

Nonsurgical Management of a Jones Fracture in a Collegiate Male Basketball Player

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Accounting for approximately 45–70% of all metatarsal fractures, epidemiological studies have evidenced the fifth metatarsal as being the most commonly fractured metatarsal in both children and adults.¹ Frac-

tures of the metatarsals can result from either direct trauma or overuse, with acute fractures occurring secondary to compressive, tensile, rotational, or crushing forces, and stress fractures arising insidiously following a multifactorial combination of chronic overloading and biomechanical abnormalities.² Clinically, acute fractures of the fifth metatarsal are associated with a common case pattern presentation. Examination findings may include swelling, observable deformity or the appearance of a “false joint,”

fracture, and positive radiographic imaging.^{2,3} In the case of stress fractures, radiographic imaging may also be positive and similar symptoms may present; however, stress fractures can be differentiated from acute fractures when the patient’s history entails a recent period of overuse and describes the pain as a dull sensation that increases with activity and decreases with rest.²

With prognosis and treatment options differing according to the anatomical location of the fracture along the proximal aspect of the fifth metatarsal, a classification system has been established to standardize the terminology used in reports and to better guide clinicians in recommending the appropriate plan of care. Accordingly, proximal fractures of the fifth metatarsal can be subdivided into three anatomical subgroups: avulsion fractures occurring most proximally at the styloid process and accounting for roughly 93% of proximal fifth metatarsal fractures, Jones fractures occurring roughly 1.5 cm distal to the styloid process at the junction of the metaphysis and diaphysis, and stress fractures occurring further distally in the region of the diaphysis.^{1,3,4}

In most cases, nondisplaced or minimally displaced styloid process avulsion fractures, nondisplaced shaft and neck fractures, and stress fractures have a favorable outcome and can be treated conservatively with

palpable tenderness over the fracture site, pain with long bone compression testing, an inability to bear weight, decreased range of motion at the joints proximal and distal to the

KEY POINTS

Jones fractures are often associated with delayed healing, high rates of nonunion, and occurrences of reinjury, such that intramedullary screw fixation is currently regarded as the gold-standard treatment.

Nonsurgical treatment should be considered as a potential option when the fracture is nondisplaced and the patient does not have a prior history of fifth metatarsal injury.

Clinical and radiographic bony union should be present before progressing the patient to sport activity.

Patient values should drive plan of care decisions, with support from research evidence and clinician expertise.

immobilization and weight bearing restrictions.^{2,3} Conversely, with a Jones fracture, the efficacy of non-surgical treatment is challenged by a high incidence for delayed union and nonunion. The delayed union or nonunion often occurs due to the disruption of the single nutrient artery that enters at the junction of the proximal diaphysis and metaphysis. This disruption often results in poor blood supply, impairing bone healing.^{2,3} Additionally, nonsurgical management of the Jones fracture may be further complicated by the tendency for the peroneus brevis and the lateral band of the plantar aponeurosis to create excess motion at the fracture site despite immobilization.⁵ For these reasons, treating Jones fractures by means of surgical intervention, particularly via intramedullary screw fixation, has garnered the greatest empirical support in eliciting a shortened union time and a faster return to athletic competition.^{2,3,6-8} According to a systematic review of 26 studies,⁹ a 96% union rate was achieved following intramedullary screw fixation compared with a 76% union rate in patients treated nonoperatively. Similarly, in a 2005 randomized controlled trial,⁷ patients receiving surgical fixation reached union at a median time of 7.5 weeks, with only 1 of 19 subjects being considered a treatment failure. Conversely, the subjects in the conservative management protocol did not reach clinical union until a median time of 14.5 weeks, with 8 of these 18 subjects deemed as being treatment failures.⁷

However, in formulating clinical judgments according to an evidence-based medicine model, scientific evidence alone should not be the sole factor considered when evaluating treatment options. Rather, as highlighted by Sackett et al.,¹⁰ clinical expertise and patient values should also be integrated with the best available research evidence when making clinical decisions. Therefore, despite the evidence supporting surgical fixation of Jones fractures, especially within an athletic population seeking a quick return to sport activity, the option of nonsurgical care should not be overlooked as a potential treatment route when establishing a plan of care.

Case Review

Patient History and Initial Examination

An 18-year-old male (height = 205 cm, mass = 88.5 kg) landed awkwardly on an opposing player's foot during offseason basketball competition. Immedi-

ately following the inversion mechanism, the patient experienced considerable pain along the lateral aspect of his left foot and was unable to bear weight and ambulate. The patient proceeded to self-treat the injury with ice, elevation, and compression, as well as ibuprofen to manage the pain. After a two-week period of self-treatment and ambulation in a walking boot, with crutches obtained from a family member, the patient presented to the college athletic training clinic. The patient described a "dull" pain, subjectively rated as 2 out of 10, along the lateral aspect of his fifth metatarsal that had improved since the initial injury but continued to be aggravated by weight bearing and palpation. Active range of motion of the foot and ankle was limited in all directions due to swelling and pain, and resistance testing was strong and pain-free bilaterally, with the exception of eversion of the left foot, which was strong yet painful. Mild swelling, point tenderness over the base of the fifth metatarsal, and pain with long bone compression of the fifth metatarsal were also noted during the examination. At the time of the evaluation, the patient was able to tolerate weight bearing in the boot, but gait was markedly antalgic, with pain noted during the push-off phase. Following clinical examination, the athletic trainer suspected a Jones fracture and referred the patient to the team physician for further imaging. The radiographs demonstrated a nondisplaced hairline Jones fracture and the patient was referred to a foot and ankle specialist (see Figures 1 and 2).

Patient Referral

Three weeks following the initial injury, the patient consulted a foot and ankle orthopedic surgeon regarding



Figure 1 Radiographic image (lateral view) of left foot with nondisplaced Jones fracture marked.