P. G. K. BENTZON, COPENHAGEN:

SHOULD REPOSITION OF EPIPHYSEOLYSIS CAPITIS FEMORIS NOT BE MADE?

(Report). B.'s experience is in opposition to that of *Mau,* Kiel, *Key,* Boston, *Camitz,* Göteborg a. o. In the cases of epiphyseolysis capitis femoris he has treated during the first 6 months after the onset of the symptoms, reposition has been successful and complications that might constitute contra-indications of reposition did not occur.

In some patients with marked constitutional anomalies — approaching the type of dystrophia adiposo-genitalis — the tendency to residivation may be great and cases of epiphyseolysis and Calvé-Perthes' disease may replace each other in the femoral epiphyses; in a case of this nature treated by B. there has, however, not been any reason to suppose that the *reposition manipulations* were to be blamed for the cases occurring later on.

If a case of epiphyseolysis capitis femoris is not reposed the displacement of the caput will often reach so high degrees that the coxa vara requires a subtrochanteric osteotomy, through which procedure an anatomical correction of the faulty position is not arrived at.

B. must consider reposition as early as possible after the diagnosis has been established the most rational treatment of these cases.

DISKUSSION:

Guildal, Copenhagen:

Time was too short for an exact after-examination, and therefore the results could only be given as they were stated

in the casebooks. The last examination was, however, more than 1 year after the reposition, except in one case in which only 4 months had passed since the reposition. Reposition had been performed in 11 cases. Ages: 12—18 years. All the cases came under treatment at a relatively late stage; in 7 cases more than 6 months had passed since the onset of the symptoms. 3 cases showed almost free mobility. 3 cases were functionally good, but the mobility was somewhat restricted, especially abduction. 3 were almost or completely ankylosed. In 2 cases after-examination has not been performed.

Any definite relation between age or time passed since the onset of the cases cannot be demonstrated.

The question should doubtless be taken up on a broad basis.

Langenskiöld, Helsingfors:

My material of cases of epiphyseolysis capitis femoris is very unpretentious, but reporting an instructive case I should like to account for the ground I take upon the question referred to by Bentzon. The case was published previously by Ejnar Nyberg.

A boy, aged 15 years, was admitted to the Nursing Sisters' Children's Hospital with incipient left-sided coxa vara. In the skiagrams a considerable decalcification distal to the epiphyseal line and a quite insignificant dislocation of the caput can be seen. After confinement to bed for two months with extension bandage and treatment with light and vigantol the contents of lime salts improved to some extent, but the dislocation seems to have increased. The right hip is apparently completely normal. The patient was discharged with a Thomas' splint.

About 8 months afterwards he fell and hurt his *right* hip and could not stand on his right foot afterwards. He was admitted 2½ weeks afterwards, and the skiagram now revealed an epiphyseolysis with considerable dislocation but without demonstrable decalcification or callus formation. Reposition, which was rather successful, was performed and plaster-of-Paris was applied in extreme Withman position. The patient was dis-

charged three months afterwards with good mobility. Thomas' splint on the right leg.

The first time the patient was admitted the dislocation was so insignificant that there was no indication for reposition. But the softened collum might have been injured by reposition. On the second admission there was any indication to attempt at improving the position, whilst the risk of causing injury semed to be small.

It appears to me that an attempt at reposition is the more justified the more marked the traumatic element is, the shorter the time that has passed since the occurrence of the dislocation, and the less the alterations, decalcification, callus formation and deformity that can be demonstrated in the collum. In cases with a slow onset and a long anamnesis I would remain passive, among other things with regard to Waldenström's recent communication, especially as the prognosis for the function of the hip-joint is surprisingly good when sufficiently long relief from weighting is secured.

Nilsonne, Stockholm:

The question touched on here by *Bentzon* has been one of the bones of contention during the last years in the orthopedic world. According to *Lorenz'* view the epiphyseolysis has formerly been the object of reposition manipulations, above all by German orthopedists. *Hass* reports 24 cases (of *Lorenz'* material) in which he believes that reposition was successful. It should be noted that none of these cases had symptoms longer than 4 weeks, the cases were thus especially suited for reposition. *Pitzen* states that reposition was successful in 8 out of 12 cases. Moreover a case of *Ludloff's* is known which he reposed and which showed normal conditions on after-examination 17 years afterwards. He who first opposed reposition was *Weil,* who in 1924 maintained that it may lead to necrosis of the caput. In 1925 *Mau* took up the question of the chances of reposition in epiphyseolysis and stated as his view that most of what was called reposition only was determined by a »Röntgen-tauschung« owing to wrong projection. *Lindemann* confirms

the correctness of *Mau's* view by means of a series of after-examinations comprising 20 cases. In 1930 *H. Waldenström* published 3 cases in which necrosis of the caput had been observed. He regards the necrosis as the result of a preceding reposition and consequently dissuades reposition manipulations in epiphyseolysis.

