

TEARS OF THE POSTERIOR SIDE OF THE KNEE JOINT CAPSULE

Report of two cases

By

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Tears of the knee joint capsule are not known as a separate clinical entity. These cases are included, from a clinical point of view, in the large group of "internal derangements of the knee" and they cannot be diagnosed separately. The diagnosis becomes possible by x-ray examination after filling the knee joint with a contrast medium – arthrography. According to the localisation of the capsular tear, two separate groups can be distinguished.

1) Tears of the capsule on the medial side of the knee.

This finding is well known to those who deal with arthrographies of the knee. Due to the fact that the medial collateral ligament is fused with the joint capsule, tears of this ligament are accompanied by tears of the capsule. In such instances the contrast solution appears as an elongated shadow near medial condyle of the femur. Quite often this picture remains unchanged for a long time, this being an evidence of incomplete healing of the tear. (Ficat). Lindblom also described similar findings and pointed out that arthrographically it is possible to diagnose the above mentioned tears when extra-articular diffusion of the contrast solution occurs along the medial collateral ligament.

On the lateral side the situation is different. As is known, the lateral ligament is separated from the joint capsule, and consequently tears of the ligament are not accompanied by injuries of the capsule.

2) Tears of the capsule on the posterior side of the knee.

This group is the subject of our report. As previously mentioned, those cases are accompanied by unspecified symptoms which clinically cannot be diagnosed. In the arthrography, the contrast solution diffuses

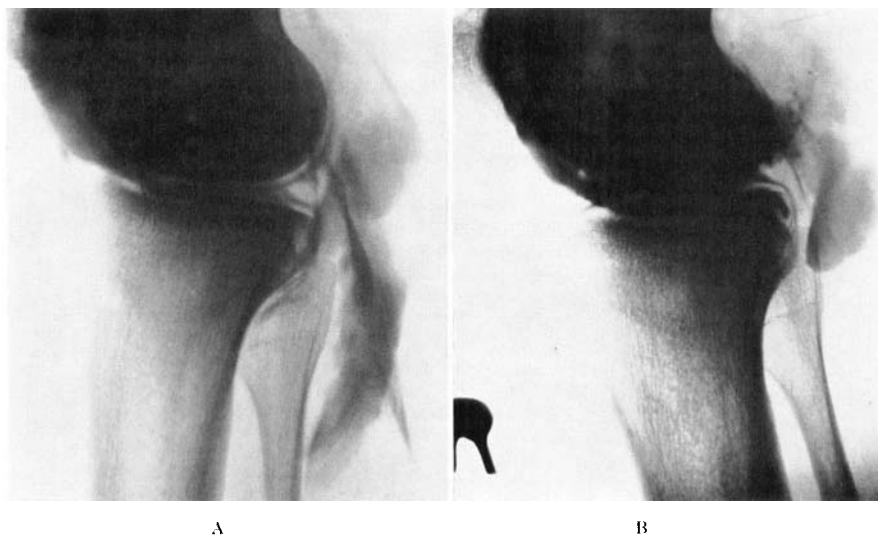


Fig. 1-A.

Case 1. The contrast solution filled a cyst in the popliteal region and leaked through the posterior side of the capsule diffusing into the soft parts of the upper third of the leg.

Fig. 1-B.

Case 1. Second arthrography, six weeks later. The extraarticular diffusion of the contrast solution is no longer visible.

extraarticularly into the posterior aspect of the knee and scatters between the soft tissues. Ecoiffier described one case in which the contrast solution diffuses as far as the neighbourhood of the ankle.

Out of 300 arthrographies of the knee performed in our department, we have met two cases of tears of the joint capsule in the posterior aspect of the knee. These cases are presented herewith because of their rarity and because of their remarkable response to conservative treatment.

