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### Vrije peestransplantatie bij de behandeling van buigpeesletsels aan duim en vingers.

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## SUMMARY

IN *Chapter I* the lay-out of this work, dealing with flexor tendon lesions, is discussed. As a guide, the system of RANK and WAKEFIELD is used, who in turn have taken over principles of BUNNELL.

The directives for the treatment of flexor tendon lesions of the thumb and fingers in the area of the sheaths are:

- a Primary treatment, consisting of wound care and eventual primary nerve suture. The tendon ends and sheaths are untouched. An antibiotic is given prophylactically.
- b Reconstruction of the profundus tendon with a free tendon graft is undertaken as soon as the wound is soundly healed, the passive mobility in the finger joints is normal and if there are no trophic disturbances.
- c To standardize and simplify the technique, one system is followed as far as possible.

The value of the hand to man is pointed out and the treatment of hand injuries discussed. The use of rehabilitation is emphasized.

In *Chapter II* the anatomy is discussed, as far as it relates to the tendon lesions in question.

In *Chapter III* an extensive survey of tendon healing is given, as worked out experimentally by MASON and ALLEN.

The aims of tendon surgery are:

- a To restore continuity of the tendon.
- b Mobility of the treated tendon with regard to its surrounding tissues.

A better understanding of the course of tendon healing gives directives for the surgical treatment and for the aftercare.

MASON and ALLEN studied experimental tendon sutures under various conditions in dogs. The healing of the tendon was judged by its tensile strength.

They came to the following conclusions:

Tendon healing shows three phases:

1. Phase of rapid softening of the tendon ends.
2. Phase of increase in tensile strength to a level which is reached on the sixteenth day.

3. Further phase of increasing tensile strength which begins between the 19th and the 21st day and which continues over a long period.

Exposure of the tendon suture to traction is of special value in the third phase.

If movement is allowed during the first two phases it produces excessive tissue reaction (more adhesions with the surrounding tissues) and suture dehiscence. Traction on the tendon suture increases its tensile strength.

Absolute rest during the first two weeks followed by limited movement during the next two weeks cause little tissue reaction and obtain a rapid increase in tensile strength. In free tendon grafts the processes are analogous.

In *Chapter IV* the publications dealing with the treatment of flexor tendon lesions in the thumb and fingers are discussed, in so far as these relate to the lesions dealt with in this paper.

In *Chapter V* the principles of flexor tendon grafts are discussed.

Tendon suture within the sheath area results in complete adherence between the tendons themselves and with the surrounding tissues. There is no paratenon present in the sheaths.

For this reason, in tendon injuries in this area, only the profundus tendon is reconstructed and that with a free tendon graft which is put in from the palm to the terminal phalanx. This gives two tendon sutures both of which are beyond the area of the sheath. Adhesions to the terminal phalanx or in the palm (origin of the lumbrical muscle) will not cause serious limitation of movement.

The indications are thoroughly described.

A short remark about primary and secondary tendon grafts finishes this chapter.

In *Chapter VI* the operative technique is discussed, making it clear that one tries to simplify it as much as possible. The dressing technique and the after-treatment are also described.

In *Chapter VII* personal work is discussed. It is first indicated how the results are evaluated. All cases are then discussed. At the end of the chapter this series is judged by its results. 55 tendon grafts were carried out, 41 cases produced a good result, 14 cases were failures. From this it is clear that the operation is justified.

The 14 failures are further explored: 6 of them had been previously operated. (Only 9 of the 41 good results had been previously operated).

The time between injury and grafting varied from 4 weeks to 5 years. There is no clear relation between this time and the results obtained.

Of the 14 failures it must be noted that in Cases I and V, a different technique was used.

In Cases VI and XII pulleys were reconstructed without success.

In Cases XI, XV and also XII a flexion contracture of  $90^\circ$  at the proximal interphalangeal joint was noticed at the first redressing. This meant a fault in the dressing technique.

In Cases XIV, XVI, XVII and XXIV it is obvious on further examination that the indications for a tendon graft are not closely followed.

In Cases XVIII and XLI the causes of failure are not clear.

Although there are still many variable factors in this series which make a statistical work out impossible, it may be clinically concluded that the tendon graft in flexor tendon injuries in the area of the sheaths in the thumb and fingers, properly done and following the right indications, is a useful operation with which a satisfying functional recovery can be obtained.