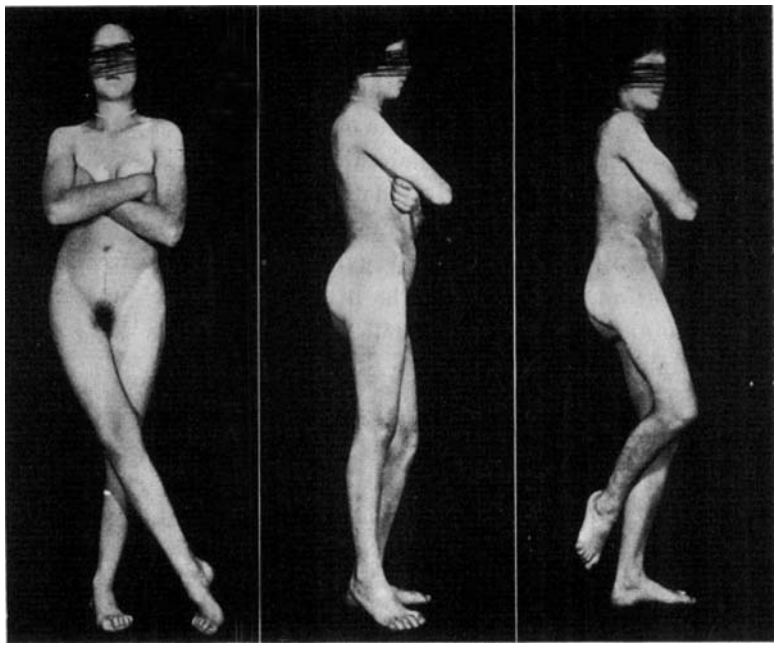

Fig. 1.

At the Cripples' Clinic in Stockholm we have performed a great number of reposition manipulations in cases of epiphyseolysis and our experience may perhaps contribute towards a comprehensive illustration in this discussion. Reposition manipulations have been performed in 20 cases (during the past 7 years). Unfortunately the cases came under treatment af the clinic at a late stage, only one case so early as 4 months after the onset of the symptoms — the other cases after 6 months at least. Therefore the material is comparatively imperfect for

judging the chances of reposition. In 15 cases no reposition that could be observed by means of X-rays was attained. On after-examination of one case 2 years afterwards a necrosis of the

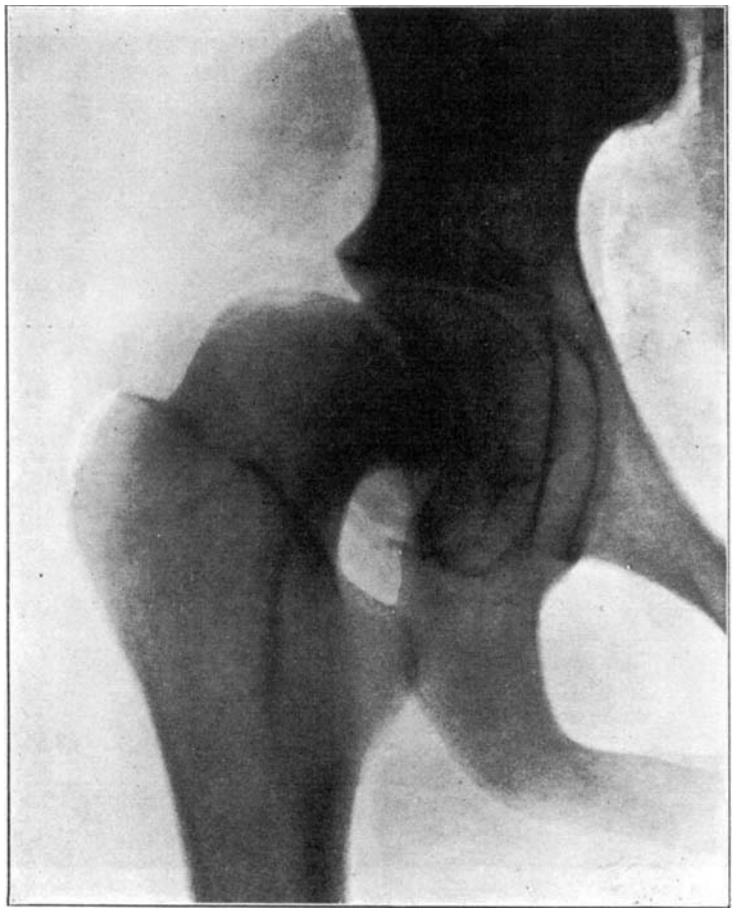

Fig. 2.

