Lectures ON ORTHOPÆDIC SURGERY.

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LECTURE XII. ON TALIPES, OR CLUB-FOOT.

CLUB-FOOT occurs especially in four principal forms or varieties; namely, equinus, varus, valgus, and calcaneus. There are also compound varieties, such as equino-varus, equino-valgus, calcaneo-valgus, and others, which, being very rare, scarcely require separate mention.

Talipes equinus is essentially a non-congenital distortion, and it is that form which is most commonly met with. It occurs, however, very rarely as a congenital affection. Figure 30 was taken from such a case. In this instance, the forearms were extended on the arms, through retraction of the triceps muscle, and the legs were extended on the thighs; the left foot was affected with equino-varus, and the right with equinus. The positions and the rigidity of the feet remained the same from birth until I saw the child, as was testified by Dr. William Fox, who placed him under my care. Since this time, I have seen two other cases of congenital equinus.

Fig. 30.

The *characters* of this affection are elevation of the heel through morbid contraction of the muscles of the calf of the leg, the foot being neither everted nor inverted.

In this form of distortion the extremities of the metatarsal bones and the toes rest on the ground and support the weight of the body, as is shown in Figure 31. Any contraction of the muscles of the calf of the leg, however, is known as equinus. Thus, though the heel rest on the ground, and the contraction be only so much as to prevent the foot being flexed on the leg, it is equally known as equinus.

There are certain conditions of the limb which it is useful to attend to, in forming a diagnosis as to the nature of the affection. Thus, in spasmodic equinus, the toes are retracted like the claws of a cat; but, when the anterior muscles are paralysed, the toes are folded back, as is represented in Figure 32; or even the entire dorsum of the foot may rest

on the ground, as in Figure 33. When the foot is thus retroverted, loss of power is general on the anterior surface of the leg.

Fig. 31.

When any lateral deviation of the foot is super-added to elevation of the heel, then other muscles

Fig. 32.

than those of the calf of the leg are called into action, as the adductors of the foot or the abductors;

Fig. 33.

and thus a compound distortion is produced, whether equino-varus or equino-valgus. The deviation is

determined by the greater power of one or other set of muscles, by the manner in which the superincumbent weight is transmitted, or by some other such cause.

The *anatomy* of this distortion is well displayed in Fig. 31. The drawing was made from a limb which was kindly sent to me by Mr. Hester of Oxford, and which is now in the Museum of the College of Surgeons, No. 9 B. The distortion had existed for fifty years. The bones of the foot were softened and fragile. A thin layer of cartilage only remained covering the articular surface of the astragalus. The foot was very much bent upon itself from the transverse tarsal joint. The effect of this condition is always to add to the apparent elevation of the tuberosity of the os calcis; but the os calcis is found, upon dissection, to deviate very slightly in such cases from its normal horizontal position.

The astragalus is generally in severe equinus thrust forward, and even as in Figure 31, it is almost luxated—thrust out, as it were, from the tibio-tarsal articulation. I have known the head of the bone to present so prominently beneath the skin, as to occasion ulceration.

The metatarsal bones assume more or less a vertical position, and their extremities, transmitting the superincumbent weight, become slightly separated one from another, and so increase somewhat the breadth of the anterior portion of the foot. Before this degree of distortion is reached, the longitudinal arch of the foot becomes contracted and its extremities are approximated; so that the sole of the foot is rendered more concave, and the foot itself is shortened. This is perhaps the most important change which occurs; the ligaments on the dorsum of the foot, and especially the astragalo-scapoid ligament, becoming elongated, and in an equal degree the powerful ligaments in the arch of the foot are shortened.

The muscles which are contracted are the gastrocnemius, soleus, and plantaris, in the calf of the leg. These occasion elevation of the heel. And in the sole of the foot the flexor brevis digitorum tends to bring the metatarsal bones into a vertical position, and with contraction of the plantar fascia to decrease the span of the longitudinal arch. From a continuance of the same causes, retroversion of the foot may take place, when paralysis of the muscles on the anterior surface of the leg is complete.

