

INSTABILITY OF THE PROXIMAL TIBIO-FIBULAR JOINT

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The proximal tibio-fibular joint consists of a joint cavity surrounded by a joint capsule (diarthrosis) forming a rather rigid joint. In patients who complain of pain and instability in the knee, the cause may sometimes be found in laxity of the proximal tibio-fibular joint. In these cases the abnormal movements of the fibular head are palpable and visible and can be demonstrated on X-ray films.

The disease is not well known and is often overlooked. It can be differentiated by palpating the fibular head. In two patients the pain and disability were so severe that fusion of the proximal tibio-fibular joint was undertaken. This treatment seems to have been successful.

Key words: arthrodesis; head of fibula; instability; proximal tibio-fibular joint

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Instability of the proximal tibio-fibular joint

The proximal tibio-fibular joint consists of the articulating surfaces of the upper end of the fibular head and the lateral condyle of the tibia, which are covered with hyaline cartilage. The capsule is reinforced anteriorly and posteriorly by two ligaments. Radiographically the joint space is visible only in oblique projections.

In the orthopaedic and traumatologic literature, dislocation of the fibular head is mostly described in combination with fracture of the tibia and the ankle. Reports of non-traumatic disorders of this joint are quite rare.

Symptomatology

Recurrent dislocation of the superior tibio-fibular joint is found in adolescents, and sometimes in children. Attempts to analyse the history of the knee trouble in these cases result in answers such as: "My knee gives

way", "My knee locks" and "There is a click somewhere in the joint". Diffuse pain, not only in the unstable joint, but sometimes on the medial side of the knee is recorded, suggesting a meniscus lesion. However there is no wasting of the quadriceps and no swelling.

Because this lesion is not found in older patients there seems to be a tendency towards spontaneous improvement.

Physical signs

Instability of the fibular head is best diagnosed with the patient in the supine position. The knee is flexed to 90°, with the muscles relaxed, especially the biceps femoris. When the joint is unstable the fibular head held between the thumb and index finger can be moved anteriorly and laterally. On releasing, it returns with a click to its original position. The dislocation can be to the extent of 1 or 1½ cm, and is easily visible (Figure 1).



Figure 1. Antero-lateral dislocation of the fibular head, induced by manual pressure, in a 19-year-old boy (case 5).

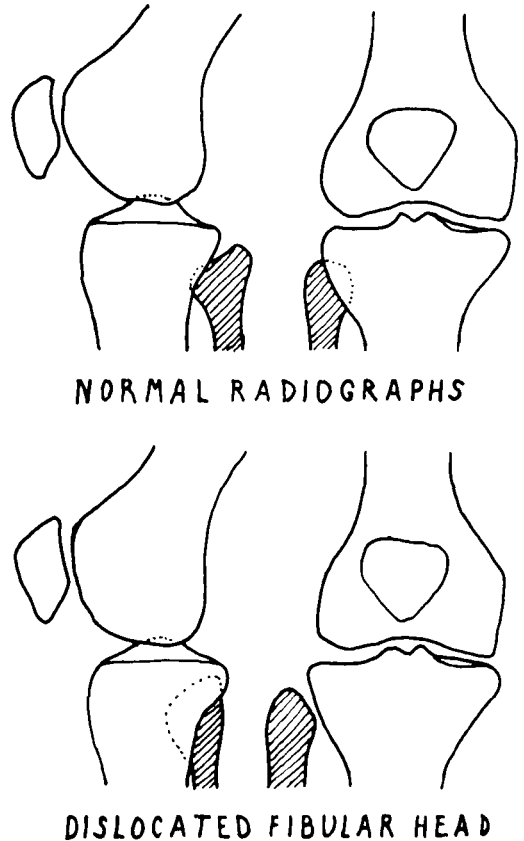


Figure 2. Antero-lateral displacement of the fibular head in A.P. and lateral radiographs.

This examination is not painful and can be done in a relaxed patient without any form of anaesthesia.

Radiological appearances

The antero-posterior radiographs, in the case of a dislocated tibio-fibular joint, show a lateral dislocation of the fibular head; the lateral radiograph reveals an anterior displacement (Figure 2).

Treatment

The hypermobile tibio-fibular joint occurs with different degrees of laxity. In mild cases the patient is not always aware of the disorder and no treatment needs to be given. In cases giving rise to trouble only during

sporting activities, a supportive bandage can be used. Because the symptoms tend to disappear spontaneously, operative treatment is seldom necessary.

