✓ A Course of Lectures ON THE NATURE AND TREATMENT OF DEFORMITIES.

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LECTURE III. TALIPES VARUS CONGENITUS.

[Concluded from page 575.]

Treatment. The treatment of congenital talipes varus will depend upon the nature of the deformity, the age of the patient, and the position of the bones of the foot. You will remember that I stated that the deformity will be met with in every amount of severity in children and adults; and in some cases, in infants, it exists with the slightest amount of muscular contraction. I might more properly say, that it is rather a

tendency to, than an actual, inverted position; the inversion being at all times slight, but more evident during the exercise of the muscles. These are cases which can be treated mechanically, inasmuch as there is but slight disturbance of the balance of power between the abductors and the adductors. Free movement is possessed by both; but the adductors possess a preponderance, and turn the foot inwards. By retaining the foot, therefore, in the everted position for some weeks, by means of the instrument I have recommended for the more severe forms of infantile talipes varus (Fig. 11), first adjusting the foot-piece to a right angle, the adductors become weakened by the constant extension and inability to contract upon themselves, whilst the abductors can so contract, and the balance of power is thus restored.

There is also another slight form of congenital varus which exists without muscular contraction, and is confined to the arch of the foot, which is increased transversely as well as

longitudinally, giving a rounded appearance to the foot, which becomes more apparent as the child grows older. In these cases, a steadily continued pressure, by means of the tin splint (Fig. 12) bent at a right angle, will effectually remove the

Fig. 12.

deformity. Division of the plantar fascia is advised and practised, as well as of the fascia covering the adductor pollicis; it is a perfectly unnecessary operation, and one to which I have never found it necessary to have recourse. These slight cases, then, are the only forms of talipes varus in which I consider exclusively mechanical treatment admissible.

When the deformity is more severe, the contraction of the muscles, though slight, being permanent, I find division of the tendons of the contracted muscles necessary, even in infancy. Then arises the question, at what age? If an operation is necessary—if it is desirable to operate in order to remove the deformity—then the earlier it is done, the better, in my opinion. I say in my opinion, because the advice commonly given is that mechanical treatment alone should be adopted until the child is able to walk. The deformity or malposition being thus allowed to remain during the time when the child is growing more rapidly than at any other period, the bones, ligaments, and muscles, are permitted to grow in the malposition; the muscles on the one side contracted upon themselves, on the other at their full extent of elongation. At the same time, all exercise is effectually prevented by the use of mechanical appliances, and increased development of the muscles is therefore out of the question; whilst the longer they are allowed to remain in the contracted state, the more rigid does the contraction become. By the removal of the deformity at the earliest period, the muscles, bones, and ligaments grow in their proper relative position, and are rendered capable of exercising their various functions even before the child has commenced to walk; and, as soon as the patient is capable of walking, he does so in the natural and proper manner. The numerous cases upon which I have operated, both at the Hospital and in private practice, bear unquestionable testimony to the advantages of this mode of practice; in all instances, therefore, the earlier the operation is performed the better, especially before the irritation of dentition commences.

After six or eight weeks, if the case has been carefully managed, the instruments may be removed during a portion of the day, and the patient allowed to exercise the full power of using the legs. This is a great advantage over the continued confinement occasioned by the application of splints and bandages, which the supporters of the opposite mode of treatment are in the habit of recommending; and even when this restraint has been long submitted to, the operation must invariably be had recourse to at last.

The tendons which you will find it necessary to divide are those of the *tibialis posticus*, the *tibialis anticus*, and the *gastrocnemius*. When this Hospital was first opened, the only tendon upon which operation was performed for infantile talipes varus was the *tendo Achillis*. The *tibialis posticus*, in youths and adults, was exposed by incision, the sheath laid open, and the tendon taken up upon a director, so that the division of the posterior tibial artery might be avoided. In the infant this was never attempted, nor any tendon divided but the *tendo Achillis*; and failure was the result. I therefore adopted a mode of dividing the tendon without exposing it first, with the *stilette* and *cannula*; puncturing the fascia with the *stilette*, withdrawing it, and then introducing the blunt pointed knife through the *cannula*. By this means, puncture of the artery was impossible, and the division was rendered safe. We now puncture the fascia with the common scalpel, and then use the blunt pointed knife. I have recently invented a knife (Fig. 13). This is fitted with two blades—one a scalpel, the other blunt pointed. The incision having been made with the scalpel in the ordinary manner, by the pressure of the thumb upon a small screw attached to it, the blunt pointed blade is moved down, guided by the scalpel to its place behind the tendon. The sharp edge is then turned towards the tendon, and the division is effected. Whichever mode is adopted, the greatest care and delicacy is required.

