THE LETTSOMIAN LECTURES ON SYPHILIS AND THE NERVOUS SYSTEM.

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LECTURE III.—PART I.

MR. PRESIDENT AND GENTLEMEN.—To-night we pass to the final ends for which we gain our knowledge—the ability to foretell and to control the future course of the malady. The attempt to define our knowledge—which I proposed at the outset as a chief object of these lectures—will have results not, I fear, wholly satisfactory. The progress of science involves loss as well as gain. Where the ground seemed firm beneath our feet, and the path before us appeared smooth, we may suddenly find our footsteps insecure, and that the smoothness was apparent only, an illusion due to too sweeping generalisations. When we come to know thoroughly this part of the region of medical science we are now traversing, we find the ground is broken by exceptions, and we cannot ignore them except at the risk of certain error and equally certain discredit. It is not long since the diagnosis of syphilis as a cause, and the prospect of adequate treatment, were held to warrant a prognosis absolutely favourable in almost every form of disease so produced; indeed, I am not sure that it is correct to allude to this opinion only in the past tense, if we may judge from the measures some hopeless sufferers are induced to undergo. We see them subjected to course after course of similar treatment, each to supplement some supposed defect in the previous courses; we see methods employed from which it would seem that a drug, administered thoroughly in one way, is supposed to be still capable of doing more if only it is introduced into the system by some other channel; and we see advice given which suggests a belief that treatment, powerless in England, will be effective abroad. If we are so bold as to recognise the nature of the opinions that must underlie such measures and such advice, we can scarcely believe that the old view is not still powerful, and that, although it may not often make its appearance on the surface as a definite assertion, it must still exist as an undercurrent of thought, perhaps not often consciously admitted. Yet the facts that are within the reach of simple observation suggest a very different conclusion. The scars upon the skin or brow tell us more than the mere fact of syphilis; they tell us unmistakably of the imperfect character of tissue-restoration, and that, too often, the proper elements of a part have perished, and their place is supplied only by cicatricial tissue. The internal organs teach us the same lesson. The fibrous nodule in the liver means a loss of liver-tissue, perhaps many times the area of the scar, and so with other organs. When such a result occurs in the central nervous system, how can perfect restoration of function be expected to occur? In the liver the effect on loss of function may be inappreciable, but in the nervous system each cell and fibre has its special use, and the loss of a few may have effects on function, not only appreciable but conspicuous. In truth, in a very large number of the cases of syphilitic lesions of the nervous system, complete recovery of function does not occur, and cannot occur.

And yet, also in a large number of cases, the symptoms pass away entirely, or almost entirely, as a result of treatment. Between entire recovery on the one hand and entire persistence of the symptoms on the other we have every degree of partial recovery. The course of the disease in a given case may be anywhere between these two extremes; and if we are to foretell it aright we must recognise this fact, and we must learn where to seek and how to find the indications that will guide us. Every prognosis, therefore, must be a matter of special and individual consideration, just as diagnosis must be. No rule can be laid down applicable to all cases, and the rules that can be made for any groups of cases are limited and partial. In each group, indeed, the general prognosis varies, but in each group also the individual case must be dealt with as a separate problem. So stated the task of acquiring any adequate prognostic power may seem both difficult and long; but, happily, the power is easily

acquired and its use is simple. I said that “as much individual consideration is needed as in the process of diagnosis,” but I should have been nearer the truth had I said that the same individual consideration will almost suffice. Did the statements regarding the process of diagnosis I made in the last lecture appear to you exaggerated? Surely they will seem within the truth when we realise that a full and correct diagnosis is not only essential for, but actually almost involves, the most complete and correct prognosis it is possible for us, under the circumstances, to give. Realise the nature of the lesion, realise that the symptoms depend, not on the specific process, but on the simple effects that are thereby produced in the nerve-tissue; picture to yourself the changes that have taken place; consider how long they have existed, and you have only to ask yourselves how far it is likely that the mechanism of damage can be removed, and how far the nerve-elements can recover from the damage they have sustained.

