ACUTE ISOLATED ANTEROLATERAL DISLOCATION OF THE PROXIMAL TIBIOFIBULAR JOINT

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ABSTRACT

Isolated traumatic dislocation of the proximal tibiofibular joint is rare. This injury may go unrecognized or be misdiagnosed at the initial presentation. Lack of clinical suspicion can cause diagnostic problems. The diagnosis requires an accurate history of the mechanism and symptoms of the injury, and adequate clinical and radiographic evaluation of both knees. Unrecognized cases are a source of chronic abnormalities. The treatment consists of closed reduction and immobilization or, in non-reducible or unstable cases, open reduction with temporary internal fixation. A rare case of isolated proximal tibiofibular dislocation in a basketball player is reported to illustrate this injury.

Keywords *– Knee dislocation; Fibula; Basketball; Masculine*

INTRODUCTION

Lesions on the lateral face of the knee are less frequent than medial lesions. The lateral ligaments, tendon insertions and proximal fibula protect, but may cause difficulties in examining and diagnosing lesions in this region[1-3]. Acute dislocation of the proximal tibiofibular joint is a rare diagnosis and may go unnoticed in walk-in and emergency services[4,5]. Neglected or untreated cases may lead to degenerative abnormalities of the joint, with chronic pain and even dysfunction of the fibular nerve[6,7].

ANATOMY

The proximal tibiofibular joint is a synovial joint between the lateral tibial condyle and the head of the fibula[8,9]. At least 10% of the population has communication between this joint and the tibiofemoral joint, thus explaining some cases of slight joint effusion in the knee[9,10].

The tibiofibular joint is naturally stable because of joint-bone congruence with the muscle-ligament envelope and its posterolateral location[7]. The orientation of the joint surface may vary and lead to greater risk of dislocation[1]. The variants have been defined as horizontal (up to 20º of inclination in relation to the ground plane) or oblique (inclination greater than 20º), and the latter is found in 70% of the patients with this lesion[1] (Figure 1).

Anterior and posterior capsule thickenings form the tibiofibular ligaments, among which the anterior tibiofibular ligament is the most resistant[6,9,11]. Additional stabilization for the joint is provided by the lateral collateral ligament and the tendon of the femoral biceps (when the knee is extended), and the popliteal tendon and popliteal fibular ligament[3,9,12]. With the knee flexed, the fibular head migrates anteriorly, while the lateral collateral ligament and the tendon of the femoral biceps relax, thereby losing stability[1,13-15].

In addition to the proximal joint, the tibia and fibula have the distal syndesmosis between them, which may

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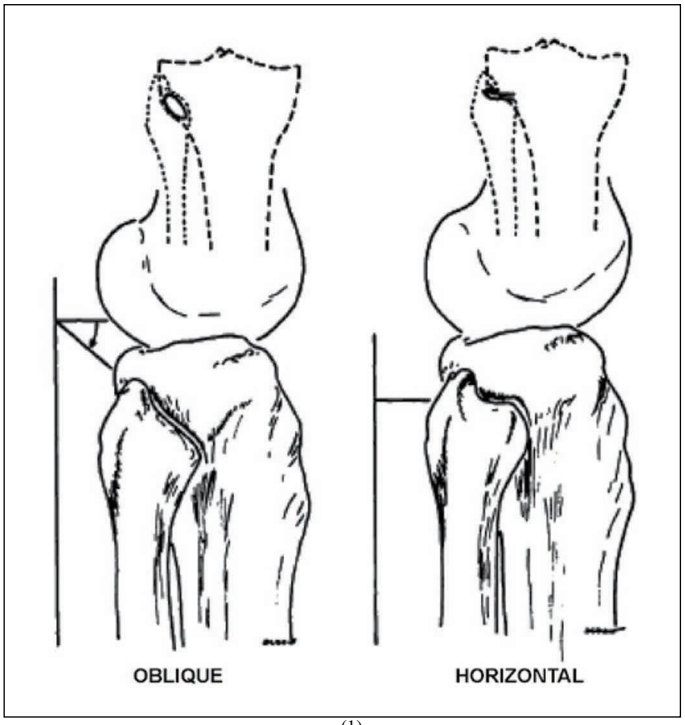

Figure 1 – Anatomy of the joint[1]

become injured in the same traumatic event[9]. The primary function of the proximal joint is to dissipate torsion forces that are applied to the ankle, dissipate lateral tibial support forces and transmit the axial load[9,14].