caput had occurred. In 2 cases (symptoms 6 respectively 7 months old) a complete reposition was attained — one of the cases, however, got an acute psychosis during the treatment for which reason the latter could not be completed. After-examina-

tion 1 respectively 3 years afterwards. Of these two cases of reposition I would report the one which is especially illustrative.

It was a girl, aged 14 years, who 6 months ago began to get

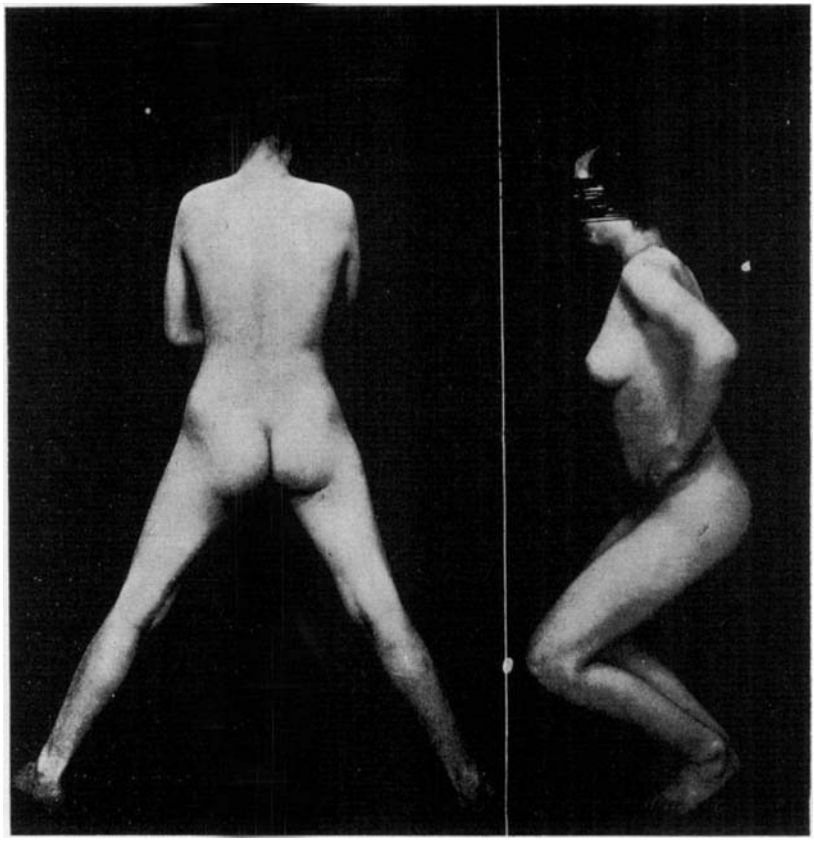

Fig. 3.

symptoms in the shape of pain in the knee radiating up the thigh and increasing stiffness of the hip. Her hip appeared to be fixed through the pain (Fig. 1), practically ankylosed in adduction of 30° and rotation outwards of 40°. X-ray examination revealed a very marked epiphyseolysis (Fig. 2). Reposi-

tion was performed and a plaster-of-Paris bandage was applied in abduction and rotation inwards. 3 weeks later massage and

