WHITMAN (R.)

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THE RATIONAL TREATMENT OF FLAT-FOOT.*

By ROYAL WHITMAN, M. D., M. R. C. S.

In spite of all that has been written on the subject, I am inclined to think that less is known of flat-foot, its diagnosis, causes, results, and proper treatment, than of any affection of corresponding frequency and importance in surgery.

It is a common affection, judging from the cloddy, inelastic walk by which one may recognize it on the street. It is an important affection because of its progressive character and the pain and disability that results. It is unrecognized, for nearly every case of any severity will be found to have undergone a long treatment on the supposition that the symptoms were the result of rheumatism. Its true causes are not appreciated, as shown by the various and conflicting theories of its ætiology in the text-books. Its treatment, finally, is often as irrational as the theory on which it is conducted.

What is ordinary flat-foot? It is an acquired partial dislocation of the bones of the foot. It is not the result of muscular spasm or paralysis, or of primary lax ligaments,

* Read before the Orthopædic Section of the New York Academy of Medicine, March 21, 1890.

or of congenital deformities of bones, as stated by various writers on the subject. Muscular spasm, contraction, paralysis, and lax ligaments, as well as the congestion, inflammation, and deformity of the foot, are the results of the dislocation and not its causes. The dislocation is the result of an overstrain or weight for feet subjected to mechanical disadvantages in standing and walking, aggravated, it may be, by injury or disease.

These disadvantages are:

1. The exaggerated turning out of the toes—a habit which greatly increases the strain on the weakest part of the foot.

2. The improper shoes, which deform the foot and weaken its muscles.

This theory is not merely the simplest, but it is the only one on which treatment may be satisfactorily conducted.

Such treatment is—

1. To replace the dislocation.

2. To hold the foot in proper position.

3. To strengthen the supporting muscles.

4. To avoid the original exciting causes by cultivating a proper walk.

Diagnosis of Flat-foot.—The patient complains of—

1. Pain in the feet, aggravated by standing or walking, especially on going up or down stairs. The pain is usually about the arch, sometimes running up the leg, or it may be below the external malleolus, at the forefoot or heel.

2. Stiffness and weakness of the feet. These symptoms, combined with an inelastic gait, with the toes turned out, are of themselves almost sufficient to confirm a diagnosis.

On examination, one usually finds some congestion about the medio-tarsal joint, a moderate prominence below and in

front of the internal malleolus, with pain at this point on suddenly moving or twisting the forefoot, also a considerable flattening of the arch when weight is borne.

In well-marked cases the deformity is so apparent that any one who has ever heard of flat-foot should be able to make the diagnosis at a glance. Here the os calcis is tipped over to the inside; the astragalus has rotated and slipped downward and inward, forming the marked projection at the inside of the foot; the arch has disappeared and the forefoot is so displaced outward as to become a useless appendage. In such cases we find, to a varying degree, the atrophy and spasm of muscles, with congestion and inflammation of articulations, often so marked as to be mistaken for caries of the tarsus.

In considering treatment, cases may be roughly divided into two classes:

1. Where the foot can be easily replaced in normal position.

2. Where it can not; in other words, where the dislocation is accompanied by muscular spasm, or in cases of long standing by permanent changes in bones and soft parts.

There should be no routine treatment, but each case should be judged upon its merits; and while I believe that in most instances the overstretched, weakened muscles and ligaments may more easily recover their tonicity by the use of a proper support, still, in the milder grades, simple exercises for strengthening the muscles, with the insistence on a proper walk, with proper shoes for patients able to take the necessary rest, may be entirely efficient.

So, too, the Thomas treatment of building up the inner side of the shoe, particularly in the common weak ankle cases, is a useful aid, as tending to throw the weight of the body on the outer side of the foot; but, on the other

hand, it is objectionable as being a rather ungainly, triangular splint, which tends to interfere with the free flexion of the foot.

