A Clinical Lecture

ON SOME SURGICAL COMPLICATIONS OF TABES DORSALIS.

DELIVERED AT ST. BARTHOLOMEW'S HOSPITAL.

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GENTLEMEN,—There is a patient who has come back to the hospital after having been away from it for some years, and who has a disease which is of some interest. The man himself also possesses an interest of his own, because he was the first case in which, in this hospital, there was recognized a connexion between joint disease and tabes dorsalis, so-called Charcot's disease. This was in November, 1884.

HISTORY OF CASE.

This patient was shown by myself at a meeting of the Clinical Society in 1889, and I have here a brief history of the patient at that time, which I will read to you. He was 37, and he had been shown previously at the Clinical Society on November 14th, 1884, and had been under my observation since May 17th, 1884. His history was that he had syphilis when he was 18 years of age, and had been a heavy drinker. In 1879 he suffered from perforating ulcers under the left great toe, and had had several fits, apparently of an epileptiform nature. In 1881 he had a perforating ulcer under the right great toe, and at about this time, or sooner, he began to notice that the vision in his right eye was not as good as in the left. In 1883 he developed lightning pains in the lower extremities. Since then the ulcerations under his toes have frequently reopened and again healed. The patient stated that they always reopened if he took alcohol in any form, and healed if he left off drinking. He has had slight ataxia for the past five years; the reflexes have been absent since he was first seen in 1884. Occasionally he has had attacks of incontinence of urine and faeces, and now he suffers from grey atrophy of the right optic nerve, with considerable impairment of vision. Both pupils contract to accommodation, but not to light. The left knee first became troublesome in 1879, which was the time when the perforating ulcers first occurred in the left foot, and the knee gradually became more stiff and weak until his admission to the hospital in 1884. At that time there was free lateral movement and impaired flexion of the knee, and there were large bosses of bone of irregular shape and size, which could be felt in the synovial membrane. The patella measured $4\frac{1}{2}$ in. across, and 3 in. laterally, so that it was a big patella, and on account of the yielding of the joint the patient could not bear any weight upon it, and it was accordingly supported by a leather splint. Since 1884 the bosses of bone have steadily increased in size, and at the present time (1889) the shape of the normal articular surface is quite obliterated, and the whole joint presents irregular masses of bone in numerous rounded, bossy prominences, most of the new bone being attached apparently to the tibia, though some of it is loose in the soft tissues. Other portions are attached to the femur and patella. On account of these, the movements of the joint are almost entirely prevented. But it is worthy of notice that this immobility is beneficial to the patient, and that now he can bear his weight on the limb, and can dispense with all splints, the new bone which has been formed acting itself as a sort of splint. The right knee had been sound until in July, 1887, he first noticed swelling, which rapidly increased until it assumed enormous dimensions. The leg and thigh then swelled, and the joint rapidly became loose and flail-like. At no time had he suffered the least pain, either during movement or when the limb was at rest. When he was admitted to the Hospital in 1887 the right knee-joint, which was the newly affected knee, was found to be greatly distended, the synovial pouch showing a collection of fluid in the knee which had gradually stretched the synovial membrane until it bulged nearly one-third the way up the thigh. On account of the quantity of fluid it was impossible at that time to feel the condition of the bones, but the skin was normal and did not pit on pressure. The swelling was treated by rest and

strapping, and almost all the fluid subsided. There could then be felt on the inner side of the knee a large irregular mass of bone, and smaller bony outgrowths from the femur, tibia, patella. It appeared that the right knee was about to copy its fellow and become fixed by the formation of bony growths.