Only the prognosis of the true specific lesions can be now considered. It is only in these that the fact that the disease is due to syphilis has an extensive and considerable influence. The lesions that are doubtfully specific, and those that are not specific in their characters, do not often respond to the special drugs. The specific processes are therefore those in which the prognosis chiefly needs to be studied, and they alone will more than suffice to occupy us. But here again we meet at every turn the importance of precision in diagnosis. We must decide the probable nature of any lesion, decide whether it is specific or non-specific, before the special questions of prognosis can even be raised, and we must further decide, as far as we can, the precise specific lesion that exists, before any attempt at prognosis is possible. This done, the prognosis becomes at once comparatively simple. The fact that a separate answer must be given in each case does not involve, therefore, a mental process essentially different from that of diagnosis. The special prognostic element, the process by which we read the future in the present and the past, is much the same in all lesions. In brief, we have a varying diagnostic process, but a prognostic process that only differs in so far as its colour and not its form varies with the diagnosis. These, as indeed most of the statements I have made in these lectures, are merely familiar facts in perhaps a fresh form. It is indeed strange how far certain principles, when they are definitely grasped, will carry us, and how much they will effect in their various applications. Not seldom a change in the form in which a truth is presented makes it almost equivalent to a new truth; hence I venture to be so persistent in my reiterations, for repeat I must again and again.

Prominent above all the others in prognosis, therefore, we must remember the two leading principles, by this time, I hope, familiar to you. First, the dependence of the symptoms on the simple processes in the nerve-elements, and not on the specific part of the lesion; secondly, the fact that it is the specific process only on which our special treatment exerts a direct influence. So the first conclusion that we must seize and hold fast is that treatment can never influence the symptoms directly. The simple processes that cause the symptoms are scarcely at all amenable to direct treatment, and not at all to the specific treatment; hence the utmost we can do is to try and remove the specific process, and so allow the nerve-elements to recover, if they can. Here, then, we see the essential principles that must guide every prognosis. Is the specific process such and in such a stage that we can remove it wholly or partially? Is it to be expected that such removal of it as we can effect will be followed by the recovery of the damaged nerve-tissues sufficient in degree and extent to permit the return of function complete or partial? This is the method by which, and by which alone, in every form and degree of lesion, our prognosis must be obtained. The process thus is simple. Its application is not difficult, but it needs the same exactness, the same attention to every step that we have seen to be requisite in every practical proceeding in connection with these diseases. No short road can be found here any more than in diagnosis. We may make each step sure without any extensive special experience, but we can only do so by patient care. Any senior student who has been properly trained may, in the majority of cases of syphilitic disease of the nervous system, give a prognosis that shall be nearly as correct as could be given by a physician of large and special experience, and the latter, as well as the former, can do so only by the same process.

The first question, then, is—How far can the specific process be influenced by treatment? We caught a glimpse in the first lecture of the variations that exist in the susceptibility of the dif-

ferent processes to treatment, and especially of its degree, in their several stages. We saw that hyperplasia is the great characteristic of visible specificity, and that it is this element in the process over which treatment has most influence. Inflammation, even when it is due solely to syphilis, seems to vary much in its susceptibility to influence. Here, however, our vision is limited by the fact that we cannot discern, during life, how much of the apparent inutility of treatment is due to the lack of influence over the specific element, and how far it is due to the fact that the nerve-elements cannot recover. In chronic inflammation it sometimes seems as if we cannot arrest the true specific process, but in acute and subacute inflammations the facts we can perceive, and the analogy of similar processes elsewhere, make it probable that the second explanation is the true one, that it is the persistence of the damage, not of the lesion, which causes the persistence of the symptoms.

The first important consideration, however, is certainly the fact that the tissue-formation of syphilis is the element that can be influenced with most frequency, with most certainty, and in greatest degree. It is only in the early period of the process, when the tissue is still soft, that it can actually be made to disappear. When it caseates it may also disappear, although the removal of the degenerated particles is, perhaps, not due directly to our treatment. But when and where the process of fibroid transformation has set in, it is doubtful whether our treatment does more than aid this process. This is a cicatricial process; it is a process of healing of the lesion, and there is no evidence that our treatment does more than hasten it. The tissue that is produced lessens in amount, whether we treat the patient or not, but this diminution may be only the process of shrinkage which all scar-tissue undergoes—a shrinkage by which the elements occupy less space as they change from the original cells or their original form into inert fibres.

