THE TREATMENT OF HALLUX VALGUS BY ARTHROPLASTY OF THE ART. METATARSO-PHALANGEA I

BY

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H. Timmer of Amsterdam has recently published a small book »Die Behandlung des Hallus valgus« (Johann Ambrosius Barth, Leipzig) in which, after a quite brief introduction on the pathogenesis and pathological anatomy of the deformity, he describes the very numerous modes of treatment which have in the course of time been employed to correct this deformity. Timmer's estimate of the advantages and disadvantages of the various methods of operation is sober and objective; he points out that in hallus valgus, as in every other affection, the operator must individualise and choose his technique according to the nature and degree of the case. On reading Timmer's book, which may be recommended to any one desiring a lucid, brief, and yet fairly exhaustive orientation in the treatment of hallux valgus, I have especially noted the stress laid by him on the importance to be assigned to the state of the I. metatarso-phalangeal joint in choosing one's technique.

In nearly all old and severe cases of hallux valgus there is present a pronounced arthritis deformans in the metatarso-phalangeal joint. The idea that the »primary« deformity is the varus position of the metatarsal bone may make those methods seem particularly rational which aim at correcting this position, but a operation ridding the patient of the affected and painful joint, will afford better changes of a cure. The results obtained by resection of the capitulum ossis metatarsi I. also seem to be the best and safest means to rid the patients of the symptoms and satisfy them; of Scandinavian works on this subject I may especially refer the reader to T. Sandelin, »Über Hallux valgus etc.«, Acta chir. scand., Vol. LVI, Pag. 1, 1923. The objections raised to methods by which the capitulum is partly or entirely removed, because they weaken the medial point of support of the anterior part of the foot, seem in part merely theoretical; an instep-pad with an arrangement to support the transverse arch of the foot can only in rare cases be dispensed with after operative treatment of hallux valgus, and by means hereof the weight on the anterior part of the foot is evenly distributed.

When treating an »arthritic« hallux valgus by resection of the capitulum oss. metetars. I, the operator must, however, consider that, besides securing the shortening of the metatarsal bone resulting in correction of the deformity, he must also ensure to the patient a firm, painless, and fully actively and passively mobile connection between the toe and the metatarsal bone, — in other words, the operation must be performed as a regular arthroplasty.

Mayo's employment of the subcutaneous bursa as an easily accessible and, owing to its anatomical structure, admirably suited material for covering the resection surface of the metatarsal bone, is the most natural method of altering the simple Hueter resection to an arthroplasty. The

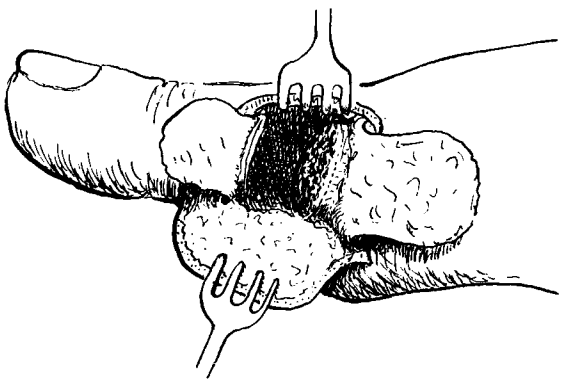

Fig. 1.

technique usually given for Mayo's operation does not, however, seem quite rational on some points, for 1) the bursal flap is formed with a distal base, so that it is kept in connection with the basal phalanx instead of with the metatarsal bone whose end surface it is to cover, and 2) both the bursa itself as well as the fibrous elements of the joint capsule are employed for interposition in the joint.

My own technique in arthroplasty is as follows: An upwardly convex arcuate incision is made in the skin, circumscribing the most prominent medial projection of the capitulum. The flap of the skin is carefully dissected from the bursa. Of the bursa in connection with subcutaneous fat and superficial fascia a large forwardly convex flap is formed with its base at the neck of the metatarsal bone. Even in cases where no substantial cushion of soft parts covers the medial side of the capitulum, I have always been able to find sufficient »material« of which to make this flap without including any of the fibrous elements of the capsule. From these a smaller flap is formed after the bursal flap has been dissected free, with its base in distal connection with the medial side of the

basal phalanx (see fig. 1). The joint is then opened broadly. and the capitulum luxated, whereupon part of the capitulum is removed with a Gigli's saw corresponding in size to the degree of the deformity (the larger the more acute the valgus angle is), but as a general rule it may be said that it is better to take too much than too little. It is important to obtain good »*relaxing*«. After the piece has been sawn off, all the edges of the bone are carefully trimmed, so that the auterior end of the metatarsal bone obtains a regularly rounded form, though with a little more prominence of the lateral than the medial part. In cases where the cartilage of the sesamoid bones is very roughened and defective, and it

