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THE TREATMENT OF HALLUX VALGUS.

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## THE TREATMENT OF HALLUX VALGUS.<sup>1</sup>

BY JOEL E. GOLDTHWAIT, M.D., OF BOSTON.

It seems hardly necessary for me to offer an apology for presenting a paper upon this subject, when it is considered, that comparatively few persons go through life without suffering to a greater or less degree from this affection, or from conditions which are directly the result of it; and when, furthermore, it is considered that while the deformity itself, as well as the resulting conditions are truly surgical affections, with definite modes of treatment for their control, still the large majority of the cases seek relief from their troubles at the hands of chiropodists, men of very little, if any, medical or surgical training.

While the title of the paper deals only with the treatment of Hallux Valgus, nevertheless, as the etiology has a decided bearing upon the treatment, a certain amount of time must be given to its consideration.

While the disease is essentially a disease of adult life, nevertheless, clinically, a congenital form is recognized, as with Hallux Varus, although it is of much less frequent occurrence. The deformity in these cases may be due to muscular contraction, or to an abnormal development of the bones, so that one articular facet is longer than the other.

Flat-foot is undoubtedly responsible for a certain number of cases; the reasons being purely mechanical ones. Instead of the step being completed with the weight of the body squarely upon the ball of the great toe, it is thrown upon the inner side, thus stretching

<sup>1</sup> Read before the Boston Society for Medical Improvement, October 9, 1893.

the internal lateral ligaments, and pressing the toe forcibly against the others. Aston Key<sup>2</sup> describes the same condition by attributing it to excessive weight received upon a weak tarsus and metatarsus from overstanding, the great toe being gradually forced outwards by the oblique bearing of the foot, on the inner plantar surface, when the arch of the foot has given way.

In the large majority of cases, however, the condition is directly attributable to the wearing of improper shoes; either too short, too narrow, too pointed, or some form that does not give as much room for lateral spreading of the toes as is possible at the metatarsophalangeal articulations. Hueter<sup>3</sup> mentions the shoes and the shoemaker as the sole cause of the deformity; as do also Bradford and Lovett.<sup>4</sup> With either of these the resulting deformity is the same; the toes are crowded together and the great toe pressed against or drawn over or under the others. The deformity is necessarily increased in walking or standing, as there is distinct widening across the ball of the foot. To quote from Bradford and Lovett:<sup>5</sup> "The boot is not stretched at its extreme end, and it inevitably becomes in a degree conical in shape on this account, being broader across the ball of the foot than at the tip end. In the act of walking the foot necessarily slips inside of the boot to a certain extent, and if the shoe slips backwards and the foot forwards, a certain amount of pressure will come upon the inner side of the end of the great toe."

In the treatment of this condition it is rarely the deformity itself which causes the patient to seek advice, but, rather, some of the conditions which are the direct result. As the toes are crowded together, the

<sup>2</sup> Guy's Hospital Reports, 1836.

<sup>3</sup> Gelenk-Krankheiten, p. 342.

<sup>4</sup> Orthopedic Surgery, p. 753.

<sup>5</sup> *Ibid.*, p. 754.

folds of skin at the sides of the toe are pressed against the edges of the nail. These become irritated and sensitive, then hypertrophy as the result of the constant irritation, and later on, ulcerate; the painful "in-growing nail" resulting. In the treatment of this the correction of the Hallux Valgus is necessary.

As the deformity develops and the toe is drawn more and more to the side, the head of the metatarsal bone is more and more uncovered, and there is constantly increasing pressure against this point, which normally should be protected. As a result, the skin thickens and becomes calloused; and the exposed end of the bone from the constant irritation becomes enlarged. This, at first, is chiefly due to periosteal thickening; but, later on, bony deposits replace and increase the enlargement, particularly at the age when the deposits common in chronic rheumatoid arthritis are seen.

While these changes are taking place upon the exposed side of the bone, on the inner side the articular surfaces of the phalanx and the metatarsal bone are crowded together. This produces atrophy of the articular cartilages, and, if continued, the bone becomes exposed and true caries may result.

On the exposed side of the foot, as the thickening at the head of the metatarsal goes on and the skin over it becomes harder, a bursa forms between the two, which may or may not communicate with the joint. Under the continued irritation of walking this bursa enlarges, and later on becomes inflamed, — the so-called "Bunion."

Preventative treatment is, of course, the best for this condition, and consists in keeping the feet in the natural position from infancy; the arch of the foot should be maintained, especially in persons who are obliged to stand a great deal, and above all, proper

shoes should be worn. After the deformity has occurred, the first part of the treatment consists in the removal of the cause; nothing like a tight shoe should be thought of, a wide and easy one being worn, and in connection with this the stockings should be of good length. Key suggests having shoes made with a separate compartment for the great toe.

For the correction of the deformity various methods are in use. One of the simplest consists in wearing a piece of felt or roll of cotton between the first and second toes. This presses the great toe into place; but it has the disadvantage of leaving a considerable space between the two toes, so that when the pad is removed it is easy for the deformity to recur.

A method suggested by Sayre<sup>6</sup> consists in using a linen or buckskin cot made to fit the toe, to which is attached a few inches of elastic webbing, and to this, again, is attached a piece of adhesive plaster to go around the heel. This is retained in place by two other strips of plaster which encircle the foot. This makes a comfortable appliance for use, especially in the acute cases.