In the process of subacute and chronic inflammation, moreover, the effect of treatment through the specific element is largely dependent upon the amount of new tissue formed, and the stage of development which this has reached. Inflammation causes, also, a direct damage to the nerve-elements. This direct damage to the nerve-elements is proportioned to the acuteness of the inflammation. In really acute inflammation it is great, and, moreover, it seems to constitute the chief effective element of the process. We saw that in such acute inflammation there are commonly no true specific features. Our treatment has only to bring the acute inflammatory process to an end, and if this can be effected speedily enough, there is nothing further for the special treatment to do; there is no new tissue for it to remove. When we have arrested the process of inflammation, all we can do in our treatment is to wait while the nerve-structures recover; and all that we can do in our prognosis is to endeavour to form an opinion as to whether they can recover or not. But when the inflammation is chronic, or when it has lasted long, we have to consider also the tissue formation—the extent to which its removal is possible, the effects which it has produced on the nerve-elements, as well as the degree to which they can recover.

These, then, are the chief elements that have to be taken into consideration in forming a prognosis. But, in addition, there is a secondary question, subordinate to the others in actual position, but at least equal to them in importance. This question is the state of the new tissue in connection with its relation to the nerve-elements. As I have just said, when the fibroid transformation has set in, treatment does not seem capable of removing the new tissue, or doing more than hastening this cicatricial process. But this process involves, as we have seen, contraction of the fibres. If the new tissue merely compresses the nervous structures from one side, this contraction is as effective as absorption in relieving these structures from the damaging pressure. But whenever the new tissue encircles the nerve-elements and encloses them, the compression is actually increased by the cicatricial contraction. Thus, the healing of the syphilitic process, the recovery of the essential syphilitic lesion, means a continuity of damage to the nerve-structures and a continuity of the symptoms produced by that damage. After a time, it is true, there is often a further improvement in the symptoms. When the process of contraction is at an end—perhaps even before it comes to an end—the nerve-fibres, at any rate, seem to be able in some degree to accommodate themselves to the new conditions, and, although greatly narrowed, may yet regain some power of conducting, and often considerable power.

We see a very pertinent illustration of these important facts in

the eye, in the case of optic neuritis. It is common for sight to fail more during the process of subsidence of the neuritis than when the inflammation is at its height. The inflammation produces a large amount of new tissue in the substance of the optic nerve at the papilla. This infiltrates the nerve extending between the fibres, and the contraction of this tissue necessarily involves great compression of the fibres. But when the subsidence has become considerable, when most of the swelling has passed away, it is common for some improvement in sight to commence, and often it goes on slowly for many months, and ultimately reaches a very considerable degree. But it is also common, when the compression of the optic fibres is great, for the ultimate recovery to be incomplete, and occasionally the amount of vision that is regained is even at last very small. In many of the syphilitic lesions of the nervous system the processes which we can see so clearly in the eye, and estimate so accurately by our tests of vision, certainly go on in like manner, and with corresponding effects upon the function of the parts.