Case 1. P.M., 26 years old sportsman, fell down while jumping in training. The details of the mechanism of the injury were not clear. The patient, complaining of pains in his right knee, was examined in our department on the day of the accident. There was tenderness in the area of the medial femoral condyle, massive effusion and limitation of extension. Plain roentgenograms were negative. The knee was immobilised in a p.o.P. cast for seven days. After removal of the cast, the effusion disappeared, but movement remained painful with limitation of extension. At the same time, subcutaneous haemorrhages on the anterior and posterior sides of the knee were observed. Routine clinical tests were doubtful. Suspecting a lesion of the medial semilunar cartilage, we performed an arthro-

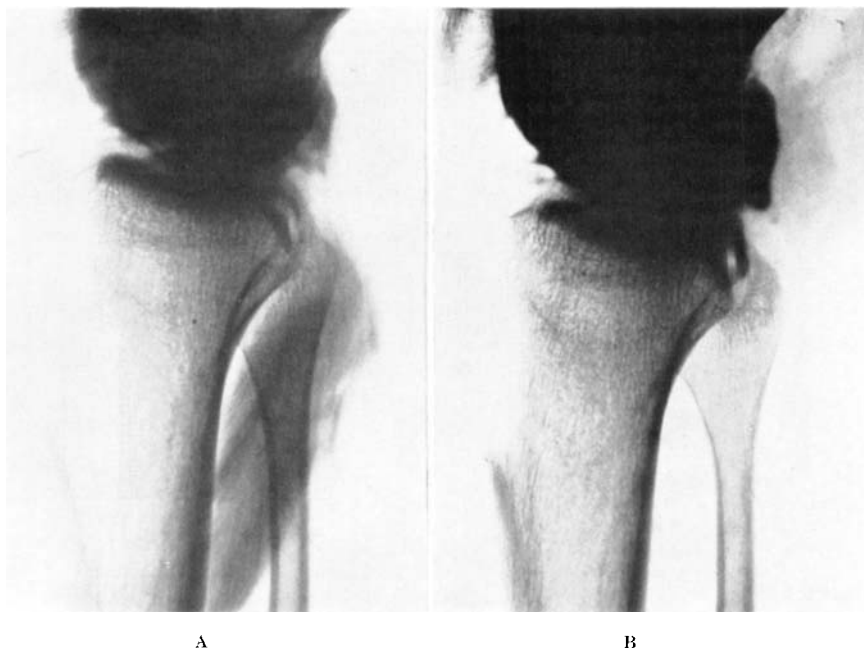


Fig. 2-A.

Case 2. The contrast solution leaked through the posterior side of the joint capsule into the upper third of the leg.

Fig. 2-B.

Case 2. Eight weeks later, after introduction of the contrast solution, in the same position, the extra-articular diffusion is no longer visible.

graphic examination of the injured knee. The contrast solution filled the joint without penetration into the triangles. In the lateral view, the arthrography revealed a popliteal cyst and in the posterolateral side of the knee an escape of the solution outside the capsule, diffusing into the soft parts of the leg, app. 10 cm. from the joint line, this being an evidence of interruption of the joint capsule continuity. (Fig. 1-A).

The patient was advised to perform quadriceps drill and bed rest. Two weeks after the injury he was re-examined. The joint effusion and the soft tissue haemorrhages were no longer distinguished. The patient still complained of mild pains accompanying knee movements. Physical therapy was continued. Six weeks after the injury, a second arthrography was performed. The contrast solution filled the joint without any signs of extra-articular diffusion: the site of solution escape was completely closed. (Fig. 1-B).

Case 2. R. M., 37 years old police officer was sent to our department two days after he sprained his right knee while walking. At the beginning he felt only mild pain without any limitation of movements, but on the day of his admission to us the knee swelled. Clinically, marked effusion, limitation of the last

degrees of the extension and flexion, and tenderness over the lateral aspect of the joint were observed. Plain roentgenograms were negative. A plaster cast was applied for one week, whilst suspecting a lateral semilunar cartilage lesion. After removal of the cast, the patient was re-examined. There was a slight effusion in the knee, persistent limitation of movements and tenderness in the lateral aspect of the joint space. In the arthrography, the contrast solution filled the knee without penetration into the triangles of the semilunar cartilages. In the posterior and lateral aspect of the knee, the solution escaped into the soft tissues, spreading into the upper third of the leg. (Fig. 2-A).

