



Study of Lisfranc Fracture- Rare fracture of Foot.

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The **Lisfranc injury** (also known as the **lisfranc fracture, Lisfranc dislocation, Lisfranc fracture dislocation, tarsometatarsal injury, or simply midfoot injury**) is an injury of the foot in which one or more of the metatarsal bones are displaced from the tarsals.^{[1][2]} The injury is named after Jacques Lisfranc de St. Martin.^[3]

Causes [mode of injury]

In humans, the midfoot consists of five bones that form the arches of the foot (the cuboid, navicular, and three cuneiform bones) and their articulations with the bases of the five metatarsal bones. Lisfranc injuries are caused when excessive kinetic energy is applied either directly or indirectly to the midfoot and are often seen in traffic collisions or industrial accidents.^[4]

Direct Lisfranc injuries are usually caused by a crush injury, such as a heavy object falling onto the midfoot, or the foot being run over by a car or truck, or someone landing on the foot after a fall from a significant height.^[5] Indirect Lisfranc injuries are caused by a sudden rotational force on a plantar flexed (downward pointing) forefoot.^[4] Examples of this type of trauma include a rider falling from a horse but the foot remaining trapped in the stirrup.

Material & Method

We had 10 patient. All were male. Mode of injury was a crush injury, such as a heavy object falling onto the midfoot, fall from motorbike, or car or truck running on the foot All were having compound fractures.. All were young workers - between 20 to 40 yrs of age^[4]

Diagnosis

In a high energy injury to the midfoot, such as a fall from a height or a motor vehicle accident, the diagnosis of a Lisfranc injury should, in theory at least, pose less of a challenge. There will be deformity of the midfoot and obvious X-ray abnormalities. There may even be disruption of the overlying skin [compound nature] and compromise of the blood supply. Typical X-ray findings would include a gap between the base of the first and second toes.^[6] The diagnosis becomes more challenging in the case of low energy incidents, with a twisting injury is already in a fully plantar flexed position. Then, there may only be complaint of inability to bear weight and some mild swelling of the forefoot or midfoot. Bruising of the arch has been described as diagnostic in these circumstances.^[7] Typically, conventional radiography of the foot is utilized with standard non-weight bearing views, supplemented by weight bearing views which may demonstrate widening of the interval between the first and second toes, and misaligned small tarsals with metatarsals. if the initial views fail to show abnormality. unfortunately, radiographs in such circumstances have a sensitivity of 50% when non-weight bearing and 85% when weight bearing, meaning that they will appear normal in 15% of cases where a Lisfranc injury actually exists.^[5] In the case of apparently normal x-rays, if clinical suspicion remains, advanced imaging such as magnetic resonance imaging (MRI) or X-ray computed tomography (CT) is next step.^[7,8]

Classification

There are three classifications for the fracture:^[9]

1. Homolateral: All five metatarsals are displaced in the same

direction. Lateral displacement may also suggest cuboidal fracture. [1 patient]

2. Isolated: one or two metatarsals are displaced from the others. [8 patients]
3. Divergent: metatarsals are displaced in a sagittal or coronal plane and may also involve the intercuneiform area and include a navicular fracture. [1 patient]

Treatment

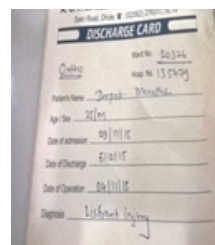
Options include operative or non-operative treatment. If the dislocation is less than 2 mm, the fracture can be managed conservatively. For severe Lisfranc injuries, [which we had] open reduction with internal fixation (ORIF) and temporary screw or Kirschner wire (K-wire) fixation is the treatment of choice.^[10] We used this treatment of ORIF IN ALL PATIENTS. The foot cannot be allowed to bear weight for a minimum of six weeks. Partial weight-bearing may then begin, with full weight bearing after an additional several weeks, depending on the specific injury. K-wires are typically removed after six weeks, before weight bearing, while screws are often removed after 12 weeks, before weight bearing allowed.^[13]

Secondary to chronic pain and sometimes to a planovalgus deformity in cases with severe pain, loss of function, or progressive deformity, mid-tarsal and tarsometatarsal arthrodesis (operative fusion of the bones) may be indicated.^[11]

History

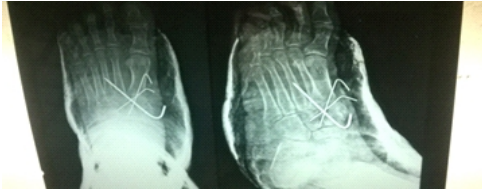
During the Napoleonic Wars, Jacques Lisfranc de St. Martin encountered a soldier who suffered from vascular compromise and secondary gangrene of the foot after a fall from a horse.^[3] Subsequently, Lisfranc performed an amputation at the level of the tarsometatarsal joints,^[1] and that area of the foot has since been eponymously referred to as the "Lisfranc joint".^[15] Although Lisfranc did not describe a specific mechanism of injury or classification scheme, a Lisfranc injury has come to mean a dislocation or fracture-dislocation injury at the tarsometatarsal joints.^[3]

Case no 1





pre- Op x-ray



POST- OP X-RAY p



FOLLOW-UP X-RAY



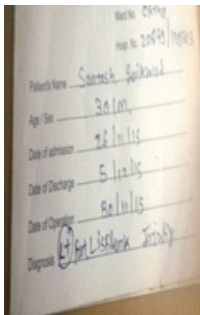
Follow-up x-ray

Conflict of interest- Nobody's interest in this paper.

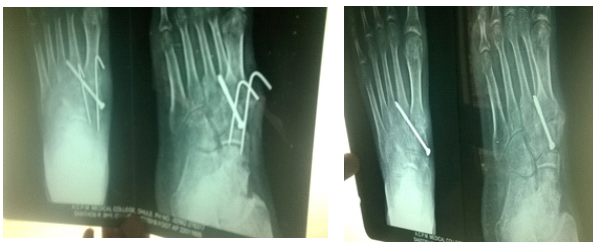
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Case no 2



pre- op xay



post opx-ray