Research Paper Medical Science

Isolated Talonavicular Dislocation With Delayed Presentation: Treatment Strategy

Dr. Rajat Jangir	Assistant Professor , Department Of Orthopaedics , Mahatma Gandhi Medical College and Hospital , Sitapura, Jaipur, India.
Dr. Diwakar Mishra	Department Of Orthopaedics, Pure Health Hospital & Medical Centre Pvt.ltd. Palej Kamboli Road, & Po Simaliya , Dist. Bharuch, India.
Dr. Abhimanyu Singh	3rd year resident, Department of Orthopaedics, Mahatma Gandhi Medical College and Hospital, Sitapura , Jaipur -332022, India.

ABSTRACT

Introduction: Isolated talonavicular dislocation is rare because of the strong plantar ligamentous structures that support the joint. Dislocation of the talonavicular joint is rare, caused by severe abduction or adduction of the forefoot. Isolated talonavicular dislocation without complication by navicular, talar neck and open calcaneal fractures is even rare.

Case Report: A case of close talonavicular dislocation a 26-year old man is reported, with delayed treatment at 4 months. We describe a closed isolated talonavicular dislocation without complication by navicular, talar neck and open calcaneal fractures. Prompt recognition and rapid reduction of fractures and dislocations gives the best possible outcome. Proper reduction is necessary to avoid equinovarus deformity, ankylosis, or degenerative arthritis, however in chronic untreated case open reduction with talonavicular fusion provides good functional results.

Conclusions: A better long term result may have been achieved if closed reduction had been attained at initial presentation. Prompt recognisation and early reduction is necessary to obtain optimal results and to avoid complications. Patient with delayed presentation needs open reduction and fusion. Long term predictable results are achievable with fusion allowing painless functional foot.

KEYWORDS Isolated talonavicular dislocation, plantar ligamentous structures

Case Report

Introduction: Isolated talonavicular dislocation is rare because of the strong plantar ligamentous structures that support the joint. The strongest ligamentous structures of the midtarsal joint are on the plantar side which is protected by the long and short plantar ligament, bifurcate ligament, and the plantar calcaneonavicular (spring) ligament, which are important as supports for the arch of the foot.[1] Dislocation of the talonavicular joint is rare, caused by severe abduction or adduction of the forefoot [2]. Proper reduction is necessary to avoid equino-varus deformity, ankylosis, or degenerative arthritis [3, 4], however in chronic untreated case open reduction with talonavicular fusion provides good functional results.

Case Report

A twenty six year old man was transferred to our hospital four month after falling fifteen meters from a building. At the time of injury patient was treated by a bone-setter in form of a slab, and patient himself removed the slab after 3 weeks, started weight bearing. After neglecting his injury for 4 month, came to us and at four months he had developed a varus forefoot causing discomfort and difficulty fitting comfortably into shoes. At that stage the patient was incapacitated and has significant pain with activity. On X-ray and CT scan he had sustained an isolated closed talonavicular dislocation. Closed reduction under general anesthesia was tried, but was not possible, so an open anterior approach between tibialis anterior and extensor hallucis longus was taken to the midfoot. Following release of the navicular's ligamentous attachments between cuboid and cuneiform bones, reduction was successful. After removal of the talus and navicular articular cartilage fusion was done. Stabilisation was achieved by plaster cast. Post-operatively the patient was nonweight-bearing in a below knee cast. After eight weeks the talo-navicular fusion was clinically and radiographically stable and POP was removed. After three months full weight bearing was allowed. After 12 months fusion had occurred and the reduction was maintained.

DISCUSSION:

Isolated Fracture dislocation of talonavicular joint is very uncommon and controversy remains regarding the most appropriate management [2]. Long term complications with these injuries are numerous and frequent. Ankylosis and equinovarus deformity can occur with incomplete talo-navicular reduction. Cases of isolated midtarsal dislocation in medial, lateral, or plantar directions have been reported [5-8] In this case; lateral forces disrupted the medial ligamentous structure, resulting in medial midtarsal dislocation. Even in these complex injuries, an early anatomic reduction and stable fixation can minimize the percentage of long-term impairment [910,] A swivel dislocation is an uncommon variant of a subtalar dislocation, where a medially or laterally directed force dislocates the talonavicular joint, and subluxates but does not dislocate the subtalar joint. The calcaneus rotates or swivels on an intact interosseous talocalcaneal ligament without tearing it. It is important to recognize this injury as the treatment and prognosis are different form a subtalar dislocation [11]. At four months he had developed a varus forefoot causing discomfort and difficulty fitting comfortably into shoes. At that stage the patient was incapacitated and has significant pain with activity, so talonavicular fusion was indicated to re-align the forefoot. In this case reduction was delayed due to negligence on part of the patient. A better long term result may have been achieved if closed reduction had been attained at initial presentation [4]. Prompt recognisation and early reduction is necessary to obtain optimal results and to avoid complications [4, 12]. Patient with delayed presentation needs open reduction

and fusion. In our patient talonavicular fusions was good clinically and radiologically at one year follow up. Patient is full weight bearing without pain, discomfort or deformity.

