

KJELL BERGMAN, MALMÖ, SWEDEN:

TUBERCULOSIS OF THE NECK OF THE FEMUR

With regard to the treatment of the extra-articular tuberculous foci in the neck of the femur, opinions vary considerably. Here as well as in other fields of surgical tuberculosis we have of course since old the conservative and the operative methods competing with one another. *Waldenström* was the first to suggest a rational method for the elimination of the isolated foci in the collum after previous exact localisation, clinical as well as roentgenological. His statistics comprise 4 cases of his own, and the result of the operation was satisfactory in all of them, at least so far as the early results were concerned. Since then, as far as I am aware, only solitary cases have been published. Our knowledge of the result of conservative treatment in such cases is even less. In Scandinavian literature, *Sven Johansson* (in his thesis on surgical tuberculosis in childhood) has described two cases of tuberculosis of the collum femoris cured by conservative treatment. One of these cases is worthy of attention, inasmuch as the patient was symptom-free on the after-examination 7 years later. To these cases I would like to add another one.

History: Boy, aged 7½ years, admitted to the Malmö General Hospital, in the New Year of 1926. No family history of tuberculosis. Was in hospital in 1924 under the diagnosis of tuberculous perichondritis with abscess formation and tuberculosis of the hilum. Barring this the history contains nothing of particular interest. Intermittent limping, otherwise so usual in these forms of tuberculosis, does not seem to have been present. A fortnight before admission, the child fell down from a chair, apparently without any severe injury. A week later the boy began to limp. Has not complained of any pains.

Condition on admission: General condition fairly satisfactory. *Right hipjoint:* Slight atrophy of the thigh muscles. Slight degree of flexion in the hipjoint (about 30°). Apart from this, no malposition. *Mobility:* Abduction much limited, inward rotation to mean position, other movements free. This restriction in the mobility seems to indicate some synovial affection.



Fig. 1.

It very soon disappeared, however, wherefore it must be assumed, I suppose, that it was only a question of a referred effect from the focus and no true tuberculous synovitis.

Pirquet test: strongly positive. Wassermann reaction: negative.

X-ray exam.: On admission, roentgenological examination showed a focal area in the bone, about the size of a hazel-nut and triangular in shape, located in the medial part of the collum femoris, extending from the lower border of the collum as far as the epiphyseal cartilage (Fig. 1).

Course of disease: Conservative treatment was immediately commenced, consisting of rest in bed, fixation of the hipjoint by means of a plaster splint in a slightly abducted position, general light and open-air treatment. After 7 months the focus had diminished very considerably in size, at least half of it being replaced by a tissue containing much calcium. After 12 months there was no longer any roentgenological sign of the

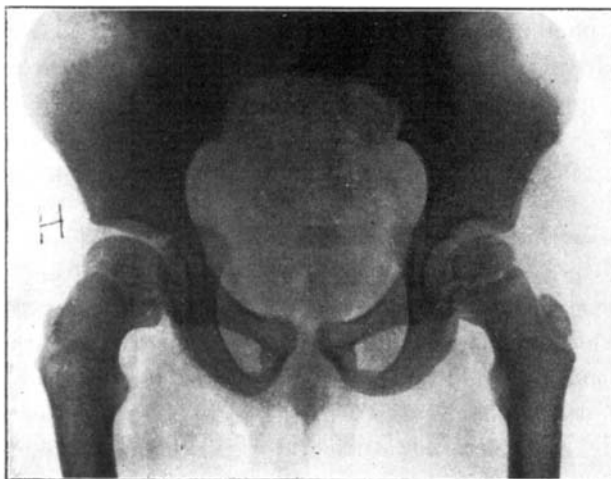


Fig. 2.

lesion. At the same time clinical examination revealed nothing abnormal, with the exception of a slight degree of muscular atrophy. Six months later, i. e., 18 months after admission, the patient began to get up, the time out of bed being successively increased. His condition has since remained the same. Skia-gram 2 is taken in May this year (41½ years after admission).

In considering the result of the operative treatment in isolated focal tuberculosis of the neck of the femur, the primary operation result in the published cases is often good. It may also be taken for granted that no mistakes of diagnosis have found their way into literature (I have myself had to do with two such cases). The statistics, however, have been very small, as most reports are dealing with solitary cases, and we know nothing of the end-results, if by this mean cases staying

symptom-free 8—10 years after operation. If we turn our attention to *Waldenström's* cases, none of these has been observed for more than 2 years. In the light of the opinions then held, this was probably regarded as sufficient. But at the present day we know that after radical treatment extra-articular foci may recur after a relatively long time. At the first meeting of the Northern Orthopedic Society in Gothenburg, in 1919, I had the opportunity of demonstrating a case of isolated acetabular tuberculosis where the primary operation result was very good. Already 12 months after the operation the focal area had been completely filled out, and the patient, who was up and about, was free of symptoms. Three years later, i. e., 4 years after the operation, the trouble recurred. The case is, I suppose, that sequestra and other tuberculous tissues may be removed, but not so the tuberculous virus. This may evidently remain for years even after the focal area has been filled out, and at any time give rise to recurrences. If this is correct, then patients who have been submitted to eradication of the focal trouble ought to undergo vigorous after-treatment for years.

