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OSTEOCHONDRITIS DISSECANS OF THE TALUS

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Nineteen patients showing radiological subchondral changes in the trochlea tali are submitted. In 16 cases the changes were osteochondritis dissecans, either with sequestra or with multilocular cysts, and in three cases so-called synovial cysts. The site was in 13 cases the upper medial and in five cases the upper lateral angle of the talus, and in one patient both. In five of the six lateral cases symptoms had started following trauma, while this applied to only five of the 13 medial cases. The three solitary cysts showed marked similarity to the other cases with respect to symptoms, signs, operative findings, as well as possible traumatic aetiology.

Key words: osteochondritis dissecans; trochlea tali

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Osteochondritis of the Talus

During the period 1970–1976 a total of 19 patients showing radiological changes subchondrally in the trochlea tali were treated in the Department of Orthopaedic Surgery, Central Hospital, Naestved. According to the literature osteochondritis dissecans is uncommon at this site. However, the fairly large number of patients presenting during this 7-year period appears to indicate that the disease is more common than previously assumed.

In some cases the changes represented osteochondritis dissecans, in others solitary subchondral cysts. In the literature these two conditions are discussed separately, but in the present series there were so many items of similarity that it may be asked whether they are in fact two different manifestations of the same disease.

PATIENTS AND METHODS

All 19 patients had definite radiological changes subchondrally in the talus. In addition, there was a case that showed, at operation, a detached flake of cartilage from the articular surface of the talus and two in which the cartilage was merely soft and a bit discoloured in one area; however, no radiological changes were found in these three cases.

Of the 19 cases that make up the series 12 were men and seven women. In 12 cases the lesion was right-sided and in seven left-sided. The mean age at diagnosis was 36 years, range 15–63 years. The mean age of the males was 13 years younger than that of the females of whom only two were under 50, whereas no man was over 50.

All the patients had pain provoked by weight-bearing, in several cases only intermittently, and five patients also suffered occasionally from rest pain. In four cases there were episodes of locking in the ankle joint, and another four patients had a sensation of sometimes "missing" a step. Clinical signs were modest, in eight patients absent. In four cases there was tenderness anteriorly or posteriorly to the malleolus in which the changes were localized. Six patients felt tenderness on forced movements of the ankle joint, and in five there was slight limitation of motion. The mean duration of symptoms was rather more than 2 years.

An adequate *trauma* was reported by nine patients. Eight of them had sustained fairly severe distortion traumas and suffered from persisting pain until diagnosis, from 2 months to 3 years later. In four cases an X-ray examination had been done primarily after the distortion, but no changes had

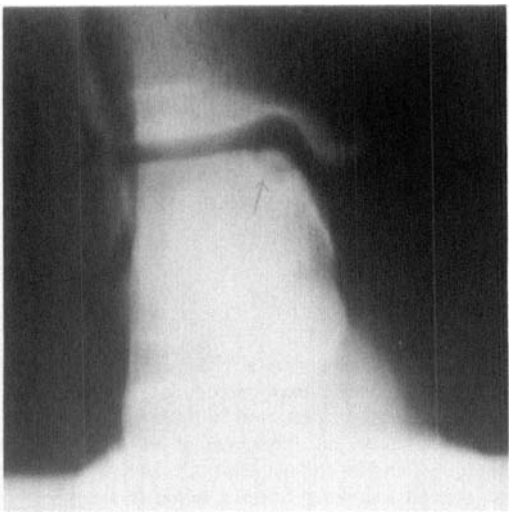

Figure 1. Osteochondritis dissecans partly separated by a line of demarcation in the upper medial angle of the talus.

been found. In one case there was a lateral malleolar fracture with talocrural dislocation and an osteochondral fracture in the upper medial angle of the talus. After a symptomless period of 3½ years, another distortion trauma started the ankle pain again, and 6 months later a fairly large, solitary cyst was found in the talus at the site of the previous osteochondral fracture. The onset of symptoms was related to a trauma in only one of the women, but in 8 of the 12 men. In 9 of the 10 cases with no history of trauma the changes were localized medially in the talus and in only one laterally. This patient, however, had had a distortion trauma 7 years previously, but as no symptoms occurred until 5 years later, the case can hardly be classified as traumatic. Cases with a history of trauma were distributed equally as regards the upper medial and lateral angle of the talus. At diagnosis the patients with a history of trauma were an average of 4 years younger than those with no such history.