Hence it follows that whenever there is reason to suppose that there is new tissue which has begun to undergo, or which has already undergone, the process of fibroid transformation, and that this new tissue is so placed as to surround either the spinal cord, the nerve-roots, or nerve-fibres, our prognosis must be influenced by the considerations I have just mentioned. In all inflammations that are not actually acute there is this new tissue. If the inflammation has lasted for a few weeks before treatment has been effective, we cannot assume that the new tissue will be removed. The amount of new tissue will be proportionate to the intensity, extent, and duration of the inflammation, of which other indications enabled us to judge; and we must consider how far the position of the tissue is likely to entail this encircling compression. Hence, until we can see what influence treatment has upon the symptoms, our prognosis must be deferred, at least so far as details are concerned. If improvement is absent or slight, or when improvement begins to flag, we must expect that the degree of disturbance of function which then remains will, for a time, lessen only in slight degree or at a slow rate; that a little further improvement may take place in the course of time by the functional adaptation of the nerve-elements to their new condition, but that some amount of the impairment of function is not unlikely to remain. We must recognise, also, the important fact that when once the early and distinct improvement that follows our treatment is at an end, or even when it has distinctly begun to slacken, it is not likely that any further improvement the case will show will be in any degree the result of anti-syphilitic treatment. I believe that these general principles are absolutely true, and I am sure that their recognition in practical work is of the utmost importance. Their application to any individual case will furnish accurate and adequate prognosis, and, as I said, this application requires rather care than practice, patience than special knowledge. Thus three points in every morbid process have to be considered: the nature of the tissue in the specific lesion, the mechanism by which the nerve-elements are damaged, and the character of this damage. We must consider the nature of the tissue to determine the effect our treatment is likely to have upon it; we must consider the mechanism by which the nerve-elements are damaged to determine how far the changes we are able to produce in the specific tissue can relieve the nerve-elements; and we have to consider the nature of the changes in these nerve-elements to determine whether it is or is not likely that they can recover function if completely relieved from the morbid influence. We have seen it is by the removal of new tissue that is still in the early stage, by reducing the bulk of such tissue when it is exerting compression, and by checking the process of pure inflammation, that our treatment is effective. We have seen that it is when the compression is from one direction that the reduction in bulk of the tissue has the greatest effect in releasing the nerve-tissues from the influence of the syphilitic process; and that, when the new tissue compresses on them from all sides, the diminution in its bulk is more than compensated by the constricting contraction of the tissue.

A word or two more seems needed regarding the third element—the changes in the nerve-elements themselves. In pure acute inflammation, even when due to syphilis, this is the only point to be attended to. In the subacute and chronic inflammations it is secondary to the considerations regarding the new tissue which have just been mentioned. Note, once more, that these changes are simple, and not specific; that it is on these that the symptoms depend. These changes may be the simple breaking up of pure

inflammation, and which occurs also in the lesion which differs so much from all other processes due to syphilis—the softening of the brain from syphilitic disease of the arteries. The prognosis of this we considered so fully last time that I need not speak of it further. Except in this process of necrosis, and in the very rare pure acute inflammation, I do not think you will find any certain instances of change in the nerve-elements or specific processes without a production of new tissue. Secondly, we have the effects of compression already mentioned. Simple lateral compression readily arrests function, but it seems to do so by producing alterations in the nerve-elements that can be recovered from to a larger extent than is possible in any other form of damage. Whether the axis-cylinders persist or not, the fibres seem to be able to regenerate even after they have been exposed to such pressure for months. Lastly, in the damage produced by so-called “hyperplastic inflammation” there seems to be both compression by new tissue and also the alterations that result from the inflammation itself, and which we have already considered. The contraction of tissue that encircles the elements keeps up the compression already caused by its bulk, and hence this, and also the persistence of the inflammatory changes in the nerve-tissue, causes the effects of such hyperplastic inflammation to persist long after the activity of the inflammatory process itself is at an end, and even long after the treatment has ceased to exert any influence over the morbid process.

Except for another point I might with safety content myself with this outline of the general principles of prognosis. Time fails me to illustrate its use, but I may briefly enumerate the general character of the effect which these considerations have upon the special prognosis of the chief kinds of lesion. Afterwards I will mention the one remaining point that has to be considered—the modification of prognosis entailed by the irritation which some lesions cause.

The practical influence of these facts upon the chief lesions is as follows: syphilitic growths—gummata—can be removed more completely than any other lesion, and when their influence is exerted by simple lateral pressure, the resulting damage to the nerve-structure is recovered from in the most complete degree. Hence in such cases the prognosis is good unless the duration of the damage is very long and its degree is very great. When the growth infiltrates, however, the problem becomes similar to that met with in some inflammations.

In all forms of meningitis the prognosis is good except in so far as relates to the damage to nerves and nerve-roots which are surrounded by the newly-formed tissue, and also the damage to the spinal cord when the dura mater is greatly thickened. In all these cases the effects and the symptoms commonly lessen up to the point when the contraction of the tissue comes into operation. The effects of the inflammatory damage and of the early compression lessen, but a residuum remains in most cases, and is increased in some of them. Although further improvement is not uncommon after a time, some permanent effects may remain. When there is reason to suspect inflammation of the cranial nerves—syphilitic neuritis—the prognosis is chiefly influenced by the duration of the morbid process. If the inflammatory products are in such a stage that they can be removed, the prognosis is good. If, however, there is reason to suspect cicatricial transformation of the new formation, it is improbable that the degree of improvement will be sufficient to permit severe symptoms to pass away entirely. The same general prognosis is true also of infiltrating growths. In true acute inflammation that is treated early and arrested early, the prognosis is the same as in similar inflammations that are not specific. The recovery or persistence of the symptoms depends on the recovery or persistence of the changes in the nerve-elements which are produced by an intense inflammation, and thus are simple and not specific.