With regard particularly to the focal areas in the neck of the femur, these are very difficult to get at and troublesome to eradicate thoroughly without opening the joint. The head and the neck of the femur are thrust into the joint as a tap. It is true that the focus is located extra-articularly, but in relation to the point of insertion of the capsule it is intra-articular. Many a time it is only a peel as thin as paper, or perhaps only the periosteum, that separates the focus from the articular cavity. Under such conditions it must be a difficult matter radically to remove the focus at such a depth without opening the joint. To this should be added that the neck is already beforehand in a weak condition, and it become still more enfeebled by the operation. Just as tractable to operative eradications as are the extra-articular foci in many other places, just as inaccessible are they when located in the neck of the femur.

As far as the conservative method is concerned, our knowledge of the results is even less than in the operative method. A good many cases of this kind are undoubtedly to be found in

institutions where such treatment is carried out; but they never come to appear in the statistics. The risk of spontaneous perforation of the extra-articular foci under conservative treatment is of course potent; but it seems to me that the risk of perforation is equally great in the operative method. Tuberculosis at the age of 3—4 years, with which we are here concerned, has an exceedingly great tendency to heal, and, as is well known, tubercular bone lesions recover more readily than capsular lesions. To this should be added that the operative method is by no means free from danger. How many infants have not died of shock in immediate connection with a major hip-operation!

It is impossible to say at present which of the two methods is to be preferred in cases of isolated tuberculosis in the neck of the femur. We must have more experience in these matters and, above all, a better knowledge of the end-results before we are able to answer this question.

DISKUSSION:

Poul Morville, Copenhagen:

As you know, there have previously been reported some remarkable instances of healing of tuberculous foci in the hip similar to the benign »obere Collumherden« reported by *Waldenström*, in which the benign character of the lesion was explained in a natural way when it was recognized as the process characteristic of Calvé-Perthes' disease.

In turning to Dr. *Bergman's* case, it is peculiar that there is practically no halisteresis of the surrounding bone tissue, something that would seem rather inconceivable, I think, if the large focus was really of tuberculous nature.

The sharp demarcation of the process in the lower part of the collum is very characteristic of the changes produced in the collum in Calvé-Perthes' disease; and the same applies equally well to the way in which the process heals with complete restitution and regeneration of the normal spongiosa structure as well as the club-formed change in the form of the collum after the healing.

The only atypical feature of this case is the fact that the

process is restricted almost exclusively to the collum, without the usual changes in the caput. This may happen now and then, however, and apart from this variation I have no doubt that here we are meeting with an ordinary case of Calvé-Perthes' disease.

Sundt, Stavern, Norway.

1) asks Dr. *Bergman* what may be the supporting evidence for the diagnosis of tuberculosis in this case, especially how the Pirquet test and the sedimentation test turned out;

2) replies to Dr. *Morville* that this can not be a case of Calvé-Perthes' disease and points out that in the X-ray plate one can make out a thickening of the synovial layer in the hip-joint, so he finds it probable that this is an embolic tuberculous process.

Kjell Bergman:

When *Sundt* is asking about the evidence of the focus in this case being of tuberculous nature, I presume that he most likely is thinking of the septic arthritis in collum femoris. As stated in the history, 2 years previously the patient had been admitted to the hospital on account of tuberculous chondritis with abscess formation. As now a new abscess develops in the skeletal system, it is reasonable to think that this process may be of tuberculous nature. This view is further sustained by the chronic course of the lesion from the very beginning, without any fever or other signs of acute inflammation, and also by the roentgenographic appearance of the focus, and by the absence of periosteal enlargement in the trochanter region. The sedimentation test would naturally have given some interesting information in this case; but, unfortunately, there are no data of such a test, as at that time this test was not carried out as a routine measure. The Pirquet test gave a strongly positive reaction. The Wassermann reaction was negative.

On the other hand, I cannot see any sign of Calvé-Perthes' disease, which *Morville* takes to be present. The caput femoris is of normal shape — it is even a little higher than on the healthy side — and it does not show any structural changes. I will

admit that the collum here is somewhat thicker than on the other side, but this is not characteristic of Calvé-Perthes' disease. The thickening of the collum may very well be explained as brought about by the reaction of the surrounding tissue to a large focus of an earlier date. And finally I wish to point out that the patient has not yet reached the age for the Calvé-Perthes' disease — this disease in a 3 years old child would at least be an extremely rare occurrence.

Robert Hanson, Varberg:

As to the diagnosis of the case Dr. *Bergman* has demonstrated as tuberculosis colli femoris, I find this diagnosis perfectly clear. Dr. *Morville*, on the contrary, thinks that it is a sure case of the so-called Perthes' disease; but in support of this view, as far as the clinical features are concerned, he refers only to some limitation of the movements in the hip. Apart from this, he bases his diagnosis exclusively upon the X-ray findings which he considers typical of coxa plana, namely: a slight narrowing of the joint space, thickening of the collum, and some flattening of the caput, together with the focal process in the middle part of the collum.