However the clinical picture is rather similar to that of a meniscus lesion and sometimes by error a meniscectomy is carried out (case 6). In a few cases the instability may even make stair climbing difficult. In these patients operative treatment should be considered. Operative fusion of the proximal tibio-fibular joint was carried out in two of the patients described.

Surgical technique

In a bloodless extremity, the fibular head is freed through a 7 cm longitudinal lateral incision. After careful preparation the

peroneal nerve and its branches are kept aside dorsally. The proximal tibio-fibular joint is opened anteriorly and the joint cartilage removed with small chisels. The next step in the operation is to fix the roughened joint surfaces to each other under compression with two selftapping spongiosa screws. To bridge defects in the arthrodesed joint, spongiosa chips can be taken from the tibial head through the same incision. A below-knee circular plaster is applied on the 10th postoperative day after removal of the stitches. This plaster is worn for 5 weeks. Full weight-bearing is permitted 8 weeks after the operation.

CASE REPORT

For this report six cases have been collected. Their data are given in Table 1. One of the patients (case 3) is reported in detail.

Case 3

A girl, 14 years old, was referred in November 1969 with a 6-month history of weakness in both knees. She experienced pain during sporting activities and she had trouble going upstairs. Four months prior to the onset of knee symptoms, the right knee had suffered a minor injury, but she could recall no further trauma.

On examination the girl was of the asthenic type. The knees were not swollen and the mobility was unimpaired. The collateral and cruciate ligaments were intact. Posterior pressure on the fibular head caused it to dislocate more than 1 cm anteriorly (Figure 3).

Analgetics did not relieve the disability. In the course of a few months her knees grew worse, preventing her going up and down stairs and attending school.

Because the only abnormality was the instability of the fibular head it was decided to arthrodesis the unstable upper tibio-fibular joint. The operation was done in March 1970 on both knees according to the method described pre-

Table 1. Patients with laxity of the proximal tibio-fibular joint. Cases 1-5 have bilateral symptoms, case 6 has unilateral symptoms of traumatic origin.

Patient	History	Anamnesis Complaints	Handicap	Treatment
1 ♂ 5 years	trauma	click in both knees, pain absent	—	—
2 ♂ 17 years	trauma	no symptoms, no pain	no handicap, participates in several sports	—
3 ♀ 14 years	slight trauma, right knee	bilateral knee troubles, gradually growing worse	unable to go up and down stairs and to take part in sport	arthrodesis proximal tibio-fibular joints, complete recovery
4 ♂ 15 years	bilateral knee trouble of 2 years duration	giving way of both knees	unable to take part in sport, except swimming	arthrodesis proximal tibio-fibular joint, complete recovery
5 ♂ 19 years	bilateral knee troubles of 4 years duration. Visited several doctors	click in both knees, no locking	unable to take part in sport (was an enthusiastic sportsman)	—
6 ♀ 18 years	2 years previously trauma to left knee with multiple skin wounds, 1 year previously lateral meniscectomy	click in lateral compartment of the left knee	unable to take part in sport	in the past a meniscectomy without relief