Atrophy of the muscles of the calf of the leg commences before the most severe grade of distortion is reached. The bulk of the muscle appears to be higher than is natural on the leg, and the length of

the tendo Achillis seems to be increased. In severe distortion, very slight motion is permitted at the ankle-joint, in consequence of the tensely contracted condition of the extensor muscles and of the position of the astragalus. At length, the purposes of the tibio-tarsal and the tarsal joints being no longer fulfilled, the cartilages become thinned and irregular on their surfaces; the synovial membranes are softened; the ligaments lose their elasticity; and the muscles undergo fatty degeneration.

The *treatment* of this, as indeed of every other distortion of this class, consists of two parts; namely, first, the restoration of the limb to its normal position; and secondly, the restoration of function.

Distortion may frequently be removed by mechanical means alone, and without the use of the knife. We find this to be the case, whether we have to act on bone, ligament, muscle, or skin. This was known to Hippocrates; and it has been more or less practised ever since.

When the distortion is the result of paralysis, mechanical means are frequently sufficient to restore the right position of the limb; and spasmodic contractions may likewise in a very large number of cases be overcome, and the limb may be replaced by similar means. Some cases, also, of congenital distortion may be successfully treated in a similar manner. It may further be said that those paralytic and spasmodic cases which can be thus treated, ought on no account to be subjected to section of tendons. By means of the instruments ordinarily in use, these distortions are to be removed without subcutaneous operations.

There remains, however, a very large class of cases which cannot be treated successfully otherwise than by the section of the tendons of the contracted muscles and by the sections of fasciæ. This is the case, as a rule, with congenital distortions which are treated during childhood. But when these distortions are of long standing, it is extremely difficult effectually to remove the deformity; and without the section of tendons and fasciæ, it is impossible. Much care is required to prevent injury to the soft structures during the long continued extension which is necessary to unfold, for instance, talipes varus in the adult. It is a duty to shorten this painful period as much as possible; and by dividing tendons and fasciæ, to remove the impediments as far as it lies in our power. Besides, there is nothing more painful than continued extension; but section of tendons is painless.

When the distortion is considerable, it is absolutely necessary to divide tendons; for long continued and forced extension will cause injury to the muscular fibre—rupture, inflammation, and paralysis, and the function of the muscle must remain ever after impaired; whereas the power of the limb is restored, when the tendons are divided and allowed to reunite, before extension is made.

The tendo Achillis may be divided from half an inch to one inch above its insertion. Both in the child and in the adult, this operation is easily performed if the tendon be made sufficiently tense. If, however, the limb be so held that the tendon be left lax, its section will not only be difficult, but at times and under certain circumstances it may be well nigh impossible. While, on the other hand, if too much force be used, the divided ends of the tendon will be drawn forcibly

Fig. 31.

asunder, and the integument will be drawn on to the operator's knife, and be divided.

In dividing the tendo Achillis, the knife should be held obliquely, and passed beneath the tendon, the patient being prone and the heel presenting upwards. The cutting edge being then turned upwards towards the tendon, this will be divided in withdrawing the knife, slight upward pressure being made at the same time. When it is severed, the tendon yields with a snap. This depends, however, almost entirely on the manner in which the foot is held; but resistance immediately ceases, and the operator is then aware that the section is complete.

On withdrawing the knife, the wound should be closed with lint and adhesive plaster, and the patient should remain in the recumbent posture during the remainder of the day. When the puncture has healed, extension may commence, and be continued slowly, until the desired position of the limb has been acquired. Except in experienced hands, however, this extension is dangerous. It is apt to be carried on too rapidly and too far. Extension can scarcely be too slow; and it is infinitely better that it should be too little rather than too much. The latter is irremediable. But, with some aptitude for the treatment of these cases, and with care in the management of them, they may without difficulty be brought to a successful termination.