The patient was advised to perform quadriceps drill and bed rest. Two weeks later in re-examination, marked swelling, tenderness over the lateral aspect of the knee and painful rotation were observed. The patient mentioned also locking of the knee. Suspecting a lesion in the lateral semilunar cartilage, in spite of the negative arthrography, we proposed arthrotomy, but the patient did not agree to operation. He continued with physical therapy. One month later he felt better still mentioning lockings of the knee, but at longer intervals. Clinically we observed some atrophy of the quadriceps muscles, tenderness in the lateral and posterior area of the knee without effusion. A second arthrography was performed two months after the injury. The contrast solution filled the joint cavity without penetration into the triangles and without extra-articular diffusion. (Fig. 2-B).

On the next examination (ten weeks after the injury) the patient was free of pain and no clinical findings were observed in the injured knee.

COMMENT

The two presented cases were different in their clinical picture but identical arthrographically and in their subsequent courses.

The first case showed unspecified signs of internal derangement of the knee which did not allow proper diagnosis to be established. The only unusual finding in this case was the soft tissue haemorrhage in the anterior and posterior aspect of the knee which was revealed one week after injury at the removal of the cast. Considering the fact that the haemorrhage did not take place in the second case, we cannot conclude whether the haemorrhage originated from the site of the tear of the capsule or from the soft tissue which were injured together with the capsule.

The second case was of more interest because it developed signs of lateral semilunar cartilage lesion. During the clinical course, the findings were concentrated on the lateral side of the knee, accompanied with locking. Considering that in both arthrographies no penetration of the contrast solution into the lateral triangle took place and the lockings disappeared after healing of the capsule, we are inclined to believe that lockings were caused by the incarceration of a part of the ruptured capsule into the joint cavity.

It should be emphasised that the diagnosis in both cases could be established only by arthrographies showing extra-articular diffusion of the contrast solution.

As previously mentioned, the site of the tear was in the posterolateral aspect of the knee capsule. We cannot find any explanation why the tear should take place at this particular side. If, in future cases the same findings would appear, one should search whether there is a weak point at the posterior – lateral aspect of the capsule, or a special mechanism is the cause of the tear at this location.

In both cases after a relatively short period (six weeks in the first case and eight weeks in the second one) the arthrographies did not show further diffusion of the contrast solution outside the capsule. We consider the negative arthrographies together with the vanishing of the clinical findings as a sign of healing. It seems that during the period of 6–8 weeks a fibrous healing takes place, preventing the leakage of the solution outside the joint space.

CONCLUSIONS

1) Tears in the posterior aspect of the knee capsule are considered to be rare. We met only two cases among 300 arthrographies performed after knee injuries.

2) Contrast medium arthrographices are the only means by which such tears could be detected.

3) Diagnosis of such tears is of value to avoid unnecessary operations.

4) Both presented cases became symptom-free 6–8 weeks after conservative treatment alone.

RESUME

1) Des déchirures de la partie postérieure de la capsule du genou sont considérées comme étant rares. Nous n'en avons rencontré que 2 cas parmi 300 arthrographies pratiquées après des lésions du genou.

2) Les arthrographies avec produit de contraste sont le seul moyen de détecter de telles déchirures.

3) Le diagnostic de telles déchirures est important afin d'éviter des opérations inutiles.

4) Les deux cas présentés ont été libérés de symptômes 6 à 8 semaines plus tard, uniquement par traitement conservateur.

ZUSAMMENFASSUNG

1) Risse in der Rückseite der Kniegelenkscapsel werden als selten angesehen. Wir fanden unter 300 Arthrographien, die nach Knie-schäden vorgenommen worden waren, nur 2 Fälle.

2) Kontrastarthrographien geben die einzige Möglichkeit solche Risse zu entdecken.

3) Die Diagnose solcher Zerreissungen ist wertvoll um unnötige Operationen zu vermeiden.

4) Beide vorgestellten Fälle wurden 6–8 Wochen nach konservativer Behandlung symptomfrei.

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