That is the history of the patient when he was shown in 1889. Since then the right knee has become more fixed, like its fellow, and has gradually become stronger, so that he can dispense with artificial support, the newly-formed masses of bone being very efficient splints. He certainly has had tabes for more than twenty years, and he illustrates very well several of the most characteristic of its surgical complications. As far as his knees are concerned, the first knee only very gradually became bad, and when I showed the man at the Clinical Society in 1884 as a case of Charcot's disease, a great many people who saw it, including the then President, Sir Andrew Clark, did not consider at that time that there was sufficiently definite evidence of tabes to make it at all certain that the condition of the joint depended in any way upon the condition of the spinal cord. Subsequent events, however, have shown that he has been suffering from tabes from the beginning; and I want you to remember that, although the second knee did run a very characteristic course, and although no doubt both joints are examples of the same class of disease, it took several years for the first knee-joint to be so affected as to materially interfere with his walking. The much more characteristic onset of Charcot's disease is illustrated by the second joint, which rapidly became greatly distended with fluid, and was painless, and then afterwards the knee rapidly became very loose, and simultaneously with this there appeared formations of large bosses of new bone in the synovial membrane. Unfortunately, this latter stage, this formation of new bone and the locking of the joint, does not often happen, but it is liable to happen; and you must remember that, if you can manage to keep the joint surfaces from becoming dislocated, it may happen, and the patient may afterwards be able to dispense with apparatus and get about. If this man had been allowed to walk at the time that the joints were loose, it is almost certain he would have suffered from displacement and dislocation, and if afterwards these bony formations had formed they would have formed too late, for by that time the articular surfaces would have been so displaced that he could not have borne the weight of his body on the affected limb. So this illustrates the importance of taking care that these loosened joints, especially those of the lower extremity, are adequately splinted, and that the patient is not allowed to use the limbs at the time when this rapid dystrophy is occurring. This is a transient affection; it does not indefinitely progress and continue; there is a time when the joint is very rapidly disintegrated, and then afterwards that destructive process comes to an end. It is not sufficiently appreciated that it comes to an end, and if you do not appreciate that it does and can come to an end in the same way as can the dystrophy of the bone which causes fracture, you are inclined to say, "What is the use of doing anything for such joints?"

CHARCOT'S DISEASE.

Let me say a word or two more about the so-called "Charcot's disease." This man had tabes for several years before one knee became affected, and it was not until six years later that the other was attacked. That indicates that there is no particular time in the course of tabes in which the joint necessarily becomes involved, and in a few cases one of the first evidences of tabes is an affection of the joints. In other cases the patient may have tabes for twenty years before a joint is involved. I can tell you examples of both.

A man was admitted into this hospital with a dislocation of his hip, which had occurred many months previously from a quite inadequate amount of violence, for he had slipped on the pavement while unloading a van, and, without even falling, his hip-joint was dislocated. Up to that moment he was not known to have had anything the matter at all. When we examined him in the hospital we found no evidence of tabes, and he was discharged from the hospital with a dislocated hip-joint which could not be reduced. He afterwards went into the Hertford Infirmary, and he died of very rapid tabes in eighteen months. In that man the displacement of the hip-joint

was the first indication of tabes, and that is an illustration of how early this joint affection may occur.

Here is another case to show how late these affections may supervene. I saw a patient with a typical so-called Charcot's disease of the knee-joint, which had very rapidly come on only a few months before I saw her. On inquiring for a previous history of tabes, she told me that she had been under Sir George Humphry twenty years before for an attack of sudden diplopia and a bad squint. This is one of the ways in which tabes is early indicated, a sudden paresis of some of the ocular muscles. In a great many cases it is transient, and it was transient in her. But that is pretty good evidence that for twenty years she probably had had tabes, and for this twenty years she had nothing the matter with her joints.

So that the disease may come on at any time, early or late, or after the lapse of only a few years. It may come on either in acute tabes or in very chronic tabes. The case I have been describing to you is one of very chronic tabes, for the man is alive twenty-five years after the tabes began, and I think it is certain that for the last ten or twelve years the symptoms have not progressed in the least. The atrophy of his discs and the degree of blindness have not materially altered, so that we are justified in saying that the progress of the disease has been to a great extent arrested.

Such joints as we have been discussing in their early stages are comparatively painless and are very full of fluid, and in the later stages become greatly distorted and liable to be dislocated. Here are illustrations showing first of all an enormous swelling in connexion with the hip in the early stage; and here is another showing dislocation of the hip at a later stage, and in this patient both the hip-joints have become displaced. Here is a knee with very irregular bony enlargement, complete alteration in the shape of the bones, and dislocation. Here is an elbow. You see that all the ordinary outlines characteristic of the elbow-joint are entirely lost. Almost any of the large joints may be affected—the knee, hip, elbow, and after that the shoulder and ankle. It practically does not affect the small joints; hardly ever are the joints of the fingers or of the toes involved. The tarsal joints may be affected, the carpal joints hardly ever. So it is essentially a disease of certain of the large joints, and some of them are much more often affected than are others.

SPONTANEOUS FRACTURE.

