CLINICAL LECTURE ON PHLEBITIS.

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I HAVE chosen the subject of Phlebitis for consideration to-day, because of late there has been an unusual number of instructive examples of it in our wards, and because it is a disease on the nature and character of which wide difference of opinion—I may venture to say, even much confusion of thought—still prevails. It must be confessed, too, that many of its causes, and among these perhaps the chief, are still obscure or altogether in the dark.

I need not tell you that our views of the pathology of this affection have, within the last quarter of a century or so, undergone a radical change. The old distinction between adhesive and suppurative phlebitis is now no longer held. Adhesive phlebitis is no longer recognised, because it is now known that the inflamed vein is rendered solid, its channel is blocked up, not by the effusion of plastic lymph from its wall, but by a coagulation of the blood which it contains. There is thrombosis. Suppurative phlebitis, in the old sense, is now no longer recognised, because we know that the fluid substance found in some cases in the interior of the vessel is not pus, in the proper acceptance of the term, but blood-clot, which has softened and become fluid from degeneration: puriform, but not purulent. That pus, however, or a fluid which at least cannot be distinguished from pus, may occasionally be found in the interior of a vein, cannot be denied. The coats of a vein, with more or less of the surrounding tissue, may inflame and suppurate, the integrity of the coats of the vessel may be destroyed, and the canal and space around may form a common cavity filled with pus; or, a vein may be wounded or opened by ulceration, and then some pus may enter from the outside. But, of course, events like this are not to be confounded with the old doctrine of suppurative phlebitis. The former of the two cases just mentioned is, of course, truly one of suppurative phlebitis; but, nevertheless, it is not the formation of pus in the canal by suppurative of its lining membrane. Yet here I cannot refrain from pointing out to you an instance of the extreme value of clear and sound observation, even though the interpretation of the facts recorded be at fault. Read the lecture on Phlebitis in the earlier editions of Sir Thomas Watson's great work. Read it again carefully, for even now it will more than repay you. It is, indeed, a sketch of the affection from the old view, but, study it now, by the light of modern pathology, and see how true the master's hand has been to nature.

Then, in phlebitis there is inflammation of the coats of the vein; and this is associated with the coagulation of the blood in the canal: thrombosis. This clot may be disposed of in various ways, of which more anon. The inflammation of the walls of the vein may lead to thickening from lymph, or to suppurative more or less extensive between the coats, which may, and perhaps usually does, extend into the surrounding cellular tissue. Here is an example. William E., aged 44, stout and rather florid, a clerk in a newspaper office, was admitted into the hospital in the following circumstances. Twelve days previously, being, he believed, in perfect health, he tripped on a stone and twisted his right foot and leg. Two days afterwards, he felt a pricking pain in the thigh in the course of the saphena vein, and the next day there was a red and painful swelling in the upper part. On admission, there was considerable swelling, not well defined, for about six inches in the course of the vein at the upper part. It was firm, painful, very tender, and hot, with a blush on the surface. The foot and leg were oedematous. He declared that he felt well, and there was no rise of temperature or other sign of constitutional disturbance. But the local signs of inflammation and suppuration increased, and, on the fourth day, fluctuation to some extent being obvious, a free incision was made, and about two ounces of sanious pus evacuated. The portion of vein in the midst of this was to a great extent evidently destroyed. From this time, the swelling and induration rapidly subsided. The wound continued to discharge pus, which soon became quite healthy, for about a fortnight. During this time, he made no complaint, but at the end of it he had a sudden and decided attack of gout in the foot, and he was in the hospital for another month. When he left, the vein could be traced, prominent and hard, from the wound down nearly to the knee; but, three or four weeks afterwards, it had become much less distinct.