FIG. 13.

The posterior tibial tendon, you will remember, lies flat upon the tibia, its sharp edge alone presenting. The interspace, therefore, between the tendon and the tibia is scarcely more than a linear one. In the infant, this is at all times difficult to trace, and even in the adult, from the edge of the tendon being slightly raised above the tibia. I have often seen the tibia mistaken for the tendon.

The following is the best mode of proceeding. Let the patient lie on his side, with the inner side of the leg placed directly upwards. In infants, feel carefully for the edge of the tibia; for, although in a thin child the tendon may be felt upon extending and flexing the foot alternately, yet in fat children this is impossible. Having satisfied yourself that your finger or thumb is upon the edge of the tibia, you then introduce your scalpel *perpendicularly downwards*, and make a slit of a quarter of an inch in the fascia. Introduce the blunt pointed knife, also perpendicularly, and carry it to about the breadth of the tendon, between it and the bone; turn the sharp edge of the knife towards the tendon, at the same time directing the assistant to forcibly abduct the foot; when, if the tendon have been divided, a distinct sense of sudden yielding will be felt, and at times the separation may even be heard by the assistant. Never hurry the operation, nor forget the slight interspace there is between the tendon and the tibia; and remember that, if your knife is not introduced perpendicularly, you will pass over the tendon on the one side, or come into contact with the bone on the other, when you will not succeed in getting the knife behind the tendon without great difficulty—a difficulty of which I have often been a witness. Apply your lint and strapping, and then proceed to divide the tendon of the *tibialis anticus*, turning the patient upon his back, so that the front of the foot is upwards; the assistant grasping with one hand the leg, and with the forefinger of the other the foot. You then feel for the anterior tibial tendon, which is generally easily found, on the inner side of the front of the foot, where it passes over the ankle-joint. Introduce your knife on the outer side, pass it directly under the tendon, and divide it from below upwards. Then turn the patient with his face downwards, and feel for the *tendo Achillis*, which, in infants, will be found lying almost directly over the posterior tibial artery, on the inner side of the leg. Introduce a sharp pointed knife on the *outside* of the tendon, so as to avoid any risk of puncturing the posterior tibial artery; pass it horizontally beneath the tendon; turn the sharp edge of the knife towards it, and divide it from below upwards, as in talipes equinus. Then apply lint and strapping; bandage the foot carefully from the toes upwards; apply a small padded tin splint, bent to the position of the foot, so as to prevent any undue pressure. Let the leg be kept in a horizontal position; and in about four days you will find the punctures healed. You then apply your mechanical means. The best apparatus for the infant is one I have had made, and have used for many years (Fig. 11), consisting of a back and a side piece, connected by a hinge, the back-piece attached by means

of a rack or cog-wheel to a foot-piece. The foot is to be bandaged carefully, and then placed in the instrument, with the foot-piece extended. You then abduct the foot, by passing the webbing strap, which is attached to the side-spring, over and just behind the front part of the foot, as in Fig. 11. After full abduction of the foot, which in these infantile cases seldom occupies more than a week or ten days, you gradually flex it by means of the cog-wheel, at the same time keeping up steady pressure on the instep by means of the lower strap, so as to reduce any increase of the arch of the foot, which is occasionally met with in these cases. When the foot is fully flexed, and the inversion overcome, the instrument may be omitted during the day, and an ordinary boot or shoe substituted, resuming the instrument at night, so as to prevent the possibility of a relapse. This will certainly take place, unless this precaution is observed; for the cicatrices occasioned by the division of the tendons, as I have before observed, do not resolve themselves into their permanent state for some few months.

A different mode of proceeding has been adopted and recommended in these young cases, namely, that of first dividing the anterior and posterior tibial tendons; then abducting the foot, as in the older patient; and afterwards dividing the *tendo Achillis*. This subdivision of the operation in infants is perfectly unnecessary. Another practice has also been introduced; namely, that of dividing the fascia passing over the adductor pollicis, and at times even the plantar fascia. This is also an unnecessary step; at least, I have never seen the necessity for it.