CLINICAL CONDITION

Histories of isolated acute tibiofibular dislocation are associated with severe twisting with inversion and plantar flexion of the foot, simultaneously with knee flexion and external rotation of the leg[11,16]. Dislocation may also occur due to direct trauma in high-energy mechanisms[1,11,17].

Patients may have spontaneous pain, which is worsened by inversion, eversion or dorsiflexion of the foot, in the inferior lateral region of the knee[1,11,16,18-20]. Paresthesia in the region of the fibular nerve is common, but paralysis with dorsiflexion deficit has been little described[2,11,21]. A bone prominence is seen in the region of the fibular head, and slight joint effusion may be present[6,12]. The range of motion of the joint is preserved, but the movement causes pain[11,12]. Absence or slight presence of ecchymosis and edema are explained by the poor vascularization of the area[11,16,19].

Examination of the ankle joint is essential in order to detect lesions of the interosseous membrane and syndesmosis ligaments[7,22].

RADIOLOGICAL CONDITION

Anteroposterior radiographs of the knee usually show the proximal fibula and tibia overlain[23]. Comparison between front and lateral radiographs on the two knees helps to confirm the diagnosis and the location of the fibular head[19]. Computed tomography is indicated for better assessment of the joint and when there are diagnostic doubts[12,24,25].

CLASSIFICATION

Four types, according to the dislocation, were described by Ogden in 1974[1] (Figure 2).

Type I – Characterized by excessive joint mobility, with multidirectional subluxation; frequently found in young patients with joint hypermobility.

Type II – Characterized by anteroposterior dislocation; this is the commonest type, occurring in up to 85% of the cases[1,12,20,26].

Type III – Posteromedial; this occurs in 10% of the cases and is more associated with direct trauma to the fibular head[12,17]. It is generally more unstable after the initial closed reduction, which makes it difficult to implement conservative treatment[1,16].

Type IV – This is an upwards dislocation of the fibular head, in association with fracturing of the fibular neck or high-energy trauma to the ankle, with severe injury to the tibiofibular syndesmosis[11,16,26].

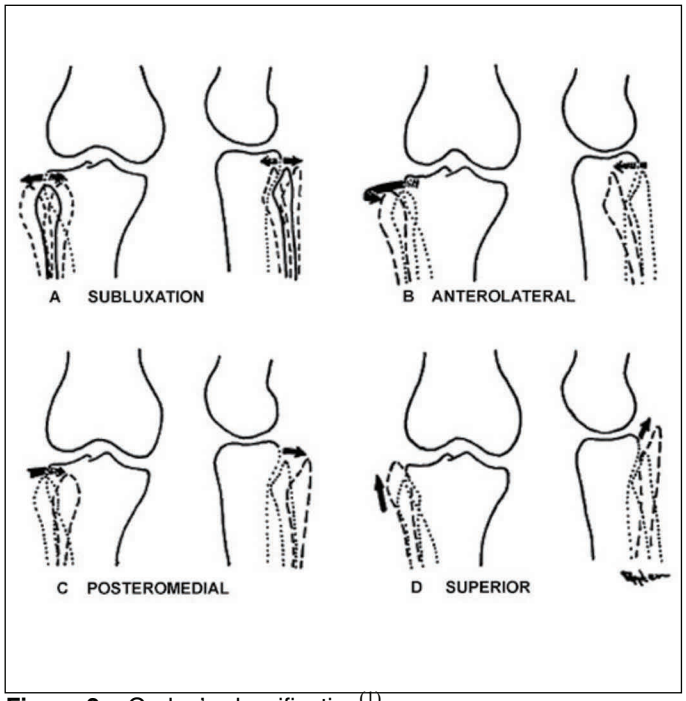

Figure 2 – Ogden's classification[1]