But in the second class of cases such treatment is inefficient, and to tell a working man or woman with a dislocated, deformed, and painful foot to go home and take gymnastic exercises or to simply build up the shoe with the expectation of a cure by such means, is as irrational as to give the patient salicylic acid or iodide of potassium for its relief. In this class of cases there is, in my opinion, but one rational treatment. Here we have a dislocation often more painful and disabling than any other dislocation in the body. Those who have seen such cases, crippled for months and years, suffering acute pain on any overexertion, will, I think, agree with me that this is not an exaggeration. In such cases ordinary surgical intelligence demands that the dislocation should be reduced, by manipulation if possible, forcibly after etherization if necessary. Having reduced the dislocation, having placed the foot in a position of varus and retained it there by plaster bandages until the spasm and congestion have disappeared, we come to the question of retention. If the theory of dislocation and the necessity of subsequent retention is accepted, we may at once discard all the elastic bands or springs that have been recommended, however useful they may be in the mild cases, on the ground of inefficiency, as elasticity means the probability of a relapse of the dislocation which it is the object of our treatment to prevent. Pads of felt or horsehair, or ill-fitting frogs pounded into place by a mechanic's guess-work, are unscientific and inefficient. As it is of the utmost importance to retain the foot in its proper position, as it is sensitive to pressure, and as it must support the weight of the body, too much care can not be used in assuring an accurate and comfortable brace. I have there-

fore insisted that a plaster cast of the replaced foot shall be taken, from which an iron pattern is made. On this a brace of thin, tempered, unyielding steel is molded. As a description of this brace has several times been published,* I need not here fatigue you with its details.

It is the result of an attempt to carry out, scientifically, the treatment on the theory that has been advanced, and practically its utility has been tested in a very large number of cases. But by itself it is, as any other appliance must be, simply one of the means toward an end. It is alleged for it that it will accomplish its purpose—that is, retention without discomfort; that by its suggestiveness it aids the patient in assuming the proper walk; that it does not interfere with the normal movements of the foot or the action of its muscles; that it is unobjectionable, as its presence in the shoe can not be detected; and that it can be worn by a person in any class of society or grade of intelligence.

Now, having the foot in normal position, a means of retaining it there, and a proper shoe, we may continue our treatment, which is to strengthen the supporting muscles, for on this means alone must be our hope of ultimate cure.

First and most important, the patient must be taught to walk with his toes in front of his body—that is, with but little divergence from the line of the walk; for if they are in this position they must be walked over—in other words, the body must be lifted by a muscular flexion of the foot, which is, by itself, the best possible exercise.

I have elsewhere more at length urged the importance of this position of the feet, with other reasons for believing it to be the natural one, and I think I am justified in assert-

* Transactions of the American Orthopædic Association, vol. i; Boston Medical and Surgical Journal, June 14 and 21, 1888.

ing that, unless it is adopted by the patient, all hope of ultimate cure must be abandoned.* It is evident that this position can be assumed only when deformity of the foot has been reduced and is held reduced. With the foot placed voluntarily in proper position the weight of the body will fall on its outer border, relieving the arch from strain, while in the divergent attitude of flat-foot, the weight falling entirely on the inner border, the brace or other appliance can accomplish its purpose only partially.

Special gymnastics for strengthening the muscles of the foot have been described at length by Roth and Ellis and need only be referred to.

In order to complete the subject, operative treatment must be mentioned.

Ogston's operation seems to me needless and meddlesome. The reported cases have been in young people who might have been more easily, quickly, and satisfactorily relieved by other means.

Supramalleolar osteotomy, more reasonable in theory and harmless in practice, may be objected to on the ground that it is unnecessary and that it is more reasonable to apply our treatment directly to the affected point rather than indirectly by producing bowlegs for the relief of flat-foot.

In conclusion—

1. As no affection is more painful and disabling than severe flat-foot, so none can be more easily and completely relieved by proper treatment.

2. We should not be satisfied with relief, but, with persistent treatment, a cure is what we should hope for and expect.

Finally, in a paper of this length it is manifestly im-

* Orthop. Trans., i.

possible to mention all the predisposing and exciting causes of flat-foot, or to give due credit to special treatment in special cases. The aim of the writer has been to urge a general working theory and treatment which will be found efficient in the great majority of cases.

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