

A CONSERVATIVE OPERATION FOR BUNIONS

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The operation here described is the result of an effort to overcome some of the difficulties which result from the more destructive operations for the relief of hallux valgus. It is especially applicable to younger individuals, since reconstruction of anatomical alignment may be accomplished without joint destruction.

ADVANTAGES

The advantages are as follows:

- (1) Deformity is corrected without resection of the joint, or fracture of the metatarsal.
- (2) Normal architecture of the toes is approached.
- (3) Mechanical force which causes the deformity is corrected.
- (4) The scar is located safely from irritation.
- (5) The period of disability is greatly lessened.

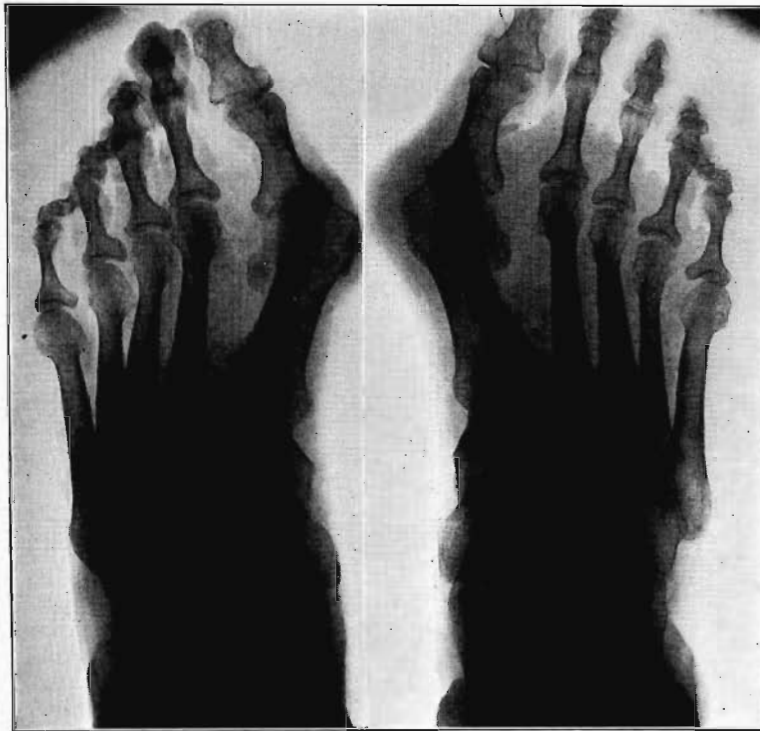


FIG. 1

The internal sesamoid is displaced outward and contributes to the increase of deformity.

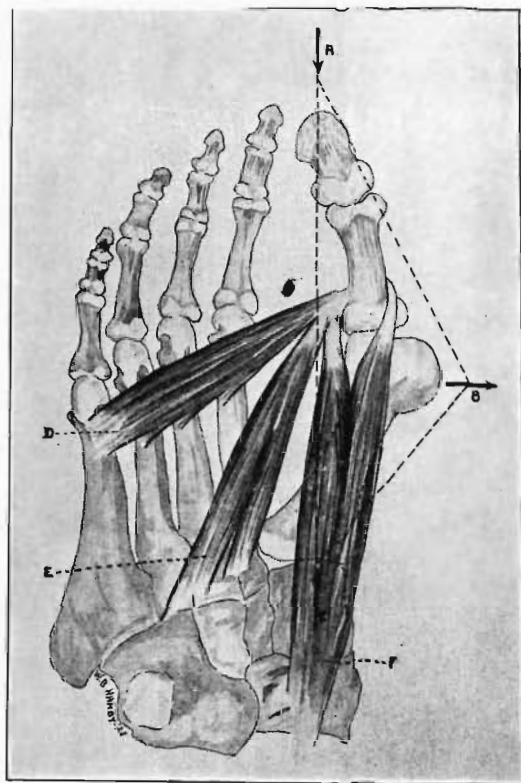


FIG. 2

The mechanical force which causes hallux valgus is the shortening of the line *A-C*. The pull of the adductor muscles plus the pressure of a short shoe at *A* increases the acuteness of the angle *B*. *D*. Adductor hallucis; transverse head. *E*. Adductor hallucis; oblique head. *F*. Flexor hallucis brevis.

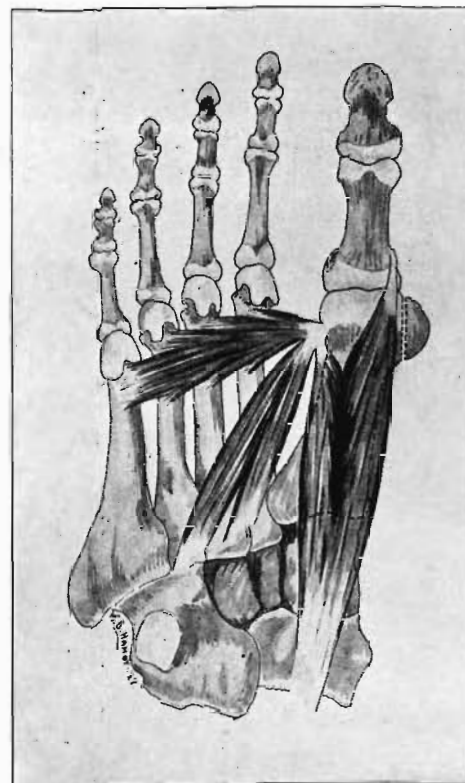


FIG. 3

Transplanting of the conjoined tendon of the adductors from the first phalanx to the head of the metatarsal bone creates a mechanical stress favorable to correction of the deformity.

INDICATIONS

This operation is suitable for any case except where there are marked changes in the articular surface, or extreme deformity, or in that of hallux rigidus.