First among the causes of phlebitis may be mentioned thrombosis;

and this at once opens the important question of the relation of thrombosis to phlebitis. As already mentioned, the two states are usually found together, and the thrombosis is regarded as included in, or a part of, the phlebitis; but let us ask whether thrombosis is always a part of phlebitis. Does phlebitis ever exist without any coagulation in the canal? If we turn to our museums, or to the records of examinations, I think we shall fail to obtain satisfactory evidence of the presence of actual phlebitis without any thrombosis. At all events, as a rule, veins which bear marks of inflammation contain fibrine; and the evidence thus obtained by dissection is borne out by clinical observation. I do not think there is good evidence of veins remaining free from plugging in the course of inflammation of their walls. Nay, there is for the most part very decided evidence that the canal is plugged. I say advisedly, in the course of inflammation; because, granted that thrombosis is associated with phlebitis, the further question comes: In what relation to each other do these states stand? Which is cause? which is effect? Or, more cautiously: If they are not invariably simultaneous at the outset, which of these two precedes the other? Are the signs of phlebitis ever present without any evidence of thrombosis? Rarely, I should say. More rarely, I venture to think, than is generally believed; but exceptionally, sometimes at the commencement, a superficial vein will exhibit plainly the signs of inflammation, and yet be comparatively soft and compressible, and admit apparently of being so emptied that it would seem as if it still contained nothing but fluid blood. Therefore, we may believe that phlebitis is sometimes a cause of thrombosis. Much more frequently the two conditions appear together. Thrombosis is found simultaneously with the evidence of inflammation of vein-walls. But, now, thrombosis may occur without phlebitis. This is undoubtedly far more common; and in such cases the thrombosis may or may not be followed by phlebitis. It is sometimes the apparent cause of phlebitis; but it sometimes exists for long periods without evidence, either during life or after death, of inflammation.

If, then, thrombosis is to be reckoned among the causes, and I should say it was one of the principal, of phlebitis, we ought next to inquire into the conditions under which thrombosis is likely to occur, that is, when it precedes or is not associated with phlebitis. And here it must be confessed that, in seeking any kind of answer to this question, we pass into a region of pathology singularly obscure.

In certain states of the constitution, or conditions of the system, thrombosis is likely to occur. We all know how the blood slowly coagulates in the great vessels after death, and that this change in some cases precedes death. It occurs during the act of dying, more especially perhaps when this process is prolonged or marked by extreme exhaustion, or when it forms the closing scene of long-continued and exhausting disease. And with reference to this, I may here remind you that much discussion has arisen on the question: whether clots, which are found in certain cases, have been formed during life or after death. The question is, after all, not a very profitable one; and it cannot, from the very nature of the case, admit of a definite answer. The process of dying is oftentimes very gradual. Molecular death is not synchronous with systemic death; and the coagulation of the blood, which is the visible sign of its dying, is in the body oftentimes a very ill-defined change. It is more satisfactory to inquire the age of blood-clots; whether these are quite recent, or bear evidence of change subsequent to their formation, in their degree of contraction, their dryness, density, and corrugation; in their colour and construction, whether laminated, or in minute structure fibrous; or—and this is usually most marked in the centre—showing signs of degeneration; or adherent to the lining membrane of the vessel which is more or less affected or destroyed. Only one word further with regard to their colour. These clots are generally described as becoming paler with age. But this holds good in one respect only. When clots are formed in the living vessels, and have at first the colour of the blood, undoubtedly, as time goes on, they gradually grow paler. The hæmatine is absorbed, they come to consist of fibrine only, and this at length assumes a pale yellow or buff tint, and so it may remain. But we all know very well that, after death, clots are frequently found in the cavities of the heart and larger vessels, which are so soft and uniform that we have no doubt they have been rapidly and recently formed—little or no doubt that they have been formed after death—and which are, nevertheless, very much paler; in fact, almost white. Of course, the immediate explanation of this is obvious enough. It results from the mode of their formation, and the difference is due to the relation which the fibrine holds to the cells during its production. I need not dwell upon this any further.