Radiological findings

In all cases the changes were localized either in the upper medial or in the upper lateral angle of the talus, never in the middle third of the trochlea. In 13 cases the changes were medial and in five cases lateral. Lastly, one patient had changes in the medial as well as lateral angle of the same talus. The radiological changes consisted in some case of osteochondritis with a condensed area partly separated by a line of demarcation from the remainder of the bone (Figure 1). In other cases

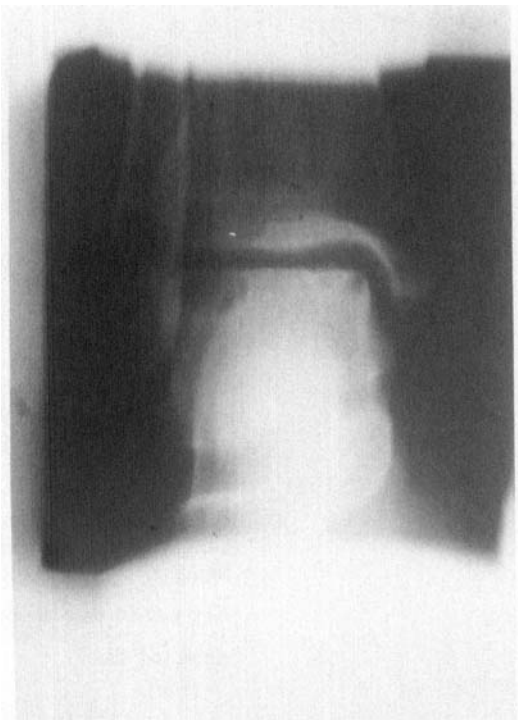

Figure 2. Osteochondritis dissecans with several small multilocular cysts in both the lateral and medial angle of the talus.

there were areas with several small, at times multilocular cysts (Figure 2), and in three cases there was one unilocular cyst (Figure 3). Table 1 gives the distribution of the radiological changes in the talus. In the lateral view the location of the changes was most often somewhat posterior to the centre, but in a few cases they were in the extreme anterior or extreme posterior part of the talus. In 16 instances the conventional general views of the ankle joint were supplemented with tomography. In seven of these cases no essential additional information was obtained by the tomography. In two cases the changes were not visible on conventional laterals, but were revealed by lateral tomography. In six cases the changes were barely visible, and in one case not at all on general views, but were disclosed by tomography.

In 12 cases there were no signs of osteoarthritis prior to the operation, in five cases very slight signs, in one case mild, and in one quite severe osteoarthritic changes.

Operative findings

In the 18 operated cases distinct cartilaginous changes were found at the expected site. In eight

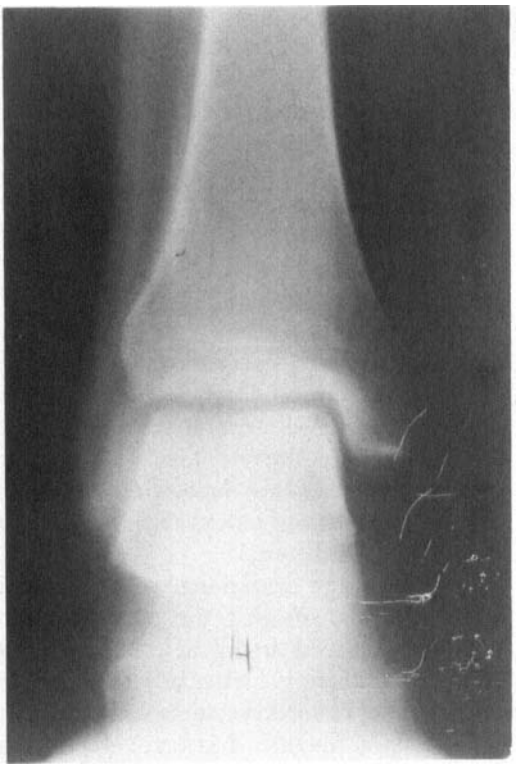

Figure 3. Unilocular cyst in the upper medial angle of the talus.

