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ON CONGENITAL

TALIPES EQUINO-VARUS,

WITH OBSERVATIONS ON TARSECTOMY.

BY

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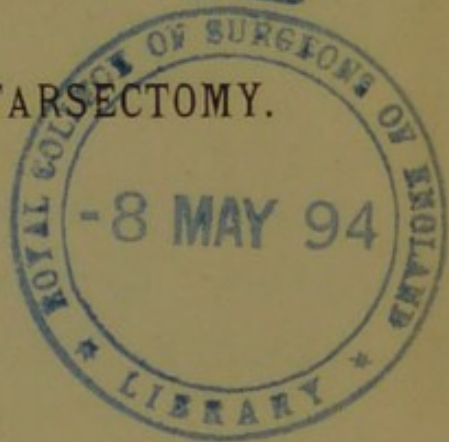
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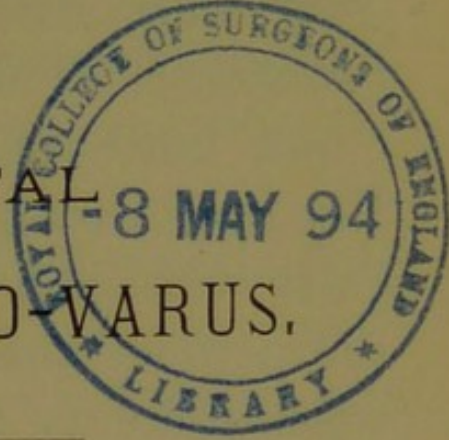
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1894.









CONGENITAL  
TALIPES EQUINO-VARUS.

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IN this form of talipes, the tarsal bones retain their normal shapes at birth. And, if there should be any slight irregularity through great muscular tension and excessive deformity, the bones, being plastic, are easily moulded and brought into shape, after division of the tendons, in treating the foot.

This is rather an affection of the muscles than of the bones.

Until the beginning of the present century this deformity was looked upon as a malformation ; but since Scarpa's time it has been known as a deformity occurring in an originally normally formed foot. Busch says with much precision that "until the end of last century this defor-

mity was attributed to some defect in formation. This opinion," he continues, "has, however, been proved to be false. For only very rarely do defects of any kind exist with club-foot, as for instance when the peronei muscles are deficient. Otherwise, there is no defect, either of bone, muscle, or tendon."\*

Dr. Griffiths, also, testifies to the same effect. He says : " I would lay stress that in this case (*talipes dorsalis*), in which there is so marked a deformity, the defect is in no way due to abnormality in form or growth of the bones, but is entirely dependent upon want of balance of muscular action. In *talipes varus* also, as far as my observations have gone, the same thing may be said, any deviation from the normal in the neck of the astragalus being obviously the result of traction upon the bone due to the preternatural flexion of the astragalo-scaphoid (mid-tarsal) joint, in which the deformity chiefly consists, and it is not the neck of the astragalus only which becomes slightly

\* 'H. von Ziemssen's Handbuch,' 11 Bd., ii Theil, p. 51.



altered, but the os calcis likewise, from the like cause—that is, from muscular traction—becomes somewhat flatter and more incurved than natural.”\*

But, although defects in formation do not occur, the tarsal bones undergo more or less of rotation. For although the essential character of varus is inversion, which may exist alone, and without either extension or rotation, it consists for the most part of a three-fold alteration in the position of the foot in its relation to the leg, namely, of adduction, of rotation, and of extension. Thus, the anterior portion of the foot is inverted, while the inner margin is raised, and the heel is raised.

This state of inversion may be said to commence with the tibialis posticus muscle in its action on the scaphoid bone. Through its action the foot is first inverted, and later it is rotated, and these movements are increased by the flexor longus digitorum and the tibialis anticus. Secondly, the gastrocnemius, contracting, draws up the calca-

\* ‘British Medical Journal,’ December 30th, 1893.



neum, and in proportion to its contraction extends the foot. The calcaneum is raised more or less vertically, and thus the astragalus is thrust forward on to the dorsum, and its superior articular surface is, in consequence, imperfectly covered by the tibia. Thus deformity increases as muscular retraction increases.