But, again: "The great veins are very liable to become obstructed by clots forming in them when the patient is greatly debilitated, and when the circulation is enfeebled—by inflammatory affections, by discharging abscesses, difficult labours, and other causes." I have quoted

here from Professor Humphry's thesis, "On the Coagulation of the Blood in the Venous System during Life", which, although written now nearly twenty years ago, is yet so faithful an account of the affection that I can very strongly advise you to study it. It is singularly clear, considering the subject of which it treats, short but full, and requires very little addition, and still less correction, to bring it up to the present day. Yes. This thrombosis is an insidious affection, stealing upon convalescence from fevers or other exhausting diseases; and though but seldom directly destroying life, yet causing much tedious trouble, and sometimes permanently interfering with the free and full use of a limb.*

In such cases, it would seem that the origin of the mischief is in the blood or its circulation; but still we must seek for an explanation of the fact that certain veins, those of the lower extremities, are far more liable to become plugged than others. And here, again, I cannot add anything worth your attention to what Professor Humphry has already set forth in the thesis referred to; and, therefore, to his pages I very gladly refer you. Note particularly his remarks on the arrangement of the veins, and on the structure of the internal surface of the popliteal.

But sometimes simple thrombosis appears to be determined by causes which are more purely local. Thus pressure on veins, producing obstruction of the circulation, may lead to the formation of clots.

For instance: a man about seventy, rather thin and vigorous for his years, had been laid up three months with simple transverse fracture of the patella, when, his health having been all the while good, the internal saphena vein of that limb, a few inches above the knee, became painful, tender, thickened, and solid. This was apparently due to slight pressure thereabout from the edge of a leathern splint which he wore. Some oedema of the limb soon followed. The trouble lasted some weeks, but did not extend, and his general health remained good, he throughout insisting that it was of no consequence.

So also, and with far more probability, will injury, such as laceration of the walls, or the presence of adjoining mischief. Thus inflammation or its products may coagulate the blood. But in the last case, the thrombosis is usually associated with and forms part of phlebitis; and to the causes of phlebitis I now return.

Phlebitis, then, may result from wounds of various kinds and other injuries of veins. But opinion on the liability of veins to inflame from traumatic causes, such as wounds, has been greatly modified in recent years. Formerly, wounds of veins were regarded with the utmost fear by the surgeon; for of all structures the veins were believed to be the most intolerant of injury, and it was only under pressure of most urgent need that a surgeon could be induced to apply a ligature to a bleeding vein—as, for instance, in an amputation. I remember when Mr. Skey stood, I think, alone among leading surgeons in exception to this view. But how remarkably has practice changed in this respect! Now-a-days, we very frequently see veins tied in various circumstances, and sometimes otherwise far more roughly treated, with comparatively little anxiety for the event; and it must be admitted that this confidence is largely justified by the experience of surgery. To what is this striking revolution in doctrine and practice due? Partly to extended observation, to deeper clinical experience, and partly to the advance of pathology, to the separation of simple thrombosis from phlebitis, and to the distinction drawn between them; and I believe also, though this is not acknowledged, to sounder and larger views of the pathology of pyæmia. On this point, however, I shall have something more to say presently.

Still, no doubt traumatic causes play a very important part in the production of phlebitis, and very often it is provoked by an extension of mischief in the neighbourhood of the larger veins, which become implicated. Take the following case. A spare active man, about forty-five, fond of and accustomed to what is called "free living", fell down on a skating-rink and struck his elbow violently. There was no fracture, but considerable bruising of the olecranon and adjacent parts. The arm was disabled for two or three weeks, and he went about during that time carrying it in a sling. I believe, however, that he submitted to no restraint so far as eating and drinking were concerned. A month after the injury, he came to me, complaining of more pain about the elbow, which now extended up the arm, and of the somewhat sudden accession of acute tenderness and considerable swelling. I found a line of tenderness, corresponding to the basilic vein, from the elbow to the middle of the arm; and here the vessel was unduly prominent and apparently plugged. With difficulty, I induced him to give heed to the mischief and to take more care. For some days, the symptoms, especially the swelling and tension, increased, suppuration seemed imminent, and I fancied that he felt more ill than he was willing to

admit; but there were no obvious signs of much constitutional disturbance, and never any oedema of the forearm. At length, but very slowly, the parts regained their normal condition, and even the vein itself ceased to be conspicuous.

