

Medial Subtalar Dislocation

(Report of Four Cases and Review of Literature)

Mohammad Arshad Ikram, FRCS*

Salem Al-Zahrani, FRCS**

Firoz A Khan, FRCS***

Mamoon Kremli, FRCS****

Awil Abdulrahman Ali*****

ABSTRACT

This paper presents a report of four patients with isolated medial subtalar dislocations treated at King Khalid University hospital during January 1988 to December 1990. All the patients were male with an average age of twenty four years. The injuries were closed and caused by forceful inversion of the forefoot while playing football. They were treated by closed reduction and below knee plaster cast immobilisation with excellent results.

Isolated subtalar dislocation of the foot is a rare injury and only few reports are available in the literature^{1,2,3}. It occurs when there is simultaneous dislocation of the talonavicular joint and talocalcaneal joint⁴. According to the direction of displacement of the foot, the subtalar dislocation can be medial, lateral, anterior or posterior. The common mechanism of injury is motor vehicle accident or fall from a height causing forceful inversion of the forefoot during which the neck of the talus pivots with the sustentaculum tali as a fulcrum, resulting in dislocation of the talonavicular joint followed by dislocation of the subtalar joint^{3,4}. The incidence of complications including stiffness and arthritis of subtalar joint are high⁵. Because of the associated intra articular fractures of subtalar and talonavicular joint, open reduction and immobilisation for long periods contribute to poor results⁶.

We report four cases of medial subtalar dislocation where immediate closed reduction and early immobilisation showed excellent results.

METHODS

During the period of three years from January 1988 to December 1990 four patients with medial subtalar dislocation were treated at King Khalid University Hospital. There were three right and one left dislocation. All patients were young males with an age range from 18 to 30 years. All the patients sustained injury while playing football. The average time between the injury and the arrival in the hospital was two hours.

Method of Reduction

Under intravenous pethidine and valium in emergency room the surgeon hold the heel with one hand and forefoot in the other hand. The leg is allowed to hang at the edge of the table in order to relax the gastrocnemius muscle. The traction is given in the direction of deformity to disengage the fragments and then the foot is plantarflexed followed by abduction and dorsiflexion. Reduction is confirmed by check x-ray (Fig 1 & 2).

A non weight bearing below knee plaster cast was given for 3 weeks. Active assisted exercises of the subtalar joint were given after removal of plaster.

The evaluation of final result assessed clinically by the presence of pain and range of motion and radiologically by appearance of degenerative changes in subtalar and talonavicular joints.

All four patients had closed reduction. The average follow up was two years. Three patients experienced

* Orthopaedic Surgeon

** Associate Professor

*** Associate Professor & Consultant Orthopaedic Surgeon

**** Assistant Professor & Consultant Orthopaedic Surgeon

***** Fellow in Ortho & Trauma



Figure 1: Anterio posterior and lateral radiographs of right ankle showing medial subtalar dislocation

occasional pain during walking on uneven ground for first six months. All patients reported to have swelling of foot in the evening but it improved with active exercise of muscles of foot. None of the patient had any loss of function. There was no history of previous injury to involved foot or ankle.

The range of motion was compared with the normal foot and found to be of full range in all the patients. None of the patients had osteoarthritis of subtalar joint or avascular necrosis of talus.

DISCUSSION

Subtalar dislocation is a rare injury and common in middle age group⁷. The common mechanism of injury is



Figure 2: Anterio posterior and lateral radiographs of the right ankle after closed reduction of medial subtalar dislocation

motor vehicle accident or a fall from a height⁷. But in our series all the patients were young and got injured while playing football. Most of the studies mentioned that the talus was in normal position^{5,8}, but we noticed that the talus was in an equinus position and lost its anterior and inferior support. This finding helped us in our reduction; we pulled the foot in the direction of deformity to open the talonavicular joint then planterflexed it to follow the talus.

Leitner mentioned that anatomical reduction was always possible by closed manipulation². But rare cases have been reported in the literature where open reduction was necessary^{5,9}. We achieved reduction by closed means in all our patients followed by immobilisation for three weeks.

Delee et al³ identified the factors which contributed to permanent disability and these are intra articular fractures, open reduction and long period of immobilisation.

Our results are in agreement with most of the previously published studies, that pure subtalar dislocation without major fracture of talus is accompanied with minimum long term disability^{1,3,6}. To achieve good results we recommend immediate closed reduction.

REFERENCES

1. Buckingham WW Jr. Subtalar Dislocation of the Foot. *J Trauma* 1973;13:753-65.
2. Monson ST, Ryan JR. Subtalar Dislocation. *J Bone Joint Surg* 1981;63-A:1156-58.
3. Delee JC, Curtis R. Subtalar Dislocation of the Foot. *J Bone Joint Surg* 1982; 64-A:433-7.
4. Leitner B. Obstacle in reduction of Subtalar Dislocation. *J Bone Joint Surg* 1954;36-A:299-306.
5. Heppenstall RB, Farahrar H, Balderston R, Lotke P. Evaluation and management of subtalar joint. *J Trauma* 1980;20:494-7.
6. Pierre RKST, Velasco A, Fleming LL, Whitesides T. Medial subtalar dislocation in an athlete. *Am J Sports Med* 1982; 10:240-4.
7. Mindell ER, Cisek EE, Kartalian G, Dziob MM. Late Results of injuries to the talus. Analysis of forty cases. *J Bone Joint Surg* 1963;45-A:221-45.
8. Haliburton RA, Barber JR, Frasser RL. Further experience with peritalar dislocation. *Can J Surg* 1967;10:322-4.