The Abnormal Proximal Tibiofibular Joint

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Summary. Abnormalities of the proximal tibiofibular joint are infrequently encountered. Mostly instability occurs as a result of trauma. Four types of instability are distinguished: subluxation, anterolateral, posteromedial, and superior dislocation. Four radiological methods designed to visualize abnormalities of the proximal tibiofibular joint are discussed. Special notice is given to the clinical relevance of a new method. Instability was demonstrated in 19 patients; 16 of these were treated by an operation. History, data obtained by physical examination, and ways of treatment are discussed.

Introduction

Anomalies of the proximal tibiofibular joint are not frequently encountered. There are four types of instability of this joint, mostly resulting from a trauma. Other causes for this abnormality are: tumours in the surrounding tissues, clubfoot, poliomyelitis, lower leg amputation, septic and rheumatoid arthritis.

Instability of the proximal tibiofibular joint is not often diagnosed, mostly because of the fact that many physicians are unfamiliar with this abnormality.

In 1981 we presented a radiological method for evaluating instability of the proximal tibiofibular joint [7]. Now we will not only discuss its clinical relevance, but also report on the cases that have been diagnosed and treated so far.

Anatomy

The proximal tibiofibular joint is a sliding joint located between the lateral tibial condyle and the fibular head; its synovial sac sometimes communicates with the knee joint. A horizontal and a more oblique type of joint are distinguished [6].

Fig. 1. Transverse section of a right lower leg at the level of the proximal tibiofibular joint in an adult
The horizontal type is said to be more prone to instability disorders than the oblique type [5]. Figure 1 shows a section of the proximal end of a right lower leg at the level of the proximal tibiofibular joint.

**Types of Instability**

Four types of instability of the PTF-joint are distinguished: subluxation described as excessive mobility without dislocation, anterolateral dislocation, posteromedial dislocation and superior dislocation.

**Patients and Methods**

We investigated 26 patients with supposed pathology of the proximal tibiofibular joint, by taking history, physical examination, EMG-studies and X-ray films. In our opinion there are four radiological manners to evaluate pathology of the PTF-joint:

1. Standard anteroposterior and lateral X-rays of both knees;
2. Arthrography, mostly via the knee joint, in patients in whom there is a communication between the synovial sacs of both joints;
3. Computed tomography of the proximal tibiofibular joint on both sides;
4. A special series of X-ray films to establish the relationship between the articular surfaces of the joint and to demonstrate degenerative changes, as indicated in our previous article [7].

With the aid of an undertable tube (Siemens Pantoscope), three types of exposures are made of the left and right knee, with the patient supine. The joint spaces are centrally visualized and the knees are fully extended:

a) Posteroanterior: the maximal width of the femoral condyles must be seen together with the medial and lateral joint space of the knee and the fibular head.

b) Lateral, from the outer side: in this projection there must be as much coverage of the dorsal projection of the femoral condyles as possible.

c) A projection which is created by 30°-90° internal rotation of the lower leg in such a way that the distance between the medial aspect of the fibular head and the lateral aspect of the tibia plateau is maximal. The rotation is measured at the medial side of the foot; normal values are 45°-60°. The rotation varies with the position of the PTF-joint.

**Results**

Seventeen of these 26 patients were male; 9 were female.