Thus phlebitis may complicate gangrene, ulceration, erysipelas, and other affections, as in the following case. Elizabeth W., aged 38, was admitted into the hospital on March 27th, 1877. In the spring of 1876, this woman's descending colon was opened in the loin for intestinal obstruction, consequent on malignant disease of the uterus and rectum; and ever since the contents of the bowel had passed through the wound. More recently, she had been much troubled by prolapse of the colon, and the day before her admission it protruded to a far greater extent than ever. She had been unable to reduce it, and nothing had passed since. An everted portion of the colon, more than a foot in length, was outside. This was reduced under ether with considerable difficulty, and retained by a pad and bandage, which were removed daily to allow of defæcation. She was very weak, and occasionally suffered much from pain and sickness, which were relieved by opium. There was constant tendency to prolapse of the bowel. A month after admission, she complained of great pain in the left leg. It swelled rapidly, and the oedema soon reached the knee. The skin was pale. The superficial veins of the leg were distended and tortuous, and the internal saphena obviously plugged. There was great tenderness along its whole course. Temperature, 99.8 deg. A flannel bandage was applied. The limb remained in this state for a fortnight. Then the pain and distension slowly abated, and, three weeks from the commencement of the attack, she was tolerably comfortable, with some thickening only in the course of the saphena vein.

In this class may be reckoned that form of phlebitis which sometimes occurs after delivery: puerperal phlebitis. There is, indeed, much to account for thrombosis or phlebitis in the conditions which exist after parturition. A large surface of the uterus, left denuded by the separation of the placenta, and, opening freely upon this, large blood canals, which pass directly into veins. The formation in these of clot, as the inevitable consequence of the process; and, most perilous of all, the rapid changes of decomposition to which the fluids in the interior, and even in the walls, of the uterus are oftentimes liable.

Then there are causes of phlebitis which is more common in men than in women, that may be termed idiopathic. The rheumatic diathesis was formerly supposed to be a predisposing cause; but now, perhaps, for rheumatism we should substitute gout, and speak of the gouty diathesis as among the most prevalent of its causes. You all know what Sir James Paget has written on this subject—gouty phlebitis; and I shall not venture to add any touches to his picture.

Then phlebitis often exists in the course of blood-poisoning in its various forms. And much has been said and written, and great difference of opinion still prevails, on the relation which these affections hold to each other. For my own part, I believe that, when phlebitis is associated with blood-poisoning, in the majority of cases the phlebitis either intervenes as one of the local effects of the mischief, or, if it appear at the outset, it owes its origin to the same cause that produces the more universal disturbance. That, in such cases, phlebitis is the local and pyæmia the general effect of blood-poison. But, for the evidence upon which this opinion is founded, I must refer you to our hospital reports. Of the effects of phlebitis, I will speak presently.

Phlebitis is not common in childhood. It is not often seen so early as in the following case. Frederick V., aged 15, pale and delicate, a wine porter, complained of inability to flex fully his left knee and of pain in the ham. The saphena veins of both legs, chiefly at the outer and back part, were rather varicose. Those on the left side were especially filled and tender. The popliteal space was unnaturally full, tense, and tender on pressure. There was no oedema. He told us that the veins of the leg had always been conspicuous, but until recently had given him no trouble. Three or four weeks before admission, he fell when alighting from a train, and sprained his left leg; but of this he took no notice, and his present symptoms did not commence until a fortnight afterwards. There was no obvious disturbance of his health. By rest in bed for a few days, the fullness and tenderness in the ham abated, and then pressure detected a deep ill-defined mass, which was believed to be the popliteal vein. About a week after his admission, the left calf became swollen and tender, and then a small, firm, very tender spot was discovered about the middle of the left leg, just behind the fibula, which was taken for a plugged vein. At this time, the temperature in the axilla was 99 deg.; pulse, 64 to 72. But no further mischief appeared. He generally complained, when asked, of aching pain either in the ham or calf, or both, but he could flex the leg much better. At the end of a fortnight, he left the hospital with the veins of both legs still varicose, but with no material tenderness in any portion of them. Ten days afterwards, however, he was readmitted with more

