

TREATMENT OF FRACTURES OF THE TIBIAL CONDYLES BY ACTIVE MOVEMENT THERAPY

By

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Arthrosis, limitation of movement and instability are the most common deleterious consequences of an intra-articular fracture of the tibial condyle. It would appear that operative treatment with more or less prolonged immobilisation is not beneficial, at any rate for either of the first-named conditions. Instability is not a factor impairing function to the same extent as the remainder, and can even be compensated to a considerable degree by perfect muscular function. Instability is due to incongruity of the joint surfaces rather than to ligamentary insufficiency. Total rupture of the ligaments is rare but smaller lesions accelerate shrinking of the ligament and capsule by scar formation, with limitation of movement attendant on it. Various observations indicate that in fractures of the tibial condyle the end results are favourably influenced by active movements begun as early as possible, initially without weight bearing (Cornell and Hardy 1950). In connection with the Joint Meeting of Orthopaedic Associations of the English Speaking World in London in 1952, where Professor Kallio was present as a guest, a group of patients was presented at St. Thomas Hospital by Professor Perkins who said that as far as he was concerned, he treated all fractures of the tibial condyles, irrespective of their type, by early mobilisation on the day following the trauma with simultaneous osteotraction through the tibia below the fracture line. In a recently published article Perkins deals with the relationship between immobilisation and mobilisation in fracture therapy as a whole and advocates that, as far as intra-articular fractures and those close to the joint are concerned, movement therapy should be instituted as early as possible thus counteracting every tendency to limitation of motion and also adjusting possible incongruity of the joint surfaces produced by the fracture.

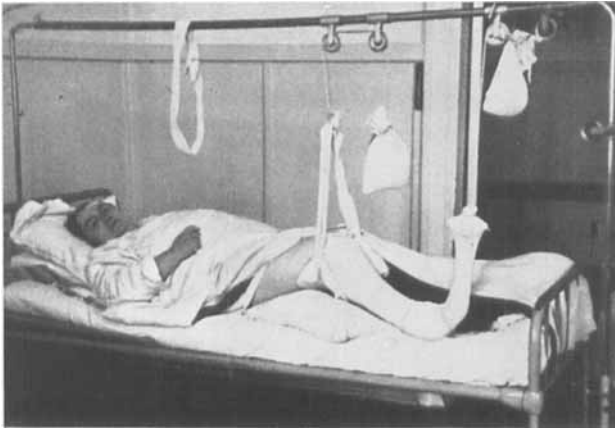


Fig. 1.

Photograph showing arrangement with balanced suspension. Note cushion under bend of the knee in early stage of treatment.



Fig. 2.

Degree of mobility in position of mobilised immobilisation, after a period of treatment.

A woman aged 52, of considerable physical size, (weight 100 kg, height 166 cms) was found to have a medial fracture of the tibial table with simultaneous fracture of the proximal extremity of the fibula, advanced hypertonia and incipient congestive heart insufficiency. The suggested operative treatment was considered contra-indicated, and active movement therapy with the limb elevated in a balanced position of suspension was embarked upon. Initially the knee joint was supported by a cushion which kept it in a position of slight

*Fig. 3.*

Roentgenogram showing dislocation primarily before treatment.

*Fig. 4.*

Roentgenogram showing position of fragment after 4 weeks. It is now lying on a level with the remaining plateau, and the lateral displacement has been corrected as well.

flexion, but the patient was instructed to perform active extension and flexion of the joint from the very beginning. The arrangement is shown on Figs. 1 and 2. Repeated checking by roentgenograms revealed spontaneous reposition of the fragment and an almost exact restoration of the tibial table. See Figs. 3 and 4. After 6 weeks' mobilisation the patient was allowed to get up and move about on crutches. At a follow-up examination 4 months after the trauma the joint revealed good mobility, 180° to 70° , good stability and freedom from ache and pain. The patient got about aided by a short cane. Radiologically the consolidation and position of the fragment were good.

DISCUSSION

In the case reported above operative treatment would hardly have achieved better reposition than the treatment under discussion. This case seems to lend support to the assumption that both incongruity of the joint and limitation of movement are counteracted by this mode of mobilising immobilisation. There is no doubt that convalescence is speeded up and the knee joint protected against the traumatising tendency of a continually maintained muscular function. The danger of

pseudarthrosis, naturally the strongest argument against mobilisation therapy in fractures, need hardly be considered in this region. The mobilisation arrangement should be considered separately in each individual case; traction in a direct line with the leg should be entertained in fractures of the table involving more than half of the joint surface or possessing a general comminuted character. The problem of indications for treatment of this kind has to be discussed; in any event, elderly patients, possibly with general contraindications, are suitable subjects. It is evident that surgical treatment is indicated in cases in which reposition cannot be achieved by any other means and which carry a normal surgical risk. Above all clearer understanding must be gained of the dangers which a position of rest can in itself constitute to the function of the joint.

SUMMARY

Report and discussion of a case of medial fracture of the tibial table treated at the Orthopaedic Clinic of the Helsinki University (Head: Professor K. E. Kallio, M.D.) by early active movement therapy in a balanced position of suspension. Good restoration of the tibial plateau by reposition spontaneously occurring under treatment was achieved, with good mobility and a stable joint. The danger of prolonged immobilisation in intra-articular fractures is stressed. (2 Figures and 2 roentgenograms).

RESUME

Exposé et discussion d'un cas de fracture médiale du condyle du tibia traité à la Clinique Orthopédique de l'Université d'Helsinki (Prof. K. E. Kallio) par exercices précoces et actifs en position balancée de suspension. Le résultat fut une bonne restauration du plateau tibial par reposition qui se produisit spontanément sous l'effet du traitement, avec une bonne mobilité et une articulation stable. Le danger d'une immobilisation prolongée pour fractures intra-articulaires est souligné. (2 figures et 2 radiographies).

ZUSAMMENFASSUNGEN

Bericht und Besprechung eines Falles von Fraktur des Condylus medialis tibiae, der an der Orthopädischen Klinik der Universität Helsinki (Vorstand Prof. Dr. K. E. Kallio) durch frühe aktive Bewegung

in schwebender Suspensionslage behandelt wurde. Eine gute Wiederherstellung des Tibiakopfes durch unter der Behandlung spontan einsetzende Reposition wurde erzielt, bei guter Beweglichkeit und einem stabilem Gelenk. Die Gefahren einer dauernden Immobilisation bei Gelenk-Frakturen werden unterstrichen. (2 Abbildungen und 2 Röntgenographien).

REFERENCES

- Cornell, C. M. and Hardy, R. C.:* Plateau fractures of the tibia. *Surgery* 735-743, 1950.
- Gylling, U. and Lindholm, R.:* Fracture of the tibial condyle. *Ann. Chir. et Gyn. Fenn.* 229-235, Vol. 42, 1953.
- Perkins, G.:* Rest and movement. *The J. of Bone and Joint Surg. British* Volume 35-B, No 4, 1953.
- Smillie, I. S.:* *Injuries of the knee joint.* Edinburgh. E. & S. Livingstone Ltd. 1951.