A Clinical Lecture

ON A

CONDITION OF THE LOWER LIMBS OFTEN MISTAKEN FOR PHLEBITIS.

Delivered at St. George's Hospital.

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THE symptoms of what is commonly known as "phlebitis" are so precise in typical instances that the diagnosis can hardly be difficult or doubtful. In the early stages of the disease, however, and in certain subacute cases these symptoms are sufficiently indefinite to lead to conditions being diagnosed as phlebitis which are certainly not of that nature, with the necessary result that treatments are adopted which, if not always actually harmful, are useless, and often lead to the persistent employment of complete rest when it is not required, involving a waste of time the value of which in some circumstances may be incalculable. Although the condition I have in mind without doubt occurs in all the limbs, it is so much more frequently met with in practice affecting the lower extremities that I propose to limit my remarks to the affection as seen in them, especially because it is in such cases that, judging by my experience, mistakes in diagnosis and treatment most frequently arise.

PHLEBITIS.

I must crave indulgence for mentioning the following elementary facts on the ground that they help to make what follows clear. Speaking generally, there are for clinical purposes two main varieties of phlebitis: one in which the blockings of the vessels are made manifest by the existence of tender cords or lumps in the situation of certain well-defined superficial veins without any general swelling of the limb; in the other there is a general swelling of the limb either in whole or in part, for example, the foot and ankle, the limb below the knee, or the whole of the extremity; there are at the same time pain and tenderness along the line of the great veins (deep), but these need not be perceptible to the touch. In such circumstances, the deep veins having become blocked, oedema follows rapidly as a matter of course; hence in all recent swelling following phlebitis, that is, blocked vein, pitting of the parts upon pressure can be elicited. The subsequent changes which take place in the limb and its vessels need not be referred to, as they are not concerned in the present question. As the condition under discussion simulates deep phlebitis only, blockings of the superficial veins alone have no practical relation to it, and for present purposes may be ignored.

The symptoms, then, as a rule, of phlebitis of the main deep venous channels are: Acute onset of pain or intense stiffness increased by movement; tenderness along certain definite areas increased by pressure; rapidly supervening general swelling below the seat of lesion which "pits" on pressure, and which is increased when the erect position is assumed or if the limb is materially dependent, subsiding, on the other hand (if the phlebitis has ceased to extend), when the recumbent position is assumed and the affected part elevated; the essential part of the treatment being rest.

THE CONDITION UNDER DISCUSSION.

For comparison with this a condition of the lower limbs is met with, commencing with rapidly-oncoming pain somewhat diffusely inclined, but irregularly limited to certain areas, increased only upon slight (superficial) pressure and completely relieved by deep or heavy pressure. There is some swelling of the limb, wholly or in parts only, the swelling being of the nature of a general engorgement; there is no oedema, and hence no "pitting"; it is not increased by assuming the erect position, nor is it appreciably diminished in the recumbent or flat position. The swelling is in truth for practical purposes independent of posture. The same may be said of the pain, which, however, is much influenced by heat or cold, sometimes by the one, sometimes by the other; indeed, the effect of heat or cold in increasing or diminishing pain may vary not only in different patients, but even in the same patient from day to day, or perhaps from hour to hour. The patients, as a rule, are not of the neurotic type, but rather the reverse. The swelling, when not involving the whole limb, is fairly limited to the areas of

distribution of certain cutaneous nerves—notably the internal and middle cutaneous, the saphenal plexus, the external cutaneous in the thigh, and the musculo-cutaneous at the outer side of the leg, and the dorsal aspect of the foot.

When the whole limb is involved in the swelling the general contour of the normal part is preserved—a striking contrast to the bolster-like limb which is caused by oedema resulting from thrombosis of the femoral or iliac vein. In the majority of cases bruising follows deep pressure on any part of the swollen area, but this sign is not constant; dusky lines, resembling urticaria, sometimes follow continuous slight pressure, such as that produced by folds of underwear, garters, etc. The reflexes are unaltered.

It is manifest that the condition has nothing in common with acute or early phlebitis, although it is undoubtedly at times mistaken for that disease.

Clinical Examples.

CASE I.—A lady, about 45 years of age, had been seized, six weeks or thereabouts before I saw her, with pain in the upper part of the thigh, along its inner side; some swelling of the thigh over the same area followed, and increased rather rapidly for two or three days. There was tenderness on gentle pressure; the pain was continuous, and not appreciably affected by position. The patient had a reputation for being "gouty." Phlebitis was diagnosed, and the usual treatment of rest in bed, with an "anti"-gout treatment, was advised. In spite of rest, and a variety of medicinal treatments, no material alteration in the condition followed, although the symptoms varied in severity from time to time. Excepting two occasions, there had been no fever, and on neither of these did the temperature exceed 100° F.