In my opinion, none of these arguments may be taken to prove that here we are dealing with a case of the so-called Perthes' disease. If so, it would be a question of such a condition with changes in the neck and in the epiphyseal line. Otherwise, the opposite is usually pointed out as a characteristic of this lesion: that the height of joint space is not decreased.

With regard to the focal process in this case, it is quite in keeping with the picture one would expect as a result from an embolus in the artery that enters the neck just at the apex of this triangular focus. Besides, one of the plates shows very distinctly a sequester-like area which is gradually undergoing absorption and is being replaced by new-formed bone.

From the remarks of Dr. *Morville* with reference to the studies of Dr. *H. Waldenström* on coxa plana, it is evident that he is not quite familiar with them. In his first paper, where *H. Waldenström* describes the clinical and roentgenolo-

gical features of this disease, he assumed that tuberculosis might be the cause of this condition — a view he was one of the first to give up, as is undoubtedly known to most of those present. In his subsequent works, *Waldenström* has likewise given an account of the course of this disease, and he has tried to make clear that the morphological changes resulting in what is called coxa plana may be owing to other causes than the one mentioned by Dr. *Morville*, the so-called Perthes' disease.

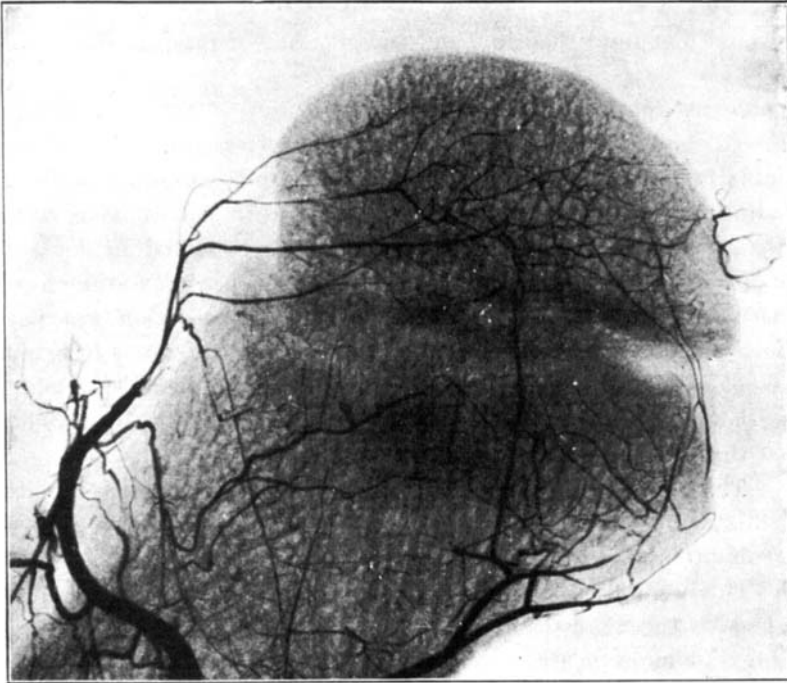
I have had the opportunity to follow several cases similar to the one reported by Dr. *Kjell Bergman*, and at present I have 2 or 3 identical cases in the sea-shore sanatorium Apelviken; these cases have been running the same course, and in them the diagnosis of tuberculosis is absolutely established. They have been treated conservatively; and they have gone on to healing.

On account of joint complications and threatening perforation of abscesses in 2 similar cases I have operatively removed the focus; and in both cases I have ascertained by pathologic-anatomical examination that the lesion was of tuberculous nature. Recovery was obtained even in both of these cases.

Dr. *Morville* made the statement, that any roentgenologist would agree with him that we here are dealing with a case of the so-called Perthes disease. I cannot help reminding of the fact that these cases are largely going to the orthopedic clinics and other special hospitals, and that the doctors who are working with these cases will naturally see a good deal more of such material than do the roentgenologists; and consequently they will have a better chance of judging the diagnosis correctly. In this connection I may mention that recently I have been in Bologna, where Prof. *Putti* gave a series of lectures to Italian roentgenologists — on the roentgenology of bone and joint diseases. It is evidently desirable in other countries too, that the roentgenologists have an opportunity to study the material that comes to the orthopedic clinics and the special hospitals. In many instances, the clinical examination and the course of the disease, which the attending physician has an opportunity to follow, are at least just as important as the X-ray examination.

Bentzon, Copenhagen:

In connection with *Robert Hanson's*, remarks B. demonstrated an X-ray plate of an injection specimen showing the arterial supply of collum and caput femoris. In *Bergman's* case, the affected area of the collum corresponds very closely with the part supplied by ramifications from the medial main branch. So it



Arterial supply of collum and caput femoris.

would seem quite rational to consider this process being of embolic infectious nature.

Morville characterized this case as a *typical* instance of Calvé-Perthes' disease. Notwithstanding the fact that structural changes may not unfrequently appear in this part of the collum too, one would still insist that to be designated as a *typical* case of Calvé-Perthes' disease it should above all show some changes in the epiphysis.