Various appliances have been suggested, which would exert more force for correction than the Sayre device, such as hard-rubber, gutta-percha, or pasteboard splints, to which the toe is bound, so as to pull it back into place. In this class is the Biggs apparatus which consists of a piece of steel with an opening cut so as to avoid pressure on the bunion, which is fastened to the inside of the foot and the toe pulled up to it. The difficulty with all of these has been to adjust them in such a way that they could be worn without great discomfort.

In order to get something that could be tolerated in walking, and at the same time be efficient in correcting

<sup>6</sup> Orthopedic Surgery, p. 141.

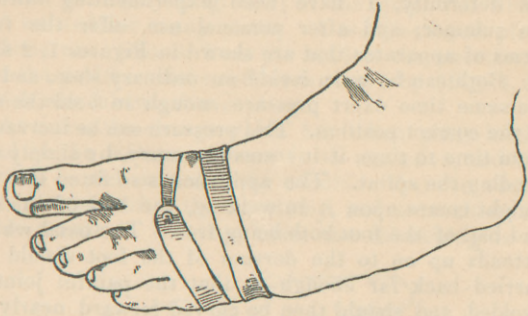


FIG. 1.

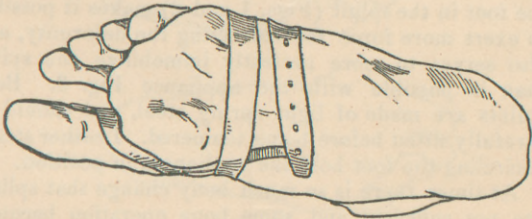


FIG. 2.

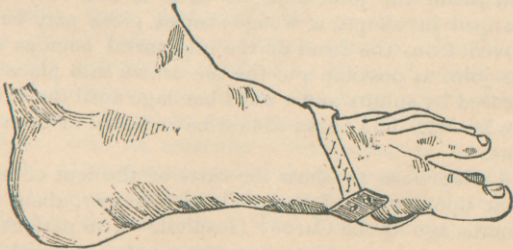


FIG. 3.

the deformity, I have been experimenting during the summer, and after personal use, offer the two forms of apparatus that are shown in Figures 1, 2 and 3. Both can be worn inside an ordinary shoe, and at the same time exert pressure enough to hold the toe in the correct position. This pressure can be increased from time to time, if it seems necessary, by simply re-bending the splint. The appliance is so fitted that no weight comes upon it in walking, the ball of the toe and ball of the foot both being free. The band which extends up on to the dorsum of the foot should be carried back far enough so that the painful joint is avoided, and should then be curved forward nearly to the base of the toes, so that flexion of the foot is not restricted. The long arm which follows the side of the foot in the splint (Figs. 1 and 2) makes it possible to exert more force for correcting the deformity, and also serves to more perfectly immobilize the splint than is possible with the appliance Fig. 3. Both splints are made of light spring steel, and should be carefully fitted before being tempered. Leather straps encircling the foot hold the appliances in position.

At times there is so much bony change that splints are not sufficient and some bone operation becomes necessary. If there is comparatively little inflammation about the joint and the bone is not very much changed in shape, a wedge-shaped piece may be removed from the head of the metatarsal bone as near the joint as possible and the toe drawn into place and secured by splints and a fixed bandage until the wound has healed. The bursa should be removed at the same time.

I wish here to show the casts of the foot of a patient upon whom I operated, in this way, about two months ago at the Carney Hospital. The patient was a woman about thirty-five years of age, with the



marked deformity (Fig. 4, *a*) of the great toe which had existed for many years. A wedge-shaped piece of bone was removed from the head of the metatarsal, and the position corrected, as is shown by (Fig. 4, *b*), which was taken a few days ago.

At times, the change which has taken place in the head of the metatarsal bone is so extensive, and the bone is in such an unhealthy condition that the wound does not heal after the osteotomy, and a troublesome sinus remains. In other cases the thickening is so

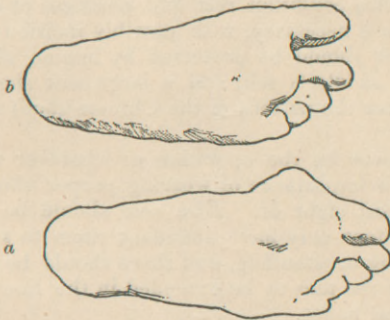


FIG. 4.

great that it is readily apparent, that even though an osteotomy were performed, the prominence at the joint would remain and cause trouble. For these cases the operation described by Hueter,<sup>7</sup> which consists of complete excision of the head of the metatarsal bone, is to be performed. The base of the phalanx, with its muscular attachments, is not disturbed.\* After the removal of the piece of bone the toe is drawn into place and the wound loosely closed, or is allowed to granulate. The bursa should be re-

<sup>7</sup> Gelenk-Krankheiten, p. 345.

moved at the time of the operation, as with osteotomy. The results after this operation have been very satisfactory, leaving a straight toe and a very useful foot.

Tenotomy is suggested as a form of treatment, but the cases must be very rare that can be corrected wholly by this method.

Painful inflammation of the bursa may result from the constant irritation, and this may go on to suppuration, and from this a more or less extensive cellulitis may develop. With this there is apt to be marked sensitiveness of the joint, rendering motion very painful, and for this condition rest and poultices or cold compresses are necessary, with possibly incision later on. The joint should be protected by bunion plasters or rings of saddler's felt, and a large soft shoe (or one made after the pattern of the Chinese shoe) should be worn.

Whatever be the operation or whatever the treatment, the importance of wearing proper shoes should not be lost sight of. The sole should be wide, so that the foot may have abundant room to spread out in walking or standing, and there should be plenty of room for the toes to be extended in the line with the metatarsal bones.

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