I must not omit to mention the chance there is of dividing the posterior tibial artery, even with the blunt pointed knife. When this accident happens—and it will occasionally occur, in spite of the greatest care—I would advise your postponing the division of the anterior tibial tendon and *tendo Achillis* for fourteen days, keeping up during that time a firm steady pressure with pledgets of lint, strapping, and bandage, to guard against any risk of false aneurism, one instance of which occurred to me many years ago, in which I was compelled to cut down and tie the artery.

In older patients, the deformity being aggravated by time and exercise, there will be found a great additional obstacle to the restoration of the foot to its normal position; the contraction of the ligaments and fascia of the sole occupying, under the most favourable circumstances, some months in the after treatment. In these cases, you will do well to divide the anterior and posterior tibial tendons and the plantar fascia first, and abduct the foot before dividing the *tendo Achillis*. The *tendo Achillis* retains the *os calcis* firmly in its extended position, and enables you to act upon the foot with much more certainty than can be done when that tendon has been divided with the others. The division of the two first named tendons is a much easier operation in the adult than in the infant, as the loose fat common to children has been absorbed, and the tendon is left sufficiently prominent to be felt through the integuments. If you direct the patient to adduct the foot while you place your forefinger upon the tendon of the *tibialis posticus*, about two inches above the internal malleolus, you will feel the tendon rise above the edge of the tibia; and a careful examination will enable you to feel the interspace between the bone and tendon. You then introduce the scalpel perpendicularly, as in the former instance; make the slit in the fascia; and then with the blunt pointed knife divide the tendon, as before described. Apply your lint, strapping, splint, and bandage; keep the foot warm and at rest for four or five days; and then commence your mechanical treatment. The best appliance is a simple straight splint, extending from a little below the trochanter major to about ten inches below the foot. This must be well padded and bandaged all the way up on the outside of the leg. At the lower end of the splint, a webbing strap should be fastened, sufficiently long to pass round the front part of the foot and buckle. By this simple means you can keep up a steady continued extension, and completely abduct the foot, without pain, which must always be guarded against in all cases.

If there is no increase of the transverse arch of the foot (which is often produced in the older patient by pressure on the fourth and fifth metatarsal bones in walking), and as soon as all tendency to inversion of the foot is overcome, you proceed with division of the *tendo Achillis* in the ordinary manner, and treat the case as one of talipes equinus, a full description of which was given in the last lecture.

In the old cases, division of the plantar fascia will assist the treatment, as follows:—Let the assistant grasp the lower part of the leg with one hand, and the front part of the foot to be

operated upon with the other, and endeavour forcibly to extend the foot. By this means the plantar fascia is tightened. You then introduce a sharp pointed knife on the outside of the fascia, pass it horizontally beneath it, and divide from below upwards. It should be observed that this operation, when the necessity for it exists, should be performed at the same time with the division of the anterior and posterior tibial tendons.

In cases where the increase of the transverse arch is extreme, the fourth and fifth metatarsal bones pressed inwards towards the first and second, before you proceed to divide the tendo Achillis and flex the foot, it will be necessary to unfold the arch, so to speak, and to raise the fourth and fifth metatarsal bones, which will be found partially dislocated at their tarsal extremities; or the patient, after flexion of the foot, will have his whole weight thrown upon the outer edge of the fifth metatarsal bone, and be in a worse condition than he was before the operation. To effect this object, I have used a "double-screw pad" (Fig. 14), having three pads; two small ones, applied

Fig. 14.

under the fourth and fifth metatarsal bones; and one larger, to be applied on the upper surface of the first and second. By means of the screw, a steady continued pressure and counter-pressure may be kept up; in applying which, however, great caution must be exercised to avoid *undue* pressure, as well as pain. With these precautions, the worst cases may be effectually treated.

When the foot has been thus unfolded, to effect which will be found by far the most difficult part of the whole treatment, you proceed, as in the former case, with division of the tendo Achillis, etc.

After the foot is fully flexed, apply a boot and iron, similar to the one represented in Lecture II, which must be worn constantly until the foot has gained strength. In infants, a tendency to rotation inwards of the whole leg is at times present; so that, when the child begins to walk, the foot, although previously in position, is directed inwards and towards the opposite extremity, so retaining the deformed appearance. This tendency ceases of itself at the end of four or five years, if not interfered with. It may, however, be prevented, in the meantime, by the application of irons attached to the boots on the outer side, and extending to the hips, with free joints throughout, and a strap at the upper extremity, passing from one iron to the other, behind the pelvis, by tightening which, the inversion of the foot may be prevented.