THEORY OF DEFORMITY

One of the greatest mechanical factors in causing deformity is contraction of the muscles whose conjoined tendons insert into the base of the external aspect of the first phalanx of the big toe. These muscles, composed of the transverse and oblique heads of the adductor hallucis and the flexor hallucis brevis, have considerable power.

When the toe is everted slightly, as would naturally happen in a short shoe, these muscles have a great advantage mechanically over the abductors of the toe.

When radiographs of feet with hallux valgus deformity are reviewed, it is found that in a majority of the cases the shadow of the internal sesamoid bone appears between the heads of the first and second metatarsals. This bone is attached to the conjoined adductor tendon as well as to the

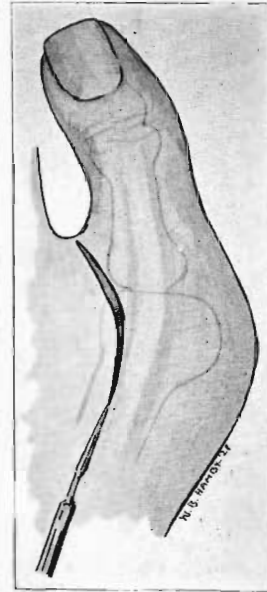


FIG. 4

Incision slightly curved laterally to tendon of the extensor hallucis longus.

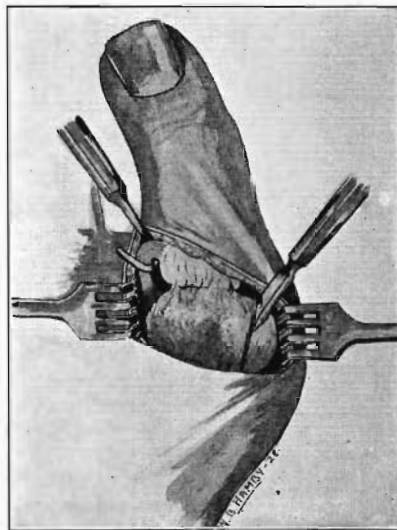


FIG. 5

The conjoined tendon of the transverse and oblique heads of the adductor hallucis and the flexor hallucis brevis, are exposed and severed from their attachments. The exostosis is exposed through the same incision.

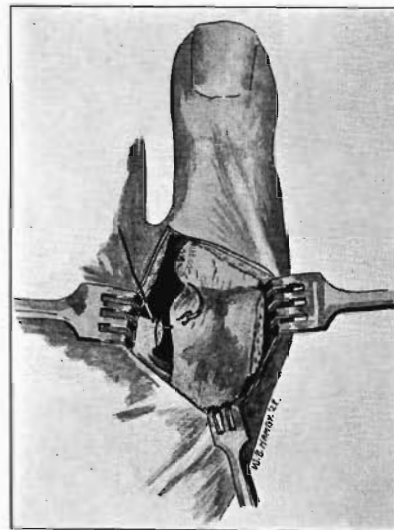


FIG. 6

Transplanting the conjoined tendon into the head of the metatarsal. The prominence of the metatarsal head has been removed.

flexor hallucis brevis. It, therefore, is gradually pulled outward as deformity increases. The sesamoid often becomes fixed in this position because of inflammatory changes, and it creates a force which tends to push the head of the first metatarsal inward at each step.

We have then a line of force which shortens one side of a triangle, and lessens the angle formed by the two other sides (See Fig. 2). The side which becomes shorter is represented by a line from the tip of the first toe to the base of the first metatarsal. The phalanges represent one of the other sides and the first metatarsal bone the other.

OBJECT OF OPERATION

The object of the operation, then, is to release this abnormal mechanical force and restore the alignment of the metatarsal bone and phalanges. To accomplish this, the conjoined tendon of the base of the outer aspect of the first phalanx is released from its attachment and transplanted into the head of the first metatarsal. The external sesamoid is removed if it is eroded, abnormal in shape, or displaced. The bursa and prominence on the medial aspect of the head of the metatarsal are then removed and an ideal yet conservative correction is obtained.



FIG. 7
Case shown in Figure 1 after operation.

TECHNIQUE OF OPERATION

- (1) Usual preparation.
- (2) Incision, two inches in length, along external border of extensor hallucis longus with its center over the joint.
- (3) Keep close to metatarsal head and dissect downward. No important structures are severed and the small vessels just external to the extensor hallucis may be avoided. As dissection is made, the conjoined tendon of the adductor hallucis group is observed at its point of insertion into the external side of the base of the first phalanx. It should be carefully exposed and severed from its insertion. Just beneath and between this tendon and the metatarsal head is the internal sesamoid, which is imbedded in the outer head of the flexor hallucis brevis. The sesamoid is dissected out, if such procedure is indicated. The dissection should be done without any more trauma than is absolutely necessary. Small bone-holding forceps are of great aid, as the sesamoid is very difficult to hold while dissecting, because it is so deep down in the small incision. A heavy tonsil tenaculum is quite useful for this purpose. The conjoined tendon of the adductor muscles and external head of the flexor hallucis brevis are transplanted into the dorsum of the head of the first metatarsal bone.

The incision is now retracted medially and subcutaneous dissection made to expose the bursa and bone prominence on the inner side of the metatarsal head. The veins can usually be avoided. The bursa is dissected out; the bone prominence is chiseled away; the toe is corrected, and the capsule repaired.

When the wound is closed, the first and the second metatarsals close tightly together. The toe is manipulated into a little overcorrection and a very light plaster slipper is applied to maintain this correction. The cast and stitches are removed in from one week to ten days, and the toe is held in correction by adhesive plaster. Weight-bearing is allowed at the end of two weeks. The toe should be held in correction by adhesive plaster for from four to six weeks.