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A Prospective Study on the Operative Outcomes of Lisfranc's Fracture Dislocation.

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Keywords

LisFranc Injury, Operative Outcome, AOFAS Score

Abstract

Introduction- When one or more of the metatarsals are dislocated with regard to the tarsus, this is known as a Lisfranc injury. This phrase has a wide range of use; it may describe a mild sprain or a severe laceration, a solely ligamentous injury or one coupled with a fracture of the metatarsals, cuneiform bones, or cuboid. are unusual, making them easy to miss during a patient's first evaluation and therapy. Lisfranc injuries account for just around 0.2% of all fractures, but are either misdiagnosed or treated too late in 20% of cases. Males are two to four times more likely to get a Lisfranc joint injury than women, probably because to their greater propensity to engage in high-velocity activities. Injuries like this are frequent in people's thirties. The vast majority of these injuries (87.5%) are closed fractures, and they are on the rise among sportsmen, who often suffer from mild Lisfranc injuries. Nevertheless, adequate treatment and prevention of long-term effects depend on early and correct detection of these injuries. **Method-** Thirty instances of Lisfranc's fracture dislocation were examined; "surgery was performed on the medial (1st tarsometatarsal joint), middle (the second and third tarsometatarsal joints), and lateral (the fourth and fifth tarsometatarsal joints) columns, using screws and Kirschner wires, respectively." Lisfranc screws, metacarpal base to second metatarsal 4 or 4.5 mm non-cannulated screw from the first cuneiform to the second metatarsal base Screws or a K-wire of either 3.5 mm in diameter and not cannulated, crossed, or used alone Dorsal facets K-wires, Cannulated Cancellous Screws, and Cannulated Plate and Screws (Kirschner Wires). The American Orthopaedic Foot and Ankle Society (AOFAS) was used to assess functional recovery. **Result-** In our study, 30 patients were treated with the average age being 32.4 years, 11 cases (36.77%) were open type fractures and 19 cases (63.33%) were closed type fractures. We were able to achieve Excellent Outcome in 13.33% of the cases. In our research, the overall "AOFAS (American Orthopaedic Foot and Ankle Score) was 76.5, with Good Result in 70% of cases, Fair Outcome in 13.3% of cases, and no patients having Poor Outcome." **Conclusion-** Lisfranc fracture-dislocations caused by high-impact forces are simple to identify. Low-energy Lisfranc ligament injuries are often overlooked. Lisfranc injury has a significant morbidity rate if treatment is delayed or neglected. Suspicion is strong even for a midfoot A sprain may be used as a diagnostic tool. Achieving appropriate anatomical reduction is the single most essential aspect in producing desirable functional and radiographic outcomes. Current study indicates that Cannulated Cancellous Screws, plates with screws, and K Wires are an effective technique of therapy that delivers a favorable functional outcome without substantially raising the risk for post-operative problems, and are well-liked by patients.

1. Introduction

In 1815, French surgeon and gynaecologist of the Napoleonic era, *Jacques Lisfranc de St. Martin*, describe an amputation at tarso-metatarsal level and coined the term 'Lisfranc amputation' for 'Lisfranc injury'. When one or more of the metatarsals are dislocated with regard to the tarsus, this is known as a Lisfranc injury. "The term is used very generally and

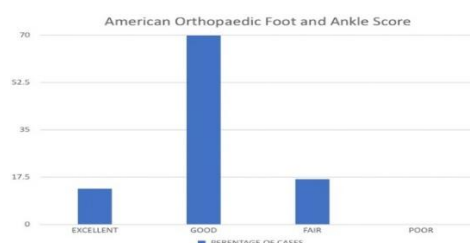
can pertain to either a low-energy sports injury or a high-energy lesion; however, lesions that really are solely ligamentous or which are associated with fractures of a metatarsals, cuneiform bones", as well as cuboid bone are uncommon and may be missed during the initial assessment and treatment. Just around 0.2 percent of all fractures are Lisfranc injuries, yet 20% of them go undiagnosed or are treated too late. Lisfranc joint injuries are two to four

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times more common in males than females because of their increased inclination to participate in high-velocity activities. People in their thirties are most vulnerable to this kind of injury. The vast majority of these injuries (87.5%) are closed fractures, and they are on the rise among sportsmen, who often suffer from mild Lisfranc injuries. Nevertheless, adequate treatment and prevention of long-term effects depend on early and correct detection of these injuries.