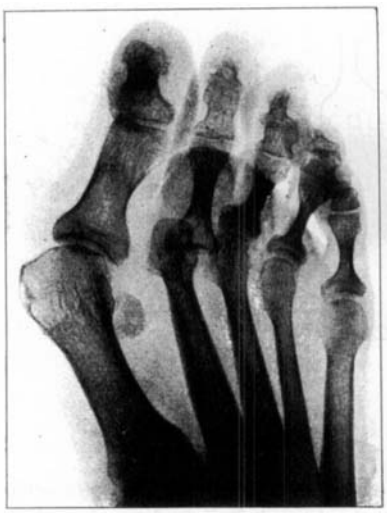

Fig. 2.

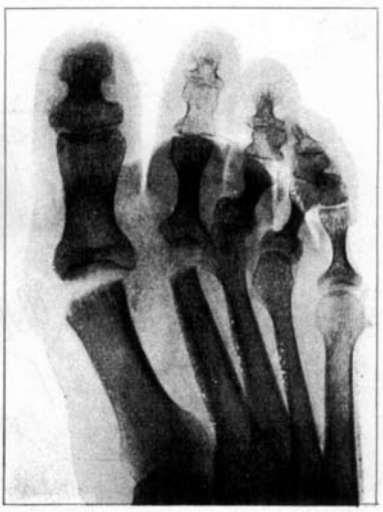

Fig. 3.

is deemed that they will come to lie just under the edge of the shortened metatarsal bone after resection, I have extirpated them (and this is then by far the most troublesome phase of the operation); if they have only undergone slight pathological change, and if the glide well backward under the metatarsal bone, I leave them. — Now the bursal flap is laid over the resection surface of the metatarsal bone where it will as a rule not require any special fastening as it is already in good connection with this bone at its base, if only it is interposed in the resection cleft it adheres well to the denuded surface of the bone. The small fibrous flap is then turned down over the resection cleft so that it lies superficially in relation to the base of the bursal flap; here it is fastened with strong sutures (I always use fishgut) to the anterior medial side of the metatarsal bone. The sutures are carried right down to the bone and well

tightened during reduction of the toe. In this way a good fibrous medial wall for the new metatarso-phalangeal joint is formed, which the ordinary Mayo operation does not provide. If deemed necessary, the operation may be supplemented by displacements of the tendons, but as a rule the tendons will of their own accord glide sufficiently far medially. When the skin has been sutured, the toe is bandaged in a slightly overcorrected position. Mobilising after-treatment begins on the 12th—14th day. The foot is provided with an instep-pad with a support for the transverse arch. on the 20th—25th day, and the patient begin to walk.

For the last two years I have performed this form of hallux valgus operation on seven patients between the ages of 18 and 50 — on 4 of them on both feet. (In lighter hallux valgus deformities without arthritis I use less radical operative methods when conservative treatment is insufficient). The cosmetic result has always been quite good, and all patients have been able to walk enduringly and without pain 4—6 weeks after the operation; only a stout and heavy female patient aged about 50, who had undergone double-sided operation, stated that she could still 3—4 months after the operation occasionally feel some tenderness corresponding to the left metatarso-phalangeal joint. Her gait was, however, quite natural, she could easily and without pain »stand on tiptoe«, and here as in all the patients there was quite free active and passive mobility of the toe in the basal joint — especially dorsal flection.

Fig.s 2 and 3 show skiagrams of one of the cases before and after operation. In this female patient (aged about 40) the rather severe hallux valgus was complicated by a dorsal luxation of the second toe in the metatarso-phalangeal joint, and there was great tenderness corresponding to the capitulum of the II. os metatars. which was very prominent on the plantar surface. To obviate the inconveniences of this fairly frequent hallux valgus complication a very ample piece of the distal end of the metatarsal bone must be resected, and the use of carefully adjusted instep-pads with transverse arch support is especially urgent in these patients after the operation.

SUMMARY

A method is stated for the modification of Mayo's treatment of hallux valgus by which the operation assumes the character of a regular arthroplasty.