Doubtless, in the anencephalous foetus changes occur in the tarsal bones, through impeded development, closely simulating Simian forms. But, at present, these are not being considered. And after the weight of the body has been borne on the feet, as in walking, changes are produced, and these increase with age; for the weight being transmitted through the outer border of the foot, and not through the tarsal arches as in the normal condition, the fourth and the fifth metatarsal bones become or may become more or less folded into the sole; and a cushion, composed of cellular tissue and fat, is formed, on which the superincumbent weight rests. Thus the transverse arch becomes compressed and it may be oblite-



rated ; and rotation may be so great, and the entire foot so much reversed, that the weight of the body will be borne on the dorsum instead of the outer border of the foot. Also through age, impaired development and imperfect use of the limb, the bones become light, and through unequal pressure somewhat altered in shape. These changes are incident to age and to wear and tear. And not only may the bones become somewhat altered in shape through pressure, but also, through inflammatory action, excrescences may form on and about the head of the astragalus, and even ankylosis, more or less complete, may take place between various tarsal bones.

When deformity is great, and when the internal malleolus is small, the deltoid ligament is short. And also in consequence of the rotation which has occurred the several positions of the astragalo-scaphoid ligament, and of the calcaneo-scaphoid, tend to lock the bones very firmly together.

Thus, we may have inversion without rotation or inversion with rotation, and



lastly with extension. Extension without inversion or eversion is so rare, however, that as a congenital affection it is by some believed not to exist.

*Treatment.*—In the first place, the tibial tendons and the tendon of the flexor longus digitorum should be divided. When tension is considerable, it is well to divide the tibialis anticus first, and afterwards the tibialis posticus and the flexor longus. The division of the tibialis posticus is the most important part of the operation. Unless this tendon is fully divided, the scaphoid cannot be replaced in position, and the astragalus remains somewhat oblique between the malleoli. Consequently, motion at the ankle is imperfect, the tread is uncertain, and the shape of the foot is defective. But, when these tendons have been divided, the foot is gradually to be everted, and when it is fully extended the tendo Achillis may be incised, and the foot will, in the course of about three weeks, be flexed.

If, however, the inner border of the foot cannot be lowered whilst the foot is being



extended, the deltoid ligament should be cut through, or at least its anterior portion should be incised; when the foot is immediately loosened and may be placed in the required position.

After the tendons have been divided, the ligaments rather than the bones interfere with the removal of deformity; and of the ligaments, the deltoid interferes with this replacement more than any other. It is therefore right to divide this in its entire extent should it be necessary and otherwise impossible to lower the inner border and complete the rectification of the limb. With the section of this ligament the most formidable resistance will probably be removed. In like manner the calcaneo-scaphoid, and the astragalo-scaphoid ligaments may be divided subcutaneously, if the foot cannot otherwise be replaced in position. It is, however, very rarely necessary to divide any of these ligaments during the first four years of life; and indeed, except the deltoid, it is rarely necessary before twenty years of age. In early child-



hood, the after treatment may be conducted with a flexible metal splint only, and without other apparatus ; and as soon as the foot is fully flexed, passive movements will tend to bring the limb into use. The restoration of function depends on these movements, and they should consequently never be neglected.

The treatment of talipes varus consists then, as I have thus briefly endeavoured to show : first, in the removal of deformity, and secondly, in the restoration of function. And, with very few exceptions, every case may be treated successfully, as I have here indicated.

With an experience of four thousand cases of congenital equino-varus, at every age from birth and up to seventy-three, I may be permitted to offer some remarks on the wanton surgery which is being inculcated at the present time.