cases the only finding was frayed and soft cartilage, in three cases the cartilage was definitely undermined, and in seven cases it was more or less detached. The approach to the joint was most often by chiselling off the medial malleolus after first having made a burr canal up through the malleolus. After the operation, the malleolus was fixed with a nail or screw. In cases where the disease was localized laterally, the approach was anterior or posterior to the lateral malleolus. In all cases drilling was done into the site of osteochondritis or through the cysts, except in one case in which a cyst was filled with bone chips. Moreover, loose cartilage was removed in six cases. Postoperatively the patients wore a walking cast for 4–6 weeks.

RESULTS

Of the 19 patients one has died and one has undergone talocrural fusion. Below, this case will be excluded because of very severe preoperative osteoarthritis. In two cases the follow-up period was less than 6 months. In the remaining 15 it ranged from 7 months to more than 5 years, mean 33 months.

Eight of the 15 patients were free of pain, five had mild pain, and in two the pain was unchanged. In all cases the pain occurred only after prolonged weight-bearing, and especially when walking on rough ground. Only two had such severe complaints that occasionally they had to stay away from work. In all seven patients with pain, this complaint restricted their spare time activities. Table 2 lists the results at follow-up, as regards pain related to the sites of the X-ray changes in the talus and to a possible history of trauma. Only cases having a follow-up period exceeding 6 months are included. None of the patients had subsequently received treatment.

Limitation of motion in the ankle joint was found in seven patients, equally distributed among those with and without pain. The limitation never exceeded 15° and most often affected dorsiflexion or plantar flexion, rarely pronation or supination. A couple of the patients were unable to squat properly.

Alterations in the *radiological* appearances from the preoperative films to exposures at follow-up were classified, in 13 of the 15 cases, into changes deep in the talus, changes on its surface, and osteoarthritic changes in the ankle joint. In five cases the changes in the subchondral bony structure had disappeared, in two the appearances were unchanged, and in six partial healing had occurred, with

Table 1. Distribution of cases according to radiological findings

	Number	Medial location	Lateral location
Fragmented osteochondritis	10	6	4
Multilocular cyst	7	6	1
Solitary cyst	3	2	1

As one patient had changes on both sides of the talus, the total number of cases is 20.

Table 2. Results at follow-up in relation to the site of the radiological finding in the talus and to a possible history of trauma

	Symptomless	Mild pain	Unchanged pain
Medially in the talus	5	3	2
Laterally in the talus	3	3	0
History of trauma	4	2	1
No history of trauma	4	3	1

invasion of somewhat sclerotic bony tissue. The contour of the surface of the bone was more even and smooth than preoperatively in three cases, unchanged in five, and in another five there was exacerbation, with collapse and a more rugged surface of the bone. Since the treatment, six patients had developed mild osteoarthritic changes, or else mild changes had progressed.

The radiological changes in the bone as well as on its surface and in the joint were identical whether the lesion was localized medially or laterally and whether or not there was a history of trauma. In cases subjected to osteotomy of the medial malleolus, healing of the malleolus was uncomplicated, and the joint surface at this site is entirely normal.

DISCUSSION

Osteochondritis dissecans affecting the talus is considered a rare condition. According to Berndt & Harty (1959) it was first reported by Kappis (1922). Without knowledge of Kappis' publication, Wolff (1926), in Denmark, reported two cases, one of which had been diagnosed as early as 1916.

