Proximal Tibiofibular Joint Dislocation as a Maissoneuve Equivalent Fracture: A Therapeutic Approach

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Introduction/Purpose: Dislocation of the proximal tibiofibular joint (PTFJ) in association with ankle fracture is an infrequent injury. The mechanism involves a pronation-external rotation injury in which the energy exits through the PTFJ instead of the proximal fibula, like in a Maissoneuve fracture. Early diagnosis and treatment is of paramount importance to avoid complications such as pain, posterolateral knee instability and peroneal nerve injury due to chronic traction by the dislocated fibular head. In addition, an anatomical reduction of the PTFJ is mandatory to restore the fibular length in order to obtain anatomic reduction at the ankle.

The objective is to report 3 cases with PTFJ dislocation in association with ankle fracture and to provide a treatment guide based on the management of these patients.

Methods: Three cases of PTFJ dislocation in association with ankle fracture, surgically treated in our institution between 2009 and 2016, were retrospectively analyzed. For each case, clinical history at admission, pre and post operative radiographs and computed tomography (CT) were obtained. Clinical follow up time was between 1 and 6 years.

Results: Diagnosis of the PTFJ dislocation required a high degree of suspicion. All the patients had subtle radiographic abnormalities at the PTFJ, thus requiring a CT of the knee to confirm the diagnosis.

The first surgical step was to perform an open reduction of the PTFJ. Common peroneal nerve was identified and retracted. Reduction was performed with a clamp and for fixation we used one cortical positioning screw from the fibula to the tibia. After the achievement of an anatomic reduction, the second step was to approach the ankle according the specific fracture pattern. Anatomical reduction was obtained in all the patients checked by ankle and knee CT. At final follow up none of the patients had knee pain, and all returned to their activities.

Conclusion: The PTFJ dislocation in association with ankle fracture is an infrequent injury and should be considered as a Maissoneuve equivalent fracture in terms of mechanism and diagnosis. A high index of suspicion is needed and the diagnosis is confirmed with a knee CT. As the Essex Lopresti injury of the upper extremity, this type of lesion requires proximal and distal stabilization.

Our recommended treatment, based on the good clinical results of our 3 patients, is open reduction and screw fixation of the PTFJ as the first step in order to allow anatomical reduction of the distal injury at the ankle.