There are several reasons why subcutaneous surgery is not so successful as it should be. *First*, because the tendons to be operated on are in many instances not



divided. In numberless cases, the sheath of the tibialis posticus tendon is not even opened ; and the knife is suffered to glide over the tendon without touching it. I have known it to be done scores of times. The tibialis anticus, the tendo Achillis, and the plantar fascia, are severally cut through, but their section avails nothing for the removal of varus, unless the tibialis posticus is also divided.

Having been for many years in practice in this Metropolis, I have necessarily witnessed many extraordinary operations on the human body ; but I am not now going to allude to these. I would, however, mention that one of the best operators in this or any other country, attempting to divide the posterior tibial tendon missed it, and in plunging for it he wounded the artery. And this is not by any means the only case in which I have witnessed this unfortunate occurrence—unfortunate in its remote results rather than in respect of any immediate consequences.

Thus, it cannot be doubted that this



most important tendon frequently remains undivided ; while its division is absolutely essential to the removal of club-foot.

*Secondly*, force is frequently employed to evert the foot, and thus necessarily the tarsal bones are more disturbed in their several relations than before. Especially the scaphoid becomes more twisted than before this heroic treatment was adopted. And it is obvious, if the insertion of the tibial tendon is considered, that this must be so when the tendon has not been divided.

*Thirdly*, the restoration of function is but little attended to. It is thought to be sufficient to restore shape. Shape is most important, for unless it is restored free motion is impossible. But motion is scarcely less important ; and therefore until the muscles have regained their power, a patient should be kept under view.

Such is the course of treatment which is adopted by those who habitually see these cases ; and such is the course which is inculcated by professors of surgery in the



schools. Thus Mr. Erichsen says : "The treatment consists in the successive division of the tibialis anticus and tibialis posticus, which are the muscles principally at fault. After these have been cut across the tendo Achillis should be divided."\* And when this has been done, and rotation has been overcome gradually and without the application of sudden force, it is not possible of two feet to say which has been operated on, except after searching for the minute cicatrices.

But there are those who think that this process is too slow, and who therefore resort to tarsectomy, or else, believing that the skin is an obstacle, freely divide it, and cut through every structure from the dorsum to the sole—the "*radical cure*," as it is facetiously called.

After what has been said of subcutaneous surgery it will scarcely be believed that these violent operations are performed on children of the tenderest years ; indeed, after birth, there appears to be no age

\* 'Science and Art of Surgery,' Article—"Deformities."



limit. Of osteotomy for varus in children, I will observe that it is entirely unjustifiable and utterly wrong; and because the result is bad it should never be practised. And of the "radical cure," in which every structure is divided from the dorsum to the sole, and from the internal malleolus to the tuberosity of the scaphoid, or in Mr. Owen's own words, "The operation consists in dividing every resisting structure which is encountered in a free vertical passing from the dorsum of the foot into the depths of the sole, over the head of the astragalus, the tendon of Achilles having been first cut;"\* I would characterise it as a most wanton use of the knife. Thus the fabric of the foot is cut through that there may be inserted "a broad wedge of space into the astragalo-scaphoid joint. This space," Mr. Owen further asserts, "is duly filled up with granulation tissue, which is eventually converted into a strong and trustworthy cicatricial band between the anterior and posterior segments of the foot."



This assumption with regard to the "trustworthy cicatricial band" is unfortunate. If it were true, a secondary operation would not be needed; but, as with tarsectomy so with this "radical cure," deformity recurs, and those who have been submitted to this treatment, which is not without danger—gangrene having to be feared among other evils—must again submit to operation.

These mutilations are based on errors—namely, that the skin is an impediment to the removal of deformity, which every tyro would know is absurd; and secondly, on the assumption that the tarsal bones are defective in formation, which has been proved to be false. They are not more necessary than is amputation for the removal of club-foot; and being based on false premisses, there being neither tension of skin nor defect of bone, and only rarely of muscle, they are unjustifiable.

\* "The Radical Treatment of Severe Talipes Equinovarus in Children," 'Proceedings of the Royal Medical and Chirurgical Society,' November, 1892.