From the literature up to 1957 Berndt & Harty (1959) collected a total of 151 cases. Of all these publications only three deal with more than four patients, viz., 13 (Ray & Coughlin 1947), 19 (De Ginder 1955), and 55 cases (Rödén et al. 1953). The fairly large series of 55 cases was collected at the University of Stockholm (Karolinska Institutet och Sjukhuset). This, and the fact that 19 cases were found in 7 years in the Central Hospital, Næstved, would seem to indicate that the condition is not as rare as previously assumed. Several authors (Ray & Coughlin 1947, Rödén et al. 1953) have pointed out that the radiological diagnosis may be difficult, and indeed this is confirmed by the present material.

The discussion concerning the aetiology of osteochondritis affecting the talus does not differ from that concerning the knee. In the case of the ankle there is particularly the question of the role of distortion trauma and a possible transchondral fracture. Eskesen (1942) made a distinction between transchondral fractures localized in the lateral angle of the talus (6 cases) and osteochondritis dissecans localized to the medial angle of the talus or in the centre of the trochlea (as described by Myhre 1939 in nine cases from the literature plus three of his own). Myhre did not feel that trauma was an aetiological factor. Rasmussen (1945) published one case of osteochondritis, localized laterally in the talus which had occurred after a distortion trauma. According to Berndt & Harty (1959) there is an increasing tendency to accept the theory of a traumatic genesis, and this view is shared by O'Donoghue (1966). Rödén et al. (1953) assume that changes in the lateral angle of the talus are of traumatic origin, but do not consider that this applies to medially localized changes. In the present material there was a probable traumatic cause in five out of six cases with changes in the upper lateral angle of the talus. The sixth patient had a history of a severe distortion trauma 7½ years previously, but the symptoms did not appear until 5 years later. It is doubtful, but not out of the

question, that the trauma may have been operative. On the other hand, a history of trauma is less common in cases having changes medially in the talus. In the present material only five out of 14 had a history of trauma. One of them is the above-mentioned case of osteochondral fracture. A cyst developed, but not until several years later. This might indicate that a trauma may have been sustained several years previously without it being possible to adduce a definite relationship.

In the present material patients having changes medially in the talus did not have fewer or milder symptoms than those having changes laterally in the talus as found by Rödén et al. (1953).

As already stated, the X-ray films showed osteochondritis, with sequestra and also multilocular cysts as described by Stougård (1960). In several cases these cysts communicated with the joint. Lastly, solitary cysts were found in three cases. Several authors consider such solitary cysts a disease *sui generis* (Crane & Scasano 1967, Stadil & Paaby 1970, Dashefsky 1971, Ogden & Griswold 1972, Paaby 1973), often called synovial bone cysts. The above-mentioned authors believe that these cysts are most probably of traumatic origin. In this connection the possibility has been mentioned that the pressure in the joint forces synovial fluid down into an osteochondral fracture and thereby prevents healing, and at the same time a communication with the joint may persist. There was a hint of such a communication in one of the present cases with a solitary cyst in the upper medial angle of the talus.

In the present material there was a striking uniformity of osteochondritis and solitary cysts, with respect to symptoms and signs as well as to operative findings. The three patients with solitary cysts were a woman aged 57 and two men aged 21 and 47. All had pain on weight-bearing, one also rest pain, but no episodes of locking or limitation of motion. At operation these cases exhibited soft, undermined cartilage. Thus, there is a great deal to indicate that solitary synovial cysts and osteochondritis dissecans represent the same disease with different manifestation or at different stages of development.

The treatment, broadly speaking fairly uniform, afforded satisfactory results with relief from symptoms in eight out of 16 patients seen at follow-up after a minimum period of 6 months. Among the others, five had pain, but milder than prior to the operation, two had unchanged pain, and in one case talocrural fusion had been required. Authors who have tried to assess conservative versus operative treatment (Berndt & Harty 1959, Rödén et al. 1953) conclude that operation is definitely better. Rödén et al. (1953) restrict their operative indication to patients having symptoms. In the present material the diagnosis was made in all cases on the basis of symptoms.

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