SOME CASES OF LAMENESS FROM ABNORMAL CONDITIONS OF THE FEET, CHIEFLY FROM CONTRACTIONS OF THE MUSCLES AND FASCLE.

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I MEET with many cases in which lameness is the predominant symptom, but the exact nature of that lameness is seldom recognised by the patient, and in some instances is not very easy of diagnosis.

Slight shortening of the muscles of the tendo Achillis is not uncommon, the result being necessarily a lessening of the range of flexion of the foot. The normal degree of flexion has been stated to vary from 15° to 20° from a right angle; but, in the observations which I have made upon healthy individuals, I have found it to vary between 18° to 22° in adults.

Fig. 1.

In children, the normal extent of flexion is much greater, the foot being capable of approaching much nearer to the leg. When the foot is flexed, the outer side of the anterior part is raised more than the inner side of the foot, and the toes are turned slightly outwards. This normal degree of flexion may be lessened, and the deficiency not be recognised; the individual may be unable to flex the foot beyond a right angle with the leg, and may not know the cause of his difficulty or pain in locomotion. I have even met with cases in which talipes equinus has been much more strongly marked, and yet no abnormality of the foot been thought to exist.

CASE I.—In October 1881, I saw Miss G., aged 14, who had suffered from lameness for several years. As she did not complain of any pain, not much notice was taken of her awkwardness in locomotion until during the few months before I was called in. I was told by the parents that they thought the hip-joint was affected, and they wished me to examine it. I found that the hip-joint was perfectly healthy; that the left leg below the knee was so much smaller in all respects than the right, that the heel was two inches from the ground. There was contraction of the muscles of the tendo Achillis, so that the foot assumed the appearance of Fig. 2, and could not be flexed beyond that position.

Fig. 2.

Fig. 3.

CASE II.—A. B., aged 5, was brought to me because she was lame,

and "walked as if there was something wrong with the hip-joint." I found the hip-joint perfectly healthy; but the right leg was an inch and a half shorter than the left, and the gastrocnemii were contracted, so that the foot could not be flexed more than shown in Fig. 3.

I need hardly remark that these cases required no peculiarity in treatment. It consisted in tenotomy, extension of the contraction, and a correction of the inequality in length of the legs by a raised sole to the boot of the short leg. In these cases, the original cause of the deformity being frequently infantile paralysis, the contraction results from the flexors retaining their power while the extensors are paralysed, so that the former muscles act without opposition, and the effect is more quickly produced by the efforts of the child to lengthen the short leg by bringing the front part of the foot to the ground. As the affected foot in these cases is often smaller than the sound one, the extra thickness of the sole which has to be used in cases of slight shortening may be partly or completely hidden from sight by including it within the upper leather, both boots being made of similar size externally.

In estimating the amount of abnormal contraction in these cases, I may remind the reader that it is necessary to take care that the leg is fully extended upon the thigh; otherwise the origin of the heads of the gastrocnemii will be approximated towards the heel, and will allow a greater amount of flexion of the foot.

That mistakes can be made even by careful parents in such cases as those recorded above, shows how easily slighter contractions may pass unnoticed, and the irregularities of walking, or the various obscure pains which result, be attributed to causes which have no existence, or be supposed to be dependent upon no morbid condition whatever, but perhaps upon the natural processes of growth alone.

I have met with many instances of very slight contraction; and it is because these cases are not marked by such definite symptoms as are commonly set forth in books, and because their treatment may be conducted in a different manner from that which is necessary in the more severe contractions, that I have thought the record of a few cases illustrative of such conditions might possibly be of interest to some of the readers of this JOURNAL. When the muscles of the tendo Achillis are contracted, even to a slight extent, tenotomy is usually considered absolutely necessary, unless the contraction be recent; and the cases I am about to describe were probably recent in their origin.

CASE III.—M. B., aged 36, consulted me in August 1881 for pain in both feet, which prevented him from walking with comfort. He was obliged, he said, to give up walking, and resort to driving, whenever he wanted to go further than a few hundred yards. This pain he attributed to a sinking of the arches of the feet. I had seen him about a year before in reference to his flat feet, and had had some sole-plates made for him, which supported the arch of each foot. He had derived very great benefit from this treatment, but lately, the more severe pain which he now complained of had set in, and he thought that his old affection was again troubling him.