2. Aims and Objectives

To observe and comment on the various operative outcomes typically seen in Lisfranc Injuries.



3. Materials and Methods

Patients with Lisfranc fracture-dislocation were the focus of a prospective research conducted between October 2018 and May 2021 at “Krishna Medical Center and Research Centre, Krishna Institute of Medical Sciences Deemed to be University, Karad.” Thirty patients with Lisfranc's fracture dislocation were studied; all of them had undergone surgical fixation, “either with 4.0 mm screws inside the medial (1st tarsometatarsal joint) or center (both the second and third tarsometatarsal joints) section, or Kirschner wires inside the lateral (4th and 5th tarsometatarsal joints) column.” Screws or even a K-wire of either 3.5 mm in diameter but not cannulated, crossed, or used alone Lisfranc screws: from the ball of the foot to the initial cuneiform bone 4 or 4.5 mm non-cannulated screw from the first cuneiform to the base of the second metatarsal Dorsal facets K-wires, cannulated cancellous screws, as well as cannulated plate and screws (Kirschner Wires). The functional outcome was evaluated using AOFAS [American Orthopaedic Foot and Ankle Score].

4. Result

In our study, 30 patients were treated with the average age being 32.4 years, 11 cases (36.77%) were open

type fractures and 19 cases (63.33%) were closed type fractures. We were able to achieve **Excellent Outcome** in 13.33% of the cases. In our research, “the overall AOFAS (American Orthopaedic Foot and Ankle Score) was 76.5, with Good Result in 70% of cases, Fair Outcome in 13.3% of cases, and no patients having Poor Outcome.”



Case 2



Case 3



Case 4



Case 5



Radiographs and clinical photos

5. Discussion

Surgery with corrected biomechanics is only successful when there is no blood and mutilation with excellent patient recovery. When the internal fixation is removed, the joint may spring open because the remainder of the Lisfranc ligament prevents reduction. The dislocation fracture at the base of the second metatarsal must be reduced. By allowing the damaged joints to arthrofibrose, fixation helps maintain the foot's natural gradient. Ligamentous Healing is unpredictable; not strong enough. Joint degeneration occurs because Tarsometatarsal joint is unstable. Our study patient participants and average age was comparable to Cassinelli et al, Vosbikian et al and Balazs et al^{7,8,9}. In a study conducted by Li et al¹⁰ ORIF with ligament repair was done and "according to AOFAS Score 5 cases were defined as excellent, 3

as good and 2 cases fair. In a study conducted by Bandac and Botez"¹¹ ORIF with screws had better outcome and according to AOFAS 10 patients had an excellent outcome, 8 were classified as good, and 13 as fair and poor. Meanwhile in our study our results were similar to Henning et al, 2009 study.

6. Conclusion

High-energy Lisfranc fracture-dislocations are easy to diagnose. Ligamentous low energy Lisfranc are commonly missed injury. If missed, high morbidity is associated with Lisfranc injury. A high level of suspicion even in case of midfoot Sprain helps to reach to a diagnosis. Achieving appropriate anatomical reduction is the single most essential aspect in producing desirable functional and radiographic outcomes. Based on the results of the current research, "operative management using CC (Cannulated Cancellous Screws) Screws, plates with screws, and K Wires is an effective method of treatment that yields a positive functional outcome without significantly increasing the risk of post-operative complications and is well-liked by patients."

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