ROBERT HANSON, VARBERG, SWEDEN:

## ARTHROPLASTY OF THE KNEE JOINT

(Demonstration of cases).

R. H. demonstrated 2 patients: a woman of 17, who for 6 years had been suffering from tuberculosis of the left knee with destruction of the bones; and a woman of 21, who for 8 years had been suffering from a similar lesion, and had been under medical treatment throughout this period. In both cases, R. H. had performed knee-joint resection + arthroplasty with fascia lata.

The first mentioned patient was operated on half a year ago. She is now capable of 40° flexion in the knee joint; she shows no sign whatever of any progressive tuberculous process in the knee joint, no lateral mobility. She is incapable of extending the knee to more than 175°; and she walks freely without a cane.

The other patient was operated on 5 months ago. In this case, the joint capsule and the suprapatellar bursa were about one centimeter in thickness, and there was a large number of tuberculous foci in joint surfaces of the tibia as well as of the femur. Now the patient is capable of 40° flexion in the knee joint, and she has no discomfort whatever from her knee; she walks without a cane.

R. H. pointed out that he looked upon resection in form of a conservative radical operation as the best method of treatment in tuberculosis of the knee joint in adults with foci in the bones; if required, however, the patient should be submitted to a sufficiently long, general, treatment; and an effort should be directed to obtain ankylosis in a good position.

In addition to the demonstration of these 2 cases, R. H. mentioned that in another case — a woman of 23 — he had

first performed resection and 6 months later arthroplasty of the knee — at the urgent request of the patient. In the first mentioned 2 cases, R. H. had made an experiment of combining the resection with the arthroplasty in one operation to save time for the patient. As to the technique, he mentions that he cuts loose the upper insertions of the collateral ligament by chiseling, and after the resection he fixes them in suitable places, which may be of great importance for the avoidance of deviation.

1½ year ago, R. H. had operated a male patient, 54 years old and weighing 109 kg., for a trouble in the knee joint, that had made him invalid and was diagnosed as tuberculosis. Even in this case resection + arthroplasty had been performed in one seance. It was found to be a case of arthritis deformans with enormous thickening of the capsule — and no tuberculosis. The last mentioned patient has now for more than one year been tending his work as line inspector in the telegraph service. He is capable of full extension in the knee and of 90° flexion; there is no lateral deviation whatever.

As to the after-treatment, R. H. emphasized that the orthopedist should not be too energetic with his passive motions, and that it is of the greatest importance that the patient is made himself to exercise the joint.

DISKUSSION:

*Haglund,* Stockholm:

In connection with the demonstrated patients, I would like to present some points of view as to the question of mobilization of defective joints — the mobilization may be carried out in any way possible. I can not subscribe to the confidence of *Robert Hanson* in a continued automobilization in these cases, and for this reason, that the primary treatment did not produce any full extension — i. e. physiological overextension. These joints are not particularly different from any other chronically defective joint with regard to the mobility; and if one does not succeed somehow in producing full extension, the joint will hardly be mobilized by the patient's own efforts, especially when the patient is as young as one of these.

*Robert Hanson* made the statement that it may be better to leave the patient to himself than to submit him to gymnastic mobilization. Yes, naturally — that is if the gymnastic mobilization produces the irritation that is mentioned. Certainly, such a treatment is by all means to be avoided. The trouble is, I am sorry to say, that at least in Sweden there are only a very few kinesipathists — and not very many physicians either — who understand how such a treatment should be carried out. One does not understand the apparently paradoxal fact that, if one wants to increase the flexion capacity of a joint, one has to exercise the function of extension. The flexion will come through automobilization if full capacity for extension is reestablished in some way or other; if not, the range of mobility will only be shifted more and more toward the flexion side, and the function of the joint will be worse and worse, often together with an aggravation of the pains.

In estimating the value of arthroplasty in tuberculosis of the knee joint, one should always take into account that in children and young people one does not infrequently meet with an almost miraculous automobilization; and in this connection I may recommend the study of a couple of cases I have published in the first number of Acta orthopedica. Formerly it was a puzzle to me why some knees that had been tuberculous would have a fair degree of mobility, and others none at all. Now I know that a significant factor in this outcome is the point whether overextension has been possible or not, that is, whether the slight mobility, which is the basis of the subsequent mobilization, has been approaching the extension faculty as much as possible.

*Sven Johansson,* Göteborg

had never felt tempted to perform arthroplasty of the knee joint in tuberculosis. In the ankylosis after gonorrhea and trauma arthroplasty gives the best results. It is of great importance that one does not perform arthroplasty on other patients but those who have energy enough to submit to a methodical after-treatment.

As to the technique, J. would recommend most emphatically the technique given by Putti (with plastic lengthening of the quadriceps tendon).

*Robert Hanson:*

With regard to Professor *Haglund*'s comments on the prospects, I would like to state that in the first one of the demonstrated cases, I am myself quite skeptical, as she is incapable of full extension. In the operations I have aimed at the greatest extension possible, especially in this patient, who was admitted with her knee in ankylosis of 45° flexion. In demonstrating the patients as early as now, I have wished to call attention to the good healing of the operation wound, which shows that even in joint tuberculosis one may perform resection and arthroplasty in the same seance. As to the final result, one will have to wait at least 6 months more before one may comment on it.

In my paper I have emphasized that in tuberculosis of the knee joint with bone foci in adults, I think as a rule it is best to perform resection aiming at ankylosis. In the two cases demonstrated there have been particular factors to take into account in deciding the method of operation. I fully agree with Dr. *Sven Johansson* in his remark that the psyche and the energy of the patients are very much to be taken into consideration.

The after-treatment is painful as well as lengthy, and without endurance and good will on the part of the patients, the whole operation will be a failure.