Upon examination, I found that the arches of his feet were much less depressed than formerly, but that there now existed slight contraction of the muscles of the calf, and the feet could not be flexed beyond right angles with the legs. To this condition, I attributed the pain. Hot-water fomentations, liniments, and subsequently forced flexion, were prescribed, and the patient soon got relief from the contraction and the pain. Other somewhat similar cases have succumbed to the same treatment.

In estimating the degree of contraction of the muscles of the tendo Achillis, one must always examine carefully the condition of the plantar fascia, for contraction of this fascia will apparently lessen the degree of flexion of the ankle-joint. In fact, often the plantar fascia alone is contracted; and, without careful examination, the slight deformity or pain, or difficulty of locomotion, may be wrongly attributed to contraction of the muscles of the calf. The nature of the contraction of the arch of the foot, in which the plantar fascia is found to be tense and resistant, seems to me to be worthy of careful consideration.

The pathology of contraction of fascia in various parts of the body is at present not thoroughly understood. Long repose in a shortened position, and irritation from pressure, friction, contusion, or wound have been thought to be the exciting, or perhaps the primary, causes of these contractions. Gout and rheumatism are considered common causes. Contraction of the palmar fascia, producing Dupuytren's contraction, has attracted much attention. In these cases there is, as the reader knows, a considerable thickening of the fascia, which becomes hard, and often nodular; and this con-

traction of the palmar fascia is very peculiar in this latter respect. There seems to be in most cases, if not in all, a constitutional cause for Dupuytren's contraction; and gout or rheumatism, or a similar condition, is supposed to give rise to the contraction and thickening. This subject has been so often discussed, that the readers of this JOURNAL must be thoroughly familiar with the various reasons for and against the theory of a gouty or rheumatic origin. There seems to be no doubt as to the constitutional character of the affection in many cases, and especially in those in which, in addition to the Dupuytren's contraction, there also exists contraction and induration of the plantar fascia. But other cases seem to differ from these, and to depend upon local causes.

In the feet, one often meets with tense bands of fascia, the arch of the foot being more or less high than natural. This condition of the plantar fascia seems to me peculiar, and to demand for its explanation an inquiry into the anatomy and functions of this structure, and its relationship with the formation and maintenance of the arch of the foot.

It has been stated by an able anatomist that the arch of the foot is maintained not only by the many ligaments which connect the bones individually to one another, but also, and materially, by the plantar fascia. The ligaments probably act in this way in so far as they limit extreme tension, although extreme tension of the sole of the foot is not often required; but I doubt whether the plantar fascia has much influence in maintaining alterations which take place in the arch of the foot. Alterations which take place in the arch of the foot in the various movements indicate the elasticity and contractile power of muscles rather than of ligaments.

Mr. Hancock (*On the Operative Surgery of the Foot and Ankle-joint*, 1883) remarks that, when the weight of the body leans upon the plantar arch, the ligaments can have "no influence over the preservation of the arch." He also offers very good reasons why we should discard the theory that the plantar fascia possesses in itself sufficient contractile power and elasticity to allow it to yield sufficiently "to deaden or counteract shock, and subsequently to resume the requisite amount of solidity and rigidity to enable it to maintain the integrity of the arch." The influence of this fascia is passive; it "does not pass straight across from point to point," but forms a curve. I may further refer to the fact that the inner part of this fascia, where the arch is highest, is decidedly thinner than the outer part, where there is no arch; whereas we should expect the opposite to be the case if the office of the fascia were to maintain the form of the arch. There can be little if any doubt, that the muscles of the sole of the foot, and especially the three superficial muscles, the flexor brevis, the abductor pollicis, and the abductor minimi digiti, assisted by the tibial muscles, are the active agents in modifying and preserving the arch of the foot; and I am inclined to think that in some, at least, of the cases in which we find tense bands of plantar fascia, this condition is the result rather of abnormal contractions of the muscular fibres, which are attached to this fascia, than of contractions of the fascia itself.

The following case is, I think, in favour of such a view, because, if the contraction had existed in the fascia itself, the treatment which I prescribed would hardly have cured the case so soon—even if it could have succeeded at all.