When I saw the patient she was stout (having put on flesh, it was said, whilst lying in bed) and appeared in excellent general health. The inner side of the thigh was swollen, the swelling being limited by the middle line in front and behind, and ceasing somewhat abruptly about the level of the patella at its upper part: there was no heat or discoloration. Gentle pressure was painful; deep pressure gave comfort and was painless; a bandage lightly applied was intolerable, drawn tight it gave relief. The outer side of the thigh was absolutely normal, as were also the leg and foot, not a trace of swelling being evident. Feeling sure that the case was one of those with which we are now concerned, the patient was ordered to get up and move about. After some hours it was seen that there was no difference whatever in the amount of swelling or in the pain, excepting, perhaps, that this was rather less than before. It was then also noticed that at each spot where deep pressure had been made by the fingers there was a well-marked bruise with a red margin, the shape of the macula corresponding exactly with that of the finger or fingers which had made the pressure. A check experiment of heavy pressure made subsequently on the normal parts of the limb showed no bruising. Under the treatment to be subsequently mentioned, all pain and discomfort disappeared in about three weeks, although the swelling persisted for some time longer.

CASE II.—A man, aged 30, contracted enteric fever in South Africa. His case seemed to have pursued a favourable course, falling a slight relapse, which, however, proved to be insignificant. During the voyage home, three months after the onset of his original illness, he was attacked by sudden pain on the outer side of the thigh. Considerable swelling followed, which was limited to the thigh, and the pain became persistent and worse. As he had been suffering from enteric, it was concluded, upon apparently insufficient ground, that the case was one of post-enteric phlebitis, and he was treated accordingly by rest, etc., without deriving any benefit whatever. I saw him about four weeks after the thigh had first become affected. The general state of things was much the same as described in Case I, excepting that the outer aspect of the thigh was involved in the place of the inner side. The limitation of the swelling was distinct. There was the same tenderness on superficial pressure, but no actual bruising followed deep pressure. The parts below the knee were absolutely normal, and long-continued hanging down of the limb had no effect either upon the swelling or the pain. The limb was held a little stiffly in walking. The application of heat over the swollen part increased the pain greatly. Under treatment the pain passed off in a month, but the swelling, although less, was still apparent three months afterwards.

CASE III.—I was asked to see a girl, 17 years old, who had for several weeks been suffering from what was said to be phlebitis. The history of the onset and course of the symptoms were much the same as in the two foregoing cases, but in this case the whole of the left lower limb was involved. When I saw the patient, who had been carefully kept to her bed since the commencement of her illness, the whole lower limb was considerably swollen, but the natural conformation was not lost, and there was no pitting. The line of the femoral vein was free from tenderness on deep pressure, and it was stated that it had been so from the commencement—a fact which was naturally regarded as anomalous. There had been throughout a little rise of temperature, but the patient declared herself as feeling perfectly well. The tongue was clean, the appetite good. There was no suspicion of menstrual or other irregularity. To the outer side of the situation of the femoral artery at the level of Poupart's ligament was a spot which on deep pressure was tender, manipulation causing a general increase in the pain throughout the whole limb for an hour or so, after which it subsided to its usual degree. This spot was clearly over the trunk of the anterior crural nerve. Deep pressure in this case was followed by bruising, similar to

that met with in the first example. The effect of the erect position, so far as the swelling and pain were concerned, was, as usual, negative. The whole limb was very slightly, but appreciably, warmer than that on the opposite side. The pain and discomfort here again disappeared after three weeks or a month of treatment, but the swelling persisted for a much longer time.

CASE IV.—This was noteworthy on account of the extremely defined area of the swelling which occupied the outer and anterior aspect of the leg of a schoolboy, who had met with a slight accident some time before I saw him. The general symptoms were like those in the other cases described. The swelling was oval, extending downwards for about 4 in. from a point just below the head of the fibula. There was the same superficial tenderness, absence of oedema, etc., as the other cases showed. The injury had been a strain, and the symptoms were so persistent and localized that it was thought right—rest, etc., having done no good—to make an exploration on the possibility in this particular case of there being a deep extravasation or thrombus. An incision was made, therefore, through the swelling, the muscular planes separated, and the interosseous membrane exposed. The anterior tibial nerve was clearly seen, and also the artery. Everything was normal—there was neither oedema, thrombus, nor blood extravasation. The parts oozed more freely in a general way, and continued bleeding longer than is usual, otherwise nothing abnormal could be detected. Recovery followed, but whether the operation aided in this or not I should hesitate to say. In one respect the case was very instructive, as it formed a striking contrast to a case in which, at about the same time, I cut down upon the musculo-cutaneous nerve with a view to relief of the pain of neuritis by nerve stretching. In this case the nerve was surrounded by an oedematous sheath, which made it appear as large as a No. 9 (English) bougie. The operation gave no relief whatever.

THE CAUSE OF THE TROUBLE.

