

Wider Screw Works for Jones Fracture Fixation

BY DOUG BRUNK
San Diego Bureau

LA JOLLA, CALIF. — A 5.5-mm diameter cannulated screw was just as effective as a 4.5-mm diameter screw for fixation of fifth metatarsal Jones fractures, Dr. David Allen Porter reported at the annual meeting of the American Orthopaedic Foot and Ankle Society.

However, it remains unclear whether the wider screw is more effective for this type of fracture, which commonly occurs in competitive athletes.

Dr. Porter, an orthopedic surgeon with Indianapolis-based Methodist Sports Medical Center, and his associates evaluated 20 patients with fifth metatarsal Jones fractures who were treated postoperatively with a 5.5-mm stainless steel cannulated screw. They compared the outcomes with those previously reported by the researchers in a study of similar athletes fixed with a 4.5-mm stainless steel cannulated screw.

The athletes in the current study were rehabilitated in a walking boot with crutches before being transferred to a custom shoe insert. Subjective pain and function were measured in terms of the American Academy of Orthopaedic Surgeons foot and ankle outcomes questionnaire, which includes a 100-point scale for pain and a 100-point scale for function.

All but one athlete, who had an unrelated back injury, returned to sports participation in an average of 9.5 weeks after fixation.

The researchers determined clinical and radiographic evaluations at final follow-up, which was 22.5 months on average. All patients had complete clinical healing. Based on assessment of oblique and lateral im-

ages of the foot by an independent radiologist, injuries were healed in 97% of all patients. The mean subjective pain score was 97, and the mean function score was 97.

Dr. Porter said that to date none of the 5.5-mm screws has bent, broken, or had to be removed. One patient had slight penetration of the cortex at surgery, but that healed with no adverse events.

When the researchers compared the findings with those of the previous study, in which patients underwent fixation with the 4.5-mm screw, clinical and radiographic healing rates were similar, as was the time it took to return to competition.

One significant difference between the two groups was screw length. The average length of the 4.5-mm screw was 52.4 mm, compared with 48.2 mm for the 5.5-mm screw.

"There's a higher rate of bending with the 4.5-mm screw and a higher rate of bone penetration with the 5.5-mm screw," Dr. Porter said. ■



Fixation with a 5.5-mm cannulated screw resulted in 100% healing at 3 months.

COURTESY DR. DAVID ALLEN PORTER

Athletes' Hand Fractures Can Be Managed Without Surgery

BY HEIDI SPLETE
Senior Writer

HERSHEY, PA. — Short-term, non-surgical management of hand fractures gets competitive athletes back in the game, Dr. Michael R. Redler said at the annual meeting of the American Orthopaedic Society for Sports Medicine.

But it is essential to remind the athlete of all possible outcomes, including the increased risk for additional injury if he or she returns to play too soon after a fracture.

Study results have shown that hand injuries account for 3%-25% of all athletic injuries, said Dr. Redler, a founding partner of the Orthopaedic and Sports Medicine Center in Trumbull, Conn.

The timing and feasibility of an injured athlete's return to play differ for each sport and each individual. Factors to consider include the patient's age and competitive level, the type of injury sustained, whether the athlete can perform the manual skill necessary for the sport, and whether the injury can be protected from further trauma.

Athletes who require explicit use of the wrist or fingers may not be able to participate in their sport during the stages of healing. Phalangeal fractures can usually be managed with external plastic or aluminum splints, and surgery is rarely needed. But metacarpal fractures are more complicated. Most phalangeal fractures are caused by trauma from crushing, bending, or twisting,

whereas metacarpal fractures are usually the result of a direct impact from a ball, the ground, or another player.

Most sports-related metacarpal fractures can be treated with closed reduction and casting, and the periosteal sleeve and ligamentous attachments will allow for stable reduction.