Conclusions: A better long term result may have been achieved if closed reduction had been attained at initial presentation. Prompt recognisation and early reduction is necessary to obtain optimal results and to avoid complications. Patient with delayed presentation needs open reduction and fusion. Long term predictable results are achievable with fusion allowing painless functional foot.

Acknoledgement: Nil

Conflict of Interest: None

Figure 1. Foot X-ray antero-posterior view showing talonavicular dislocation

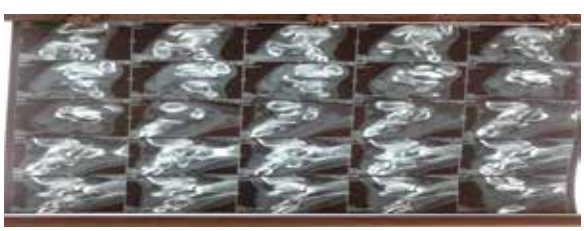

Figure 2 CT Image showing Talonavicular dislocation

Figure 3. Post-operative X-ray after open reduction and talonavicular fusion

REFERENCES

1. Ross PM, Mitchell DC. Dislocation of the talonavicular joint: case report. The Journal of trauma. 1976;16(5):397-401. Epub 1976/05/01. | 2. Ruthman JC, Meyn NP. Isolated plantar midtarsal dislocation. The American journal of emergency medicine. 1988;6(6):599-601. Epub 1988/11/01. | 3. Samoladas E, Fotiades H, Christoforides J, Pournaras J. Talonavicular dislocation and nondisplaced fracture of the navicular. Archives of orthopaedic and trauma surgery. 2005;125(1):59-61. Epub 2004/12/14. | 4. Williams DP, Hanoun A, Hakimi M, Ali S, Khatri M. Talonavicular dislocation with associated cuboid fracture following low-energy trauma. Foot and ankle surgery : official journal of the European Society of Foot and Ankle Surgeons. 2009;15(3):155-7. Epub 2009/07/29. | 5. Newton Ede MP, Miller C, Malik MH, Khan SA. An unusual case of talonavicular dislocation with associated ipsilateral foot fractures. Journal of the Royal Army Medical Corps. 2006;152(2):102-3. Epub 2006/12/21. | 6. Hosking KV, Hoffman EB. Midtarsal dislocations in children. Journal of pediatric orthopedics. 1999;19(5):592-5. Epub 1999/09/17. | 7. Datt N, Rao AS, Rao DV. Medial swivel dislocation of the talonavicular joint. Indian journal of orthopaedics. 2009;43(1):87-9. Epub 2009/09/16. | 8. Vaishya R, Patrick JH. Isolated dorsal fracture-dislocation of the tarsal navicular. Injury. 1991;22(1):47-8. Epub 1991/01/01. | 9. Main BJ, Jowett RL. Injuries of the midtarsal joint. The Journal of bone and joint surgery British volume. 1975;57(1):89-97. Epub 1975/02/01. | 10. Richter M, Wippermann B, Krettek C, Schratt HE, Hufner T, Therman H. Fractures and fracture dislocations of the midfoot: occurrence, causes and long-term results. Foot & ankle international / American Orthopaedic Foot and Ankle Society [and] Swiss Foot and Ankle Society. 2001;22(5):392-8. Epub 2001/06/29. | 11. Richter M, Thermann H, Huefner T, Schmidt U, Goesling T, Krettek C. Chopart joint fracture-dislocation: initial open reduction provides better outcome than closed reduction. Foot & ankle international / American Orthopaedic Foot and Ankle Society [and] Swiss Foot and Ankle Society. 2004;25(5):340-8. Epub 2004/05/12. | 12. Milgram JW. Chronic subluxation of the midtarsal joint of the foot: a case report. Foot & ankle international / American Orthopaedic Foot and Ankle Society [and] Swiss Foot and Ankle Society. 2002;23(3):255-9. Epub 2002/04/06. | | Textbook | 13. McMinn RMH. Last's Anatomy: Regional and Applied. 8th edition. London: Churchill Livingstone; 1990 204–217