Upon this I can throw little light. It may, for aught I know, be perfectly familiar to pathologists and other observers, but I do not recollect in the course of my reading, which I fear is somewhat cursory in these days, to have met with any description which would quite fit in with the condition I am now discussing. For some years I have met with cases of the kind from time to time, but it was only during the South African war that I saw enough of them to attract my attention particularly. At that time a large number of cases of so-called phlebitis after enteric fever and malaria came under my observation, in some of which I could not reconcile the symptoms at the time of seeing the patients, or the history they gave of themselves, with cases of true phlebitis, and on investigation these cases were clearly of the kind I now refer to, as they presented all the symptoms and signs which have been enumerated. The disease or affection is obviously not an ordinary neuritis; it is not "neurotic," nor is it of gouty origin—at least it does not occur especially in gouty subjects—and it is quite unaffected by remedies which are held to influence gout, although it is true that the douches, massage, and exercises applied at Aix-les-Bains are beneficial. The condition, however, may have some relation to osteoarthritis, for I have seen it come on very acutely in subjects who have later on developed osteo-arthritis, after which the original condition, previously inveterate, has rapidly disappeared. The cause of the swelling is obscure. In the case I have mentioned, and in one other, the parts on exploration were quite normal, excepting the free tendency to oozing, and the unnatural persistence of the bleeding. Possibly, therefore, some vaso-motor disturbance is at the bottom of it—a view which is rather corroborated by the bruising which so readily appears after pressure. The apparent tenderness of the trunk of the anterior crural nerve in some of the cases is, at first sight, suggestive of neuritis; but it must be remembered that tenderness over the anterior crural trunk is easily elicited in many people whose bony conformation is rugged, especially if they are thin—a fact well known to bone-setters, who frequently utilize it for the purposes of their trade.

TREATMENT.

In this respect two definite statements can be made. First, that rest has no beneficial effect in these cases; secondly, that if no treatment be adopted recovery invariably occurs spontaneously soon or late. It is, however, impossible to foretell in any case how long a period will elapse before the occurrence of spontaneous recovery—the time may be weeks or months. The main object, therefore, in the treatment is to find the best means to shorten the course of the complaint. It is obviously well, however, to be chary of attaching too much importance to any treatment as a means of cure in a condition which tends to spontaneous resolution, as the cure under such circumstances, although occurring during treatment, may in truth be independent of it—a fact which in relation to treatments generally is, I venture to think, too often ignored. Apart from such as are neces-

sary to secure a proper condition of the secretions, medicines are useless, and within reasonable limits food and alcohol may be taken without affecting the condition in any way. Morphine and other strong narcotics and anodynes will, of course, temporarily relieve pain or discomfort, but they effect no really useful purpose, and may be harmful in the end. The means at our disposal, therefore, are extremely limited, being mainly three: Massage, electricity, and passive movement, followed by resistance exercises. To these may be added moderate exercise up to the point of resistance; by which I mean the point at which pain or stiffness renders exercise impossible without great effort. The massage should be thorough and not too gentle; its effect being greatly increased if aided by the electric vibrator. The electricity is the much-abused, but frequently useful if discreetly employed, high-frequency current. The passive movement (after the massage and electricity) should be general, with special movements identical with those which, when voluntary, cause an increase of pain. As soon as these special movements can be made with comfort gentle resistance exercises should be employed. By a rational use of this treatment I believe considerable help can be afforded in cases of the kind described, and the period before the cure comes spontaneously be materially shortened. If these means can be applied at some watering-place such as Aix-les-Bains the general régime there in vogue may, perhaps, enhance the result, although the use of "the waters" has no specific effect upon the condition.

A Lecture

ON

THE CEREBRO-SPINAL FLUID IN RELATION TO DISEASE OF THE NERVOUS SYSTEM.

[WITH SPECIAL PLATE.]

Delivered at the Victoria University, Manchester.

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THE particular study of the cerebro-spinal fluid is of relatively recent date. After Cotugno, who discovered it in 1784, the names of Magendie (1825-42) and Quincke (1890) are especially associated with our knowledge of its composition and functions.

All physiologists are agreed that this fluid has chemical and physical properties different from those of any other fluid in the organism. The following table (a lantern slide of which I will throw on the screen) shows in what manner it resembles and in what manner it differs in its chemical composition from other fluids of the organism.

CHEMICAL AND PHYSICAL PROPERTIES.

The normal fluid is clear, like water. It has a specific gravity of 1.006, a slightly alkaline reaction, and is devoid of all corpuscular elements; it contains only traces of albumen; it becomes slightly cloudy on heating and contains no ferments. The principal constituent is sodium chloride, but it also contains traces of carbonates and phosphates, also a reducing substance which has recently been proved to consist of dextrose, and traces of urea; both these latter constituents may be increased in disease—the former in diabetes, the latter in uraemia. The average amount of cerebro-spinal fluid is 120 to 150 c.cm. It varies in amount in pathological states, being increased when the volume of the brain is diminished, and vice versa.

It will be observed on looking at the table that the cerebro-spinal fluid approximates somewhat in its chemical composition the amniotic fluid and the sweat. Cerebro-spinal fluid is a fluid *sui generis*. Although it resembles blood plasma and lymph in the nature and amount of its inorganic constituents, the only proteid matter which is present is a globulin; true albumin is absent. This and the absence of fibrinogen are marked differences between it and exudations from the blood. In other words, it is not a simple exudation, but a true secretion. Where is it secreted? In this there is a difference of opinion, although most authorities attribute the function to the choroid plexus. The cerebro-spinal fluid, formed in the ventricles of the brain, from which it normally con-