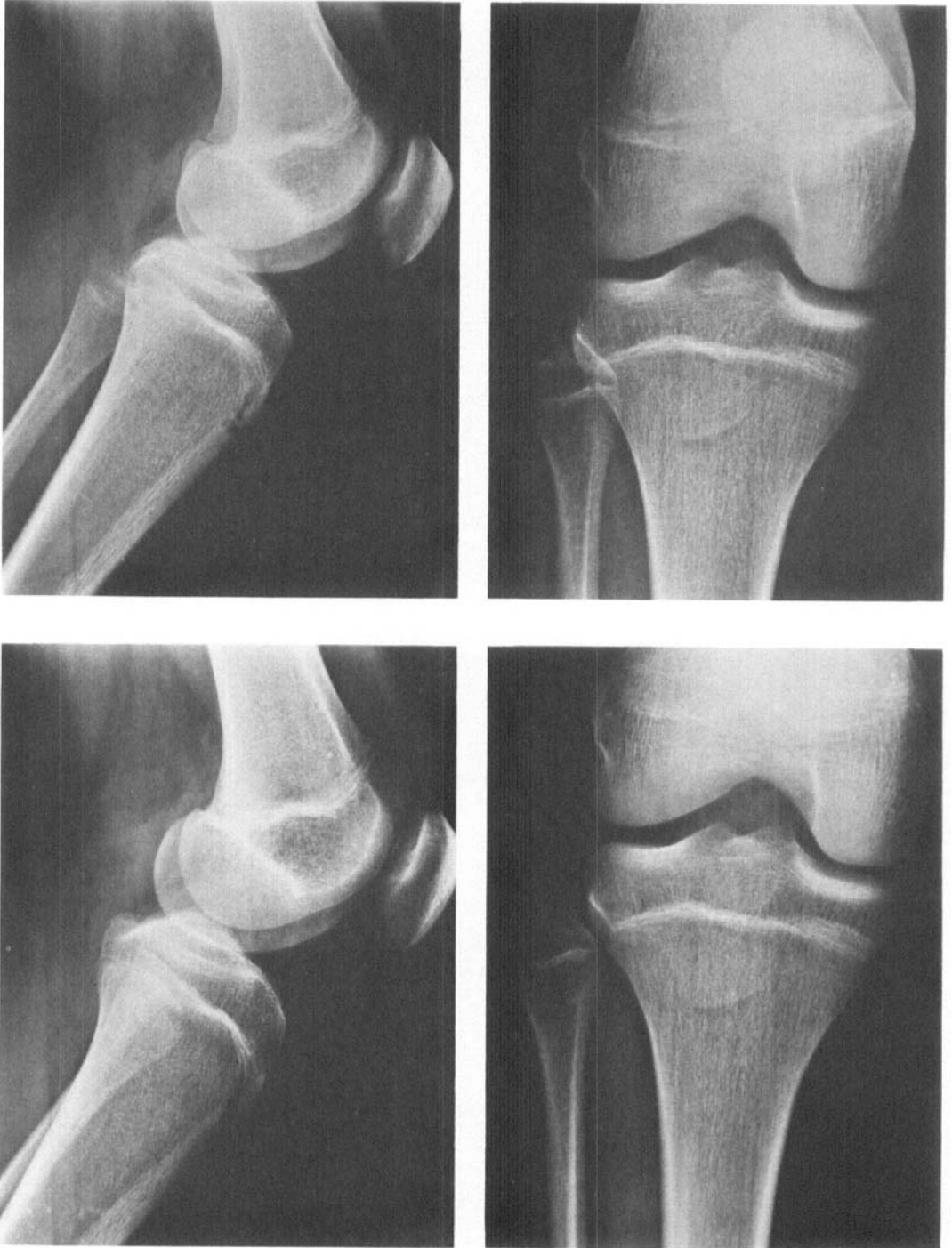


Figure 3. Case 3: 14-year-old girl with bilateral instability of the fibular head. The displacement of the fibular head in the radiographs.