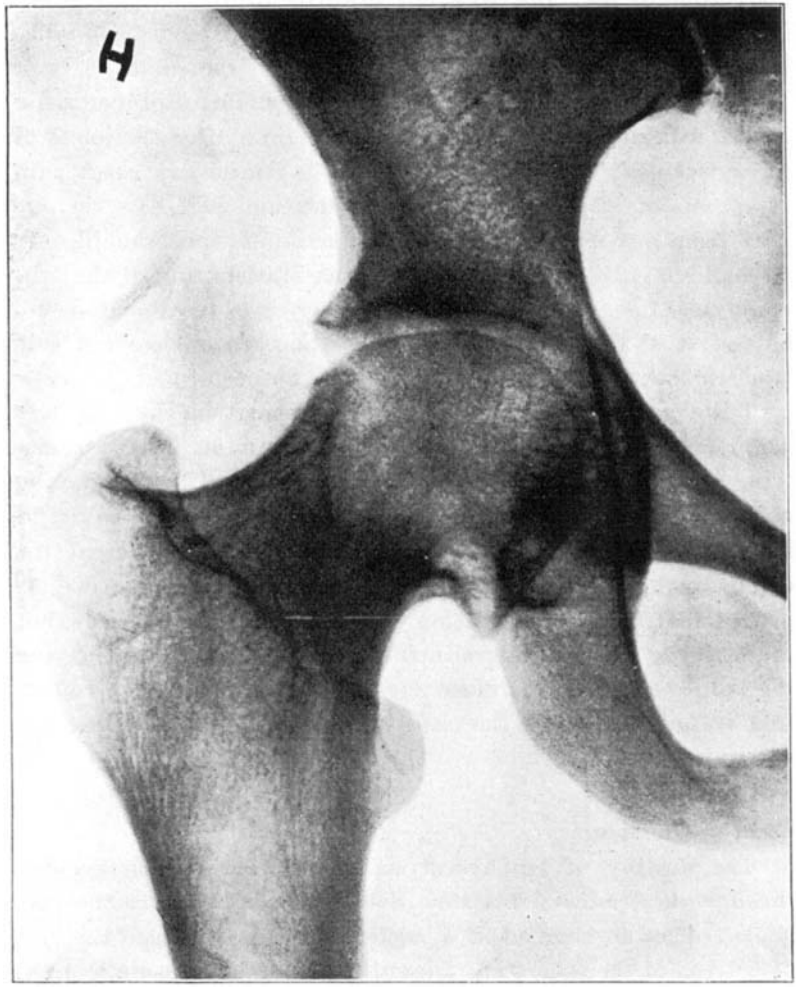

Fig. 4.

exercise was commenced and after further 3 weeks the patient was discharged. The hip was free from pain, flexion to 45°, abduction to 10°, and rotation inwards 10° possible; the skia-

gram showed reposition of the caput. After-examination 3 years afterwards: The patient considers the hip to be completely normal, flexion is possible to little more than a right angle, abduction to 30°, and rotation inwards to 10° (Fig. 3). The skiagram (Fig. 4) shows normal conditions apart from some irregularity of shape of the lower corner of the caput.

It will appear from this that reposition in its proper sense can be attained and even a rather long time after the onset of the symptoms; that reposition rarely is attained in cases with symptoms of more than 6 months' duration will, however, appear from our material. Reposition manipulations should only be made in cases where X-ray examination has proved that the epiphyseal line is not united yet. In other cases treatment should be restricted to correction of the position. In old cases a subtrochanteric osteotomy should possibly be performed.

I am not convinced that it is the reposition that involves the necrosis of the caput. For we know that the process underlying epiphyseolysis capitis femoris is of a local bone-softening nature. We do not know the etiologic or anatomicopathological basis of this process. Its importance to the nutrition of the caput has not yet been elucidated. It cannot be regarded as proved that it is the reposition that engenders the necrosis, but the latter is perhaps determined by the very process underlying the epiphyseolysis. Therefore I consider an attempt at reposition to be justified in the cases where the epiphyseal line has not united.

Camitz, Göteborg:

The destiny of epiphyseolysis will as a rule be decided through the trauma; if a slow dislocation takes place the prognosis seems to be good, if a rapid sliding takes place the risk of tearing of the important part of the synovial capsule is great and the prognosis thus bad. As it is often difficult without arthrotomy to decide how conditions are a hard reposition should never take place. Cases of complete epiphyseolysis only should immediately be treated as fracture of the collum according to Whitman.

In all other cases the patient should be placed in Whitman's plaster-of-Paris with the greatest caution for about 10 weeks. On violent rotating reposition according to Frising rupturing sounds can be heard. The latter are caused by the soft parts and the capsule, and not by the bones. The reposition is less important; the most important is to prevent the occurrence of all contractures of soft parts.

In old cases it is above all the rotation outwards of the diseased leg that causes discomfort. In these cases a subtrochanteric rotation osteotomy seems to me to be justified and best.

As in all other cases the point is above all not to cause any injury. Therefore the powerful and violent reposition is no good; in the course of the years these cases will as a rule improve with or without reposition.