CASE IV.—Miss W., aged 17, sent to me by Mr. W. J. Butler, of Holland Road, Kensington, in October 1881, complained of difficulty and pain in walking, which she attributed to a sprain which had occurred three years before, because the symptoms had developed from that time. The pain and weakness were felt, especially under the metatarsal bone of the great toe, passing up the posterior region of the leg, along the course of the tibialis posterior muscle. The fore-part of the foot could not be flexed beyond a right angle with the leg, and this condition seemed to depend upon contraction in the arch of the foot. The plantar fascia was tense, and the toes were contracted slightly in a flexed position. The boots worn were very short, and did not allow full expansion of the foot. I ordered properly made boots, and prescribed emollient liniments, and in a few weeks the contractions, the pain and the difficulty of walking had entirely disappeared. I had thought that operative measures would have been necessary in this case, but I decided to try first the effect of more simple treatment.

In the majority of cases, however, no treatment except simultaneous section of the tense bands of fascia and subsequent stretching will do any good. The result of such treatment is very satisfactory; the operation is simple, and generally almost bloodless.

[To be continued.]

PROGRESSIVE PERNICIOUS ANÆMIA: A CASE, WITH REMARKS.*

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WE have brought before you this evening a record of a typical example of progressive pernicious anæmia, in which the treatment by transfusion, though not original, was followed by certain physiological and pathological conditions which, we think, will prove of interest to the Society.

The drawings of the retina, taken at the bedside, are faithful representations of that form of retinal apoplexy usually associated with this disease.

M. M., aged 39, a shoemaker, and teetotaler for nineteen years, enjoyed excellent health until two years before his death; he then began to feel weak and ill, and became unfit for his duties as a volunteer. A trip to the seaside temporarily restored him; but, ten months before his death, his old symptoms of debility returned, associated with others of a distressing nature, to which he eventually succumbed.

His condition when we first saw him, ten days before his death, was as follows. He had then been confined to bed for eighteen days. His aspect was that of a man bloodless to a degree rarely seen, the prevailing tint being a pale lemon colour. There were no spots on the skin suggestive of purpura, nor were the gums spongy. The inner surface of the eyelids was white, whilst the ocular conjunctiva was pale saffron.

He complained of radiating angina-like pains over the chest, their starting-point being always referred to the stomach. The appetite was bad, but he took milk freely. His mind was clear, and speech good. He read No. 4 Jüger with both eyes. His hearing was slow and progressively defective. Systolic basic murmurs were heard, always well marked, but varying in intensity. The pulse was rapid, irritable, and weak. The body-temperature was not ascertained, but was probably subfebrile. The urine was of specific gravity 1012 to 1018, faintly albuminous; it contained no casts. The spleen and remaining viscera were apparently healthy. The blood was very watery-looking. Tested with Dr. Gowers' hæmocytometer, it showed, on the average, only eight corpuscles per micrometer square, instead of fifty (in other words, 750,000, instead of 5,000,000, per cubic millimetre. The red corpuscles varied greatly in size, from about one-third the normal to somewhat larger than usual. Many of them were singularly distorted, pear-shaped, and crenated. Some of the smaller-sized corpuscles were noticed to be spherical in form; and it is possible they may have been the microcytes, supposed, though erroneously, by Quincke and Eichhorst, to be pathognomonic of idiopathic anæmia. The colourless corpuscles were not appreciably in excess. The hæmoglobin, estimated by Dr. Gowers' hæmoglobinometer, showed only 16 per cent. of colour. Ophthalmoscopically, the retina showed numerous flame-shaped hæmorrhages radiating from the disc. There were also a few white spots, probably leucocytic masses, at its outer margin. Both discs were hazy, moderate swelling being apparent in them. The vision in both eyes was the same, and it appears marvellous how little effect this formidable affection had upon the sight. In the retinae was noticed not only great tortuosity, but a flattening of the veins, due to atony rather than to passive distension. The retinae remained in this condition, with but slight modification, until death.

Treatment.—The treatment hitherto had been iron and nutritious diet; but the patient's condition having steadily become worse, and, the examination of the blood giving us accurate data, transfusion was thought to be justifiable. Dr. Walter kindly placed his services at our disposal, and, five days before the patient's death, injected three and a half ounces of defibrinated human blood into the median basilic vein. The immediate effect of this transfusion was alarming collapse, with tumultuous action of the heart, and occasional sinking of the pulse until it was imperceptible. This condition was combated by free stimulation and dry heat. The mental faculties were much obscured; by the evening (nine hours after transfusion) the pulse was full, bounding, and perfectly steady, like that of a man in health, but his mental powers seemed more obscured. Twenty-four hours after the transfusion, a hæmorrhage of two or three ounces escaped from the bowel. His mind at once cleared; he asked for food, and expressed himself as being more comfortable than he had been for weeks.

* Read before the Manchester Medical Society.