then written for the athlete. It told of small, industrious creatures (Ewoks, from *Star Wars*) working diligently on repair of the fracture. First they worked

to create an auxiliary artery branch to feed the unnourished portion of the scaphoid bone below the fracture line. Then they worked as "plasterers" to patch the fracture site. Graphic metaphors and familiar cliches were used in abundance (Haley, 1967). A progressive relaxation induction was used and the initial hypnotherapy session was tape-recorded. The athlete was to listen to the tape at least once a day. Twice a day was recommended, once at bedtime and, if possible, upon awakening, since the subconscious is most open to suggestions at that time (Bucholtz, 1982). The athlete listened twice more the first day and 3 or 4 times a day for the next 2 days. Prior to surgery, a strong pulse was felt at the injury site ("anatomical snuff-box"). This phenomenon was not present in the uninvolved wrist.

The athlete continued to listen to the tape for 3 days post-surgery. At that time another hypnotherapy session was conducted in order to modify the suggestions to include the insertion of the Herbert screw, which negated the need for the auxiliary artery and would expedite the formation of the collagen matrix and bony callus. The electromagnetic field produced by the BGS was also included, giving the imaginary workers more energy to work around the clock. Furthermore, the athlete's own pain control method was reinforced while in trance.

Results

The use of the Herbert screw to repair subacute non-united scaphoid fractures has been employed for over 10 years, with

moderate success (Rettig, 1991). Its use in repairing the acute-fracture scaphoid has been considered aggressive sports medicine; only a few cases involving athletes had been documented prior to this case. While the union rate of the documented surgical cases was 100%, the average interim before returning to sports was 7 weeks. The expectation with surgery was that clinical and radio-graphic healing, if successful, would take 10 to 11 weeks (Rettig et al., 1994).

According to the American Academy of Orthopedic Surgeons, the use and efficacy of BGS with non-union scaphoid fractures, with and without surgery, "requires immobilization and a minimum of three months of use with the device for adequate treatment" (conference presentation, 1981). There have been anecdotal reports of the use of hypnotherapy, or guided imagery, as an adjunct therapy in the healing of a fracture, but no controlled studies are available. The athlete in the present case played in a game 13 days after his injury, 9 days after his surgery. As noted earlier, in 4 weeks there was satisfactory healing. At 6 weeks the fracture was "almost totally healed, and this is, at least anecdotally, 1 month ahead of schedule" (Hershman, personal communication).

Conclusion

At present the use of hypnotherapy/guided imagery cannot be scientifically credited with the enhanced healing of this

scaphoid fracture. However, there is enough anecdotal evidence to stimulate further investigation, especially in view of the creation of a previously nonexistent pulse in the injured wrist. Also, by using imagery as his pain control method, this professional football player was able to avoid all pain medications. The treatment of a fractured scaphoid, or any fracture for that matter, usually requires nothing more from the patient than rest and immobilization. But since this athlete played an active role in his own recovery, the positive psychological implications (positive attitude, goal setting, control of his recovery) cannot be ignored. Of further interest, this elite athlete received a game ball for his performance in his second game after surgery—9 catches, 147 yards, 1 touchdown—and went on to earn NFL Pro Bowl honors in 1994.

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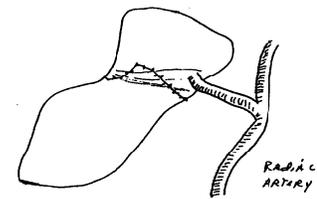


Fig. 1 Scaphoid with fracture line.

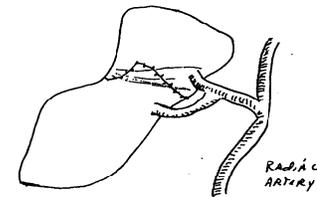


Fig. 2 Scaphoid with auxiliary artery.

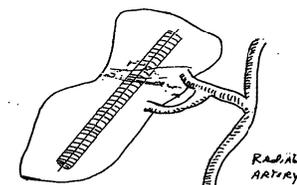


Fig. 3 Scaphoid showing Herbert screw and healing.