But the take-home message is that athletes who resume competition after casting and immobilization require close and frequent radiographic follow-up to

Those who resume competition after casting and immobilization require frequent radiographic follow-up to ensure the fracture is not displaced.

make sure there is no displacement of the fracture on a week-to-week basis, Dr. Redler said. Returning the athlete to play is a balancing act. Protection of the fracture must be a priority, but athletes who

are returning to play need enough mobility to perform the necessary skills on the field or court.

To that end, thumb metacarpal fractures can be immobilized in a functional position.

Dr. Redler said that he and his colleagues have advised athletes in sports such as lacrosse or hockey to bring their sticks to the casting clinic or hand therapist to make certain that the cast is molded to match how they hold the sticks.

Fiberglass casts are permitted in many sports if they have enough external padding to protect the other athletes on the field.

If fiberglass is prohibited, thermoplastic splints can be used, but they may be too flexible and may require reinforcement in some cases. ■

Knee Dislocations Require Routine Arteriography, Study Shows

BY BRUCE K. DIXON
Chicago Bureau

CHICAGO — Physical examination of the multidislocated knee is inadequate for determining the need for arteriography, according to a University of Michigan study.

"Routine arteriography is justified in multiligament injuries to the knee by the high incidence of popliteal artery injury, given the potentially devastating consequences of a delay in diagnosis and the relatively low morbidity of an arteriograph," Dr. E. Barry McDonough told the annual meeting of the American Academy of Orthopaedic Surgeons.

Knee dislocation is rising in incidence due to increasing participation in sports, the popularity of all-terrain vehicles, and the boom in obesity, said Dr. McDonough, who is now with a group practice in Glen Ellyn, Ill.

Whereas anterior dislocations can be the result of a hyperextension injury, posterior dislocations may be the result of motor vehicle dashboard injury to the flexed knee. The frequent result of dislocation trauma is a damaged popliteal artery, said Dr. McDonough.

Determining the vascular status of a limb is imperative, he added. The amputation rate if repair occurs within 8 hours is 11%; otherwise, the amputation rate skyrockets to 86%, he said.

Between December 1993 and January 2005, Dr. McDonough and Dr. Edward M. Wojtys, professor of orthopaedic surgery at the University of Michigan, Ann Arbor, conducted a retrospective study of patients diagnosed with multiligamentous injury of the knee requiring surgical reconstruction. They identified 72 knees in 71 patients; there were 12 vascular injuries among nine men and three women. The causes were motor vehicle accidents (three cases); falls (four cases); sports (two cases); and assault, boating, and being pinned by a vehicle (one case each).

Physical exam and MRI were used to determine which ligaments were damaged, and these were confirmed at the time of surgical reconstruction. A total of four patients with vascular injury had abnormal physical exams on initial presentation and underwent emergent revascularization; eight patients had normal physical exams and normal pulses on initial exam.

Of those patients with normal initial physical exams, five were found to have intimal injury, and four underwent vascular bypass. Of three patients with both normal physical exams and normal arteriograms, two were

found to have thrombosis secondary to large intimal flap lesions after ligament reconstruction. The remaining patients went on to have a pseudoaneurism requiring vascular reconstruction, said Dr. McDonough.

Dr. McDonough's findings contradict a recent study, which concluded that routine arteriography is not warranted in the treatment of these injuries, based on physical examination (*J. Bone Joint Surg. Am.* 2004;86:910-5).

Several authors have advocated selected arteriography based upon physical exam, Dr. McDonough said. However, there have been reports in the literature of popliteal artery injury secondary to knee dislocation presenting with normal distal pulses.

A 2002 metaanalysis of 116 articles concluded that abnormal pedal pulses are not sensitive enough to detect a surgical vascular injury and recommended liberal use of angiography, Dr. McDonough said (*J. Trauma* 2002;53:1109-14). The ankle brachial (arterial pressure) index has been proposed as a noninvasive and less costly test to assess arterial function, but a 1991 study concluded that the method's sensitivity was a poor runner-up to arteriography (*Ann. Surg.* 1991;214:737-41). ■



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DR. MCDONOUGH