* You will find a case of thrombosis, due to debility, without any previous definite disease, admirably described by Dr. Tuckwell in the *Medical Times and Gazette* of February 13th, 1864, p. 170.

fullness and tenderness in the left ham; and then the femoral vein in Scarpa's triangle was tender, prominent, and distinctly hard, and the change could be traced beyond Poupart's ligament. But there was very little oedema of the limb. He was kept at rest in bed. The mischief in the left limb gradually subsided; but, in the course of the third week, he complained of his right thigh, and the right femoral vein was found to be tender, swollen, and evidently plugged also, up to or even above Poupart's ligament; but no further mischief could be discovered in that limb. During the next week, he frequently complained of headache and heat, and his appetite failed, but there was no rise of pulse or of temperature. He was in the hospital nine weeks, during which time this evidence of fresh mischief slowly passed away; and, when he was discharged, hardly any abnormal condition could be discovered, either in the popliteal space or in Scarpa's triangle.

To what cause should the mischief be attributed in the following case? A young woman, aged 20, rather stout but of delicate aspect, was admitted into the hospital, complaining of much pain in the right leg. The whole limb was very slightly swollen, but the internal saphena vein stood out prominently, and could be distinctly traced with the eye almost from its commencement in front of the ankle to the middle of the thigh. To the touch, it was firm and cord-like throughout its entire course, and very tender. She told us that the limb had become painful a fortnight before her admission, and that the pain had gradually increased until she was hardly able to put her foot to the ground. Five months since, she was in the hospital suffering from the same affection of the same vein, with weakness and palpitation of the heart; but she recovered from this, the vein resuming its natural condition, and remained well until the present attack. Nothing amiss in the heart or elsewhere could be discovered. By rest in bed and warm fomentations the pain, which never appeared to be very severe, and tenderness gradually subsided, but the prominence and hardness of the vein remained. After being confined to bed for about three weeks, a bandage was applied to the limb, and she was allowed to sit up, and then to move about the ward. In another week, she was free from complaint, and able to walk without discomfort, but with a hard and prominent saphena vein. In the course of another week or two, however, before she was discharged, the vein apparently quite recovered its healthy state. Nothing unnatural could be detected by examination. During the time she was under observation, there was no perceptible derangement of her general health.

[To be continued.]

LOCALISATION IN SPINAL DISEASE:

ILLUSTRATED BY (1) A CASE OF "ATROPHIC PARALYSIS" IN AN ADULT; (2) A CASE OF CENTRAL MYELITIS:
(3) A CASE OF ALCOHOLIC PARAPLEGIA.*

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THE two remaining cases are introduced for the contrast they present with the one just narrated. The loss of power and atrophy of muscular tissue in the patients were as pronounced as in the subject of the foregoing case; but, in addition, the function of sensation was seriously involved, indicating an extension of the morbid process to the region of the posterior horns. The two cases, though occurring from different causes, appear alike in their nature so far as the spinal symptoms were concerned. The second of the two is one of those melancholy instances described by Dr. Wilks (*Med. Times and Gaz.*, 1868, vol. ii, p. 470; and *Lancet*, 1872, vol. i, p. 320), and also referred to by Dr. Lockhart Clarke in the latter volume (p. 427), under the title of alcoholic paraplegia, which they have observed more particularly among females. On the Continent, Dr. Wilks ascribes the malady specially to imbibition of absinthe. In this form of paralysis, the lower extremities are especially liable to be affected, as is illustrated by my patient.