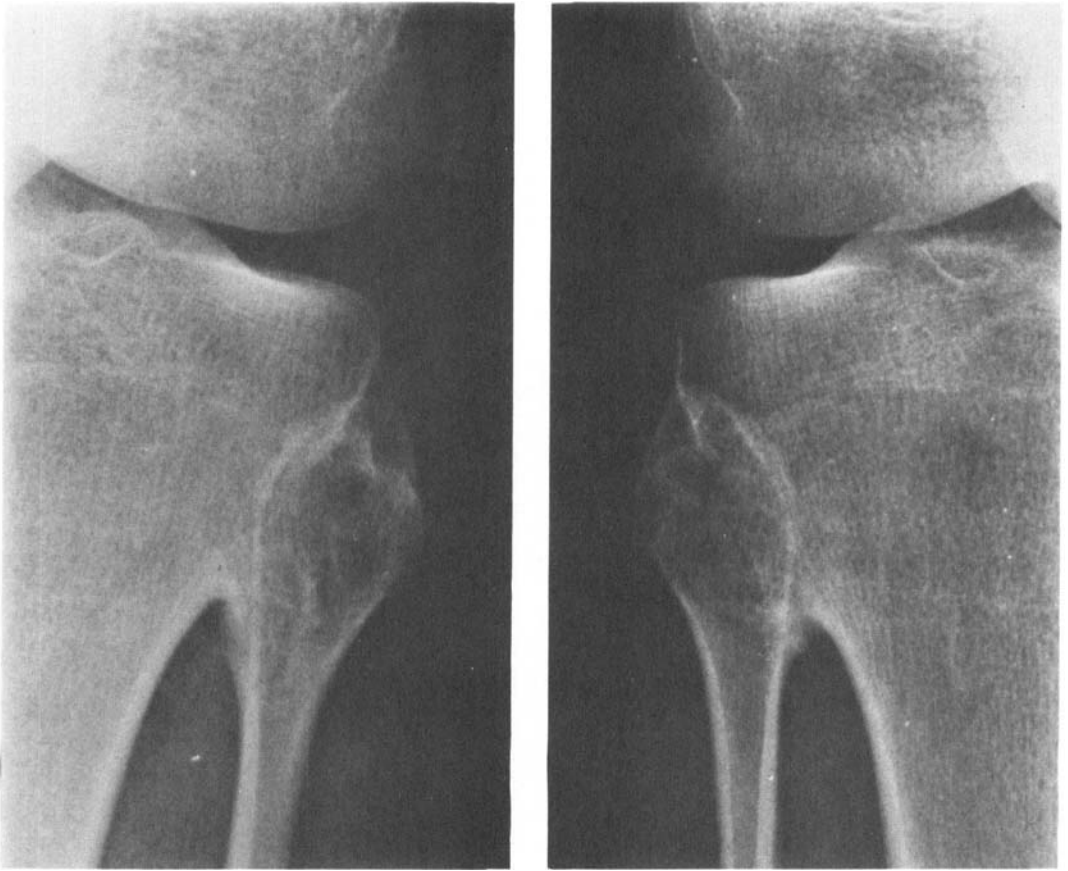


Figure 4. Case 3: Bony fusion of the arthrodesed joint $3\frac{1}{2}$ years after the operation.

viously. Eight months later the screws were removed. There was bony fusion between the fibular head and the lateral condyle of the tibia on both sides. After this treatment the girl was symptom-free and was able to join in sporting activities. The mobility of the ankle joints was unimpaired. Apparently the elasticity of the fibula permits slight movements of the lateral malleolus to such a degree that stiffness of the ankle does not occur after arthrodesis of the proximal tibio-fibular joint. In September 1974 ($4\frac{1}{2}$ years after the operation) she was still symptom-free, and there was bony fusion of the proximal tibio-fibular joints (Figure 4).

DISCUSSION

In the literature "dislocation of the fibular head" is described as a traumatic lesion. In the orthopaedic handbooks (written by

Böhler, Campbell, Hohmann, de Palma, Smillie and Watson-Jones) a description is given of traumatic dislocation of the fibular head, sometimes in combination with a fracture of the tibia or a lesion of the ankle. It is stated that reposition in general is easy; in a few cases operative intervention and fixation with Kirschner wires is necessary. In these books no attention is paid to instability of the fibular head.

Several authors (Dennis & Rutledge 1958, Harrison & Hindenach 1959, Stratford 1959 and Vitt 1948) have written articles about traumatic dislocation of the proximal tibio-fibular joint. Only Dennis & Rutledge's report, of 50 patients, included one with bilateral recurrent dislocation.

On the other hand, Owen (1968) has reported in full recurrent dislocation of the

superior tibio-fibular joint and described two adolescents suffering from this disorder. The disability in these cases was to such a mild degree that surgery could be avoided. It is evident that the symptoms in acute traumatic dislocation of the proximal tibio-fibular joint catch the attention of the clinicians much more than the rather vague complaints in recurrent (sub)luxation of the joint. This is the reason why this disorder may be easily overlooked and seldom is reported in the literature.

Ogden (1974) studied 43 cases of subluxation and dislocation of the proximal fibula. Six of them had chronic instability (subluxation). They were aged from 8 to 14 years. In his opinion idiopathic subluxation in the young patient should not be treated surgically, as it appears to be a self-limiting condition. He considers that when necessary, resection of the proximal fibula is preferable to arthrodesis of the proximal tibio-fibular joint, in order to preserve the function of the ankle joint.

The cases in this paper have all been observed within a period of 5 years. This suggests that the disorder under discussion is not so rare. Early diagnosis gives an understanding of the dysfunction of the knee and can avoid unnecessary and possibly inappropriate surgery (case 6).

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