The point which I have left to the last is the prognosis of the symptoms of irritation which form so large a part of the manifestations of many lesions. The irritation may be that of nerve-fibres causing pain, or that of motor structures in the cortex of the brain causing convulsions. The irritation of nerve-fibres is due to the influence of inflammation in the first instance, and, secondly, to the influences of the residual compression I have spoken of, and it has a course analogous to the other effects of this compression. It, therefore, need not detain us. But the irritation of the cortex which is manifested by convulsions is of great import in relation to the problem of prognosis, and needs special consideration in every case in which its action can be traced.

Convulsions are often produced by a syphilitic lesion on the surface of the brain; they may persist after treatment has done all that is possible in removing that lesion. Such convulsions are usually ascribed to a cicatrix on the surface of the brain. They are commonly of local commencement or distribution, and a cicatrix does commonly exist at the spot to which the local commencement points as that in which the “discharge” commences. But general convulsions—always general in commencement—may be the sequel to what seemed, from the symptoms, to be diffuse general meningitis. The theory which is commonly held, that a cicatrix causes such symptoms by persistent irritation, may be correct; but it is not easy to understand perpetual irritation by a stationary cicatricial process, unless there are such adhesions to the bone as involve repeated and perpetual mechanical disturbance. The facts are equally explicable on the assumption—which seems to be much more probable—that the “discharges” originate from slightly damaged nerve-cells, and that the discharging tendency is perpetuated by the residual influence of the discharges themselves. This view is quite consistent with the effect of the excision of a cicatrix in arresting the attacks, since with a scar the removal of the nearest and most unstable cells can hardly be avoided. Be the cause what it may, the effect is certain and important, though the symptoms may persist long after all other symptoms of a cortical lesion, and may even go on as—in effect, although not in origin—a variety of epilepsy. These persistent fits are absolutely uninfluenced by anti-syphilitic treatment. Hence their occurrence must always cause a special concern, and should tinge your prognosis with a special caution.

(To be concluded.)

ÖÖPHORECTOMY IN GONORRHOEAL SALPINGITIS.

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IN December, 1887, I was consulted one after another by four young men, all moving in the same class of society, all, I believe, mutually acquainted, and all with acute inflammatory urethritis of a severe type. In each of them the inflammation was of high degree, and complications such as prostatitis, epididymitis, adenitis, peri-urethral phlegmon, etc., either were present or were threatened. After I had been attending the first two who came to see me for a short time, I learned that they had both had sexual intercourse with the same girl, a prostitute of the better class, living in a well-known establishment in the city, and, to my surprise, found that about the same time that they had visited her, I had, at her own request, made a careful examination, and found her free from all apparent venereal trouble. When the next man presented himself with the same story I sent for her and repeated my examination. The external genitals were entirely healthy in appearance; the vagina pale, not humid, and moderately dry; the os uteri a little reddened, swollen, and showing a moderate quantity of clear mucoid discharge, the uterus a little retroverted, and freely movable. She expressed herself as being in the best of health, and said she had no knowledge of anything being wrong with her, either about her genitals or elsewhere, and was somewhat indignant that she should be suspected of having given anyone a contagious disease. A few weeks afterwards I was sent for to visit her, and on going, after an unavoidable delay of a day or two, found her in bed with the following symptoms: Temperature 101.8°; pulse 120; abdomen swollen, tympanitic, and tender, especially in both iliac regions. Vaginal and rectal examinations showed the uterus slightly enlarged and decidedly less mobile, and disclosed on either side of the fundus a knotty, convoluted mass, very tender on pressure, and extending on either side to the pelvic wall. She told me that her last menstrual period had been attended with great and unusual pain, nausea, and vomiting, and that since then she had suffered severe pain, which she referred to the right ovarian region, whenever she had