Both cases have much in common with the form of central myelitis described by M. Charcot, in which the entire grey tract is implicated, and the sensitive function which is related to the posterior horn suffers with the motor. The patients, however, were free from the more formidable phenomena of paralysis of the bladder and rectum, and the tendency to rapid production of sloughs, described by that observer as often connected with this particular disease. In the second case, the cerebral disorders of chronic alcoholism were added to the evidence of spinal disease. In the first case, the early symptoms undoubtedly point to the membranes as being affected at the outset, and probably

some of the pain complained of by the patient was due to irritation of the posterior nerve-roots. These pains in the limbs, especially in the region of the joints, which constituted a prominent subject of complaint in both of my patients, are noticed by Dr. Wilks. They have no small importance in reference to diagnosis, from the danger to which they give rise of the case being mistaken for rheumatism by a hasty observer. M. Charcot has, however, added fresh interest to the subject, in connection with the localisation of disease, by calling attention to the peculiar character which certain of these pains present, clearly observable in the first of my two patients; viz., that of their occurring in paroxysms, and presenting a peculiar lancinating character, recalling forcibly the distinctive nature of the pains of locomotor ataxy. From these considerations, M. Charcot suggests that the presence of pains answering to this description points to the probability of the disease having reached that district of the posterior columns in which certain fibres from the posterior root of the nerves pass to the grey matter. This region M. Charcot distinguishes by the designation "la zone radicaire postérieure". This zone is distinguished from the remaining portion of the posterior column (the column of Goll) by being developed at an earlier period, and is the seat, as M. Charcot demonstrates, of those changes which produce the phenomena of locomotor ataxy. It is worth adding that Dr. Wilks observes that the symptoms in alcoholic paraplegia are sometimes confined to the legs, and resemble in character the symptoms of locomotor ataxy.

CASE II.—A. R., aged 38. She presented a good family history. She had never been rheumatic. The account she gave of herself disclosed the fact that she had probably suffered in early life from an attack similar to her present one, but followed by a still more protracted recovery. She stated that, when seventeen years of age, she was in Gloucester Infirmary for nine months with symptoms like her present ones. She had severe pains in her limbs, and her legs wasted even more rapidly than they did on the present occasion. She was in bed for nine months, and even at the end of that time "had no use in her joints". She could raise her limbs in bed, but was unable to stand or walk, or even to feed herself. It was two years before her recovery was complete. She also had sharp pain in the occipital region and over the eyes, and could not see to read. She married when twenty-three years of age, and has had five children and two miscarriages. She is free from any evidence of syphilis. She is much employed in carrying heavy bundles of catalogues to and from the printer's, and is often wet through. She refers to one particular occasion, when she got her feet wet with snow-water. An attack of bronchitis was the consequence, for which she kept her bed for five weeks; and it was during the course of this illness that the first symptoms of her present complaint appeared, about four months before her admission into the Birmingham General Hospital. Her complaint began with pain of great severity, apparently meningeal, across the loins, reaching round the lower part of the abdomen and in the flank, which often prevented her from rising after having seated herself. Her appetite left her; but she was not aware of having had fever, though she was subject to attacks of burning heat, which came over her suddenly three or four times a day, accompanied by a sense of great weakness. Then came on severe pain in the feet and ankles; and afterwards she felt pain in the hands and arms and in the shoulder-blades. These pains were entirely without swelling; she describes them as being like cramps. They would attack her shoulders unawares, and shoot down the arms, so as to make her drop anything she had in her hand. She also spoke of formication in the soles of the feet and in the calves. She also had pain through the head from side to side, which caused her to forget everything for the time. She was treated for rheumatism; but in a month after the beginning of the illness she began to lose power in the legs, the feebleness steadily increasing. At the same time, "the flesh of her legs fell away rapidly". For the month preceding her admission into hospital, she was quite unable to walk, and for the last fortnight she kept her bed. The muscular atrophy increased with the paralysis; but in time her arms shared in the loss of power, and for a month before she came under my care she could not hold her needle in sewing. Her breath, too, became short, probably from deficient power in the inspiratory muscles. Whilst able to walk, want of breath often compelled her to stop. It does not appear that the sphincters were weakened. Whilst in the hospital, she complained of some urinary irritation, probably accounted for by descent of the uterus.

At admission, four months after the beginning of her complaint, she presented the appearance of a sound constitution, though she was thin. She had a remarkably apathetic melancholy manner. When talking, she often shed tears, and spoke in a very low tone. I may at once state that this peculiarity of manner was very prominent through the greater part of her illness, but underwent a striking change when improvement set in. She was unable to stand or to raise her feet from the

* Concluded from page 122 of last number.