Illustrations

OF

HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

WESTMINSTER HOSPITAL.

CLEFT PALATE: OPERATION: CURE.

Under the care of CHRISTOPHER HEATH, Esq.

[Reported by MR. WATTS, House-Surgeon.]

WILLIAM C., aged 16, was admitted into Henry Hoare Ward on February 8th, 1864, with congenital cleft of the soft palate. The split extended through the whole length of the soft palate; but the parts were well developed, and the fissure was not a wide one.

February 9th. Mr. Heath performed the operation of staphyloraphy after Mr. Fergusson's method, but with wire sutures. The levatores palati muscles were freely divided, and the soft palate was well loosened from its attachment to the bone in front. A thin slice was then removed from each side with a double-edged knife, and the sutures introduced. In introducing the sutures, Mr. Heath used an ordinary curved needle, with a loop of silk on the right side, and a needle with a moveable head carrying a fine wire on the left side; the end of the wire was then bent into the loop of the silk, and was drawn through the flap of the opposite side from behind forwards. Two wire sutures were thus introduced, which kept the parts well together. The boy behaved pretty steadily, but required a good deal of persuasion to allow the operation to be completed. He was ordered milk diet, strong beef-tea, and extra bread.

February 10th. The parts looked healthy, and were in good position.

February 16th. The front part of the cleft was

quite united. Mr. Heath removed the front stitch. The patient was ordered to use alum gargle.

February 18th. The posterior stitch was removed. Union was complete throughout; and the remnant of the uvula was in its proper place. He was made an out-patient.

In some remarks upon this case, Mr. Heath said that he preferred Mr. Fergusson's mode of operating to Mr. Pollock's (which was performed on the same day by Mr. Power), as it avoided all injury to the palate itself, and also enabled the surgeon not only to divide the muscles, but to free the palate itself from the bone to a considerable extent, which he considered a very important matter. The use of wire for the sutures was very advantageous, not only as avoiding irritation, but because the two sides could be more accurately fitted together than was possible with silk suture. Mr. Heath said that he preferred a needle with a moveable point for introducing the wire, because he found it difficult to draw the wire out of the eye of the ordinary needle, but was easily able to grasp the eye of the needle and draw it forward with the wire attached.

Original Communications.

CASE OF CATARACT: WITH REMARKS.

By HAYNES WALTON, F.R.C.S., Surgeon to St. Mary's Hospital, and to the Central London Ophthalmic Hospital.

Cataract in a very Feeble and Enervated Old Man. Preliminary Treatment. Influence of Age and Debility on Success in Operating. Retraction of the Eyeball and remarkable Prominence of the Eyebrow. Operation, and Difficulty in overcoming the Mechanical Obstacles. State of the one Eye, by which Spontaneous Dislocation of the Cataract occurred. Fluid Degeneration of the Cataract in the other. Question of Chloroform. After-Treatment. Result.

As I never met with a case like this, with such a combination of physical peculiarities, rare morbid states, and strongly marked general characters, I determined to make it the subject of practical remarks, not only on account of the abundant materials it supplies, but because I believe that, as the many facts are gathered from a single individual, they will be more impressive than if they were derived from several sources.

This gentleman was seventy years old. On the subject of age, and its influence in the extraction of cataract, I am often questioned. Mere age in itself matters nothing. There is no limit in time, provided a person be strong in proportion to his years; but, most surely as senile feebleness is premature, and as the diseases incidental to the later term of life creep in and destroy vital force, so does the average of failures increase. Hence it is that a man of eighty may afford a better expectance than another of sixty. It would not be easier to point out here than in operations on other parts of the body, the source of adverse influence; and I will but observe, that the want of adhesion of the cornea—a common feature in the most frequent instances of bad result—is, I believe, an effect of something wanting or wrong elsewhere (I mean constitutionally), and not the mere miscarriage of a simple local process, due to a mechanical cause.

My patient was naturally thin and feeble, but now he was unusually depressed from sea-sickness and