Lectures ON ORTHOPÆDIC SURGERY.

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LECTURE XIII. ON TALIPES, OR CLUB-FOOT. (Continued.)

Talipes Varus. It has already been said that this and every other form of distortion may be both congenital and non-congenital. But, as it was said of talipes equinus that it is essentially a non-congenital distortion, so it may be said of talipes varus that it is essentially a congenital affection. Not only is this especially a congenital distortion, but it is the most common form of congenital club-foot that is met with.

One foot only, or both, may be distorted. Double club-foot is, perhaps, somewhat more frequent than is distortion of one foot only; the male sex is more frequently affected than the female, and the right foot than the left.

The *external characters* of this distortion are essentially inversion of the foot. To this principal characteristic, may be added others which are scarcely less important. Contraction of the tibialis anticus muscle alone, however, and without contraction of other muscles, as the tibialis posticus and the gastrocnemius, is known as varus.

In the ordinary form of congenital varus, as it is represented in Fig. 35, the plantar surface of the foot

Fig. 35.

presents backwards; the inner margin is turned upwards, while the outer edge is directed downwards; the sole of the foot is shortened; the dorsum is irregular on its surface, and presents outwardly; and the heel is raised.

But, although the inner margin may, in some instances, alone be raised, as in Fig. 36, the muscles may, in other cases, be so much contracted, that the inner edge of the foot shall be in contact with the inner side of the leg, as in Fig. 37.

Again, contraction of the plantar fascia and of the muscles in the sole of the foot, together with contraction of the abductor pollicis muscle and the

Fig. 36.

muscles of the calf of the leg, but without contraction of the tibial muscles, is another and a very rare form of varus. During the last week, I operated, together with my friend Mr. Leigh, on the worst instance of this form of distortion that I have yet seen.

When the child begins to walk, and to bear the weight of the body on the feet, important changes

Fig. 37.

take place, which are necessary to be understood before the treatment can be efficiently undertaken. Instead of the superincumbent weight being transmitted to the ground through the arch of the foot, it is received on the outer margin of the foot, or on the fifth metatarsal bone. This bone then, receiving the weight, becomes rotated inwards towards the sole of the foot, as is shown in Fig. 38. In the same figure, also, is well shown the cushion, or callosity which, through pressure, and to protect the skin, is developed over the cuboid bone and the extremity of the fifth metatarsal bone. It is composed of cellular tissue and fat; and a bursa frequently is developed between the cushion and the bones, which is sometimes considerably distended with fluid. This cushion is of great importance in walking; it enables the weight of the body to be borne almost as easily as on

the heel. In non-congenital varus, the cushion is only imperfectly developed, and consequently the use of the feet is always painful.

Fig. 38.

Not only does the fifth metatarsal bone thus become changed in position, but the fourth also is in turn rotated with it; so that, at length, the weight of the body is no longer transmitted to the ground through the outer margin of the foot, but through the dorsum. This is well illustrated in Fig. 39. Here, also, is displayed a characteristic longitudinal

Fig. 39.

furrow, which occupies the centre of the sole of the foot, and which is produced by the folding of the metatarsal bones, above alluded to, into the sole of the foot—through the compression of the transverse arch of the foot, and the consequent approach of the fourth and fifth metatarsal bones to the first metatarsal bone.

Rotation of the foot itself may also take place, until a portion of the superincumbent weight is borne on the head of the astragalus, as was the case in the very rare example from which Fig. 40 was taken.

Morbid Anatomy. In the infant, when the distortion is not excessive, some slight rotation of the tarsal bones is found; but it is easily overcome, and the foot is restored to its normal shape by careful and gentle treatment. Malformation may exist, together with excessive distortion; but it is rare and exceptional. And even dislocation of a tarsal bone may occur. In the Museum at Strasburg, there is a very curious specimen of varus, where the astragalus is dislocated inwards and forwards. When malformations of the tarsal bones exist, some abnormality, such as spina bifida or other affection of the spine or the nervous centres, may also, for the most part, be remarked.

Except in severe forms of distortion, the ligaments are not affected in an important manner; and, indeed, their shortening never prevents the limb being restored to its normal form. Also, the muscles of the limb are perfectly healthy in structure, and, for the most part, they are well developed at birth.

Fig. 40.

The muscles which are principally concerned in this affection are those of the calf of the leg; the tibialis posticus, and the flexor longus digitorum; the tibialis anticus, and the extensor proprius pollicis. These muscles may even be somewhat hypertrophied, while the extensor longus and brevis digitorum muscles and the peronei are occasionally found to be weak and attenuated.

In the sole of the foot, the muscles and the plantar fascia are seldom so much contracted that they do not readily yield to extension.

In the adult, every structure forming the limb may have undergone some amount of degeneration. The bones of the leg and foot may have become light and their walls thin. These changes are to be expected much earlier and with much more certainty in non-congenital than in congenital varus. In the latter, all the structures remain healthy and convertible to use to a much more advanced period of life, as indeed would be expected, than is the case with non-congenital distortions.

Through pressure, the tarsal bones become somewhat altered in their forms; the head of the astragalus is slightly misshapen; and the cuboid bone becomes somewhat wedge-shaped. These changes are, however, much less than is generally supposed. Very exaggerated notions with regard to this part of the subject prevail. The restoration of the limb is without doubt difficult, and perhaps, in some instances, it has been until lately impossible. The muscles of the limb become atrophied through inaction; and, after the restoration of the limb to its normal form, they remain small; but, notwithstanding, their functions are restored.

In the sole of the foot, also, the muscles arising from the os calcis frequently are much contracted; and the plantar fascia may be so tense as to require complete division. The plantar ligaments, also, are shortened to accommodate themselves to the altered positions of the bones; and in advanced age, these may present a serious impediment to the removal of distortion. The improved mechanism which is now employed, however, renders, not only this, but almost every other form of distortion, removable.