The removal of the os cuboides has been recommended and had recourse to, for the treatment of adult varus. It is not only perfectly unnecessary, but a direct and inexcusable mutilation.

UNIVERSITY OF ST. ANDREWS. The next examination for the degree of Doctor of Medicine, will commence on Monday, the 24th of September. Fellows and members of the Royal Colleges of Surgeons of England, Edinburgh, and Dublin, of the Faculty of Physicians and Surgeons of Glasgow, and licentiates of the London Apothecaries' Company, are eligible for examination. Every candidate is required to communicate by letter with Dr. Day, the professor of medicine, fourteen days before the period of examination, and to present himself to the Secretary for registration, on or before Saturday, the 22nd of September.

Jettsonian Lectures

ON

THE OPHTHALMOSCOPE AND ITS APPLICATION.

DELIVERED BEFORE THE MEDICAL SOCIETY OF LONDON.

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LECTURE II (concluded from page 598).

IN passing to speak of the morbid changes of the *Retina* and *Choroid*, I must adhere to what I said in my first lecture as to conciseness and mere outline, and give but a very brief notice. My time will not admit of more; besides, ophthalmoscopic detail cannot be taught in this way; to attempt it would be to ensure tediousness, and not profit.

We now get a general idea of the vitality of the eye, as we judge of a person's general health and vigour by a look at his face. We now speak of anemia, or of a reddened fundus of the eye, as we have been wont to say the countenance is pale or plethoric, and, as a rule, the indication is equally valuable for generalisation. It is a matter on which we very frequently want to be informed, and a glance will suffice our purpose.

Retina. Perhaps the commonest morbid change in the retina is *Hyperæmia*. The colour of the fundus of the eye is changed, being more red, and sometimes of a dark red. A portion of the optic disc is obscured by vessels, or the whole is covered thinly, so that the disc is yet made out, or thick enough almost to obscure it, and then its position may be more readily traced by the vessels as they pass outwards, but which soon lose their distinctness.

This is a state that always exists in a greater or lesser degree with the train of symptoms called by Dr. Mackenzie "asthenopia", and supposed by him to be a defect of adjustment only. His reasoning is clear and powerful; his conclusion is inevitable, and, but for the ophthalmoscope, every one must have been satisfied with it. It is worth referring to as an example of the fallacy that we may fall into by attempting to solve such subjects by reasoning alone. I may recall the disease to the minds of my hearers by telling them that "asthenopia" is the "choroiditis" of Tyrrell. It is the affection of those who for the most part get their living by minute sight. They are obliged to discontinue with their work, because the vision as it were gets fatigued, and the objects confused or indistinct, and vanish from view altogether. A slight cessation, a wink of the eyes, a look at a distant object, or, in the worst cases, a pause for a minute or two, enables them to continue. It is strange that the indistinctness comes on when the vision is required to be sustained on minute things only, and not when large and distant objects are looked at. But it is not peculiar to the overworked eye. I have seen it in children learning to read, in the idle man of pleasure, and in the vigorous mechanic. I begin to think that it is almost a defective of organisation, rendered worse or apparent under much or peculiar use of the eye, and the general inutility of treatment, short of cessation of that employment which renders it annoying, tends to this conviction. I could fain dwell longer on it.

Among other ophthalmic revelations of retinal changes, are those of *dots*, or *patches of white*, usually seen in the aged, and associated with feeble vision. I do not know that their nature has been made out.

Edema of the retina, rendering the membrane pale and of a yellowish tinge, less shining than in health, and apparently raised around the optic disc, is fully recognised.

Pigment Deposit on the retina, in every form of spot, and in extent from a few dots to almost complete covering, with but small interspaces, is the most remarkable change in this tunic, and not less is the absence of any coexisting external symptoms. I have seen an amount of deposit that seems incompatible with any vision on first examination of a patient for slight feebleness of vision, which is, of course, a physiological puzzle. Many times I have doubted the visual power till I have carefully tested it.

Choroid. The choroid, like the retina, becomes *hyperæmic*;