Now let me say a word or two in connexion with an allied subject—namely, "spontaneous fracture in tabes." That is another surgical complication which is so closely allied to Charcot's disease that you may say that the same sort of dystrophy of bone occurs in both. In the one case it results in very rapid destruction of the articular surface, which wears away, and in the other case it results in the fracture of the bone which has become degenerated in its shaft. Here are some notes which I took of a woman who was in the hospital about sixteen years ago. She was the first patient in whom spontaneous fractures had ever been noticed in this hospital in connexion with tabes. So she has a sort of interest of her own, like our other patient. She was at that time 47 years of age, and her history went back a long way. In 1875 it was said that she fell and hurt her knee, and in 1877 it was certain she was in the hospital with a large effusion in her joint, which at that time was called hydrops articuli. It was not recognized (at that date, 1877) that this had anything to do with tabes. It very likely was the beginning of a tabetic joint, which, like many of these joint conditions, did not progress from bad to worse. In 1879 she was again in hospital with effusion in her knee, which had become loose and grated. And that, again, I think pretty certainly was a tabetic joint. But it did not progress. And I want you to remember that in not all of these cases do the lesions become progressive, and they often stop at a certain stage. In February, 1881, whilst she was walking, her leg slipped, and she had a compound fracture of the tibia and fibula on the right side. In May, 1881, her left knee suddenly became enlarged by a large quantity of fluid, but it was quite painless. In 1883, whilst she was wringing clothes after washing, she fractured her left humerus. In 1885, when she was standing and reaching to pick up something, the tibia and fibula at the lower part spontaneously fractured. In 1888 the same leg, while she was standing, broke below

the knee. So she had spontaneous fracture occurring at five separate times, involving both upper and lower extremities. When we came to inquire into the history of tabes, it was said that she had doubtful pains, which might have been tabetic, since she was 17. For twelve years before she came into the hospital—that is to say, since she was 35—she had been unable to stand with her eyes shut, and occasionally had had difficulty in micturition. Since that time, also, she had had a feeling of constriction as of a band tied round the chest, and complained that her feet felt numb—all indications of the classical alterations in sensation in tabes. In addition, she was liable to have those violent attacks of sickness coming on without obvious cause, to which the name gastric crises has been given. Her menses ceased when she was 25.

Here is another case. Many years ago a man was admitted to the hospital with a history that while he was taking his boot off he fractured his thigh. It mended soundly, and the only thing which happened at that time indicating that there was anything else wrong was that he had incontinence of urine. Ten years later he developed well-marked tabetic arthropathy of one knee-joint, and when I examined him he had all the well-marked evidences of tabes. Spontaneous fracture is not nearly as common as is tabetic arthropathy, and it is not nearly so common to have bones spontaneously break as to have them spontaneously and rapidly wear away at their articular surfaces. But you must remember that tabes is one of the causes of spontaneous fracture, and that in multiple fractures one must particularly be on the look-out for it, for, as this woman's case shows, tabes may affect several bones at different times. And the other thing to remember is that in this woman, and in many of these patients, curiously enough, these fractures nevertheless heal strongly and well. In this woman, when we examined the bones which had been broken they all seemed strong enough, so, as in the case of joints, there is a transient dystrophy which does not necessarily progress; it is there for a time and at that time the bone may break, or at that time the joints may wear away. But if you remember that this condition is transient you will not think that it is not worth while taking any trouble with these patients.

"PERFORATING ULCER OF THE FOOT."

The man of whom I spoke to you first of all to-day has a very characteristic history, in that he has had syphilis. The more inquiry is made into these cases of tabes the more commonly is a history of syphilis to be obtained, and the proportion of cases of tabes in which there is a definite history of syphilis is probably as high as 75 to 80 per cent.

Therefore it is most probable that almost all cases of tabes are remotely due to syphilis. But the most unfortunate part about this etiology is that even if joint affections are remotely due to syphilis, they are in no way to be remedied by the use of antisyphilitic remedies; and it is one thing to say they are the result of syphilis, and another thing to treat them as if they were syphilitic. As a matter of fact, many patients are often made much worse by being put upon a course of mercury or iodide of potassium in large doses. I can assure you that these drugs do no good at all, although people are anxious in these circumstances to try everything. This patient is a characteristic one in another way. He had perforating ulcers under each of the great toes. Perforating ulcers were first of all recognized as being due to some nerve lesion by Sir William Savory (at that time Mr. Savory) and Mr. Butlin at this hospital, and at the time their paper was published, some thirty years ago, the connexion between nerve disorder and perforating ulcers had not been noticed at all. They observed that in these cases there were symptoms which were suggestive that there was an affection of the nerves, for they found that the foot in the neighbourhood of the perforating ulcer was to a great extent anaesthetic, and in many cases the area of anaesthesia sweated very profusely, and it was noticed that if amputation was performed, as it not infrequently was, the ulcer recurred in the corresponding part of the stump which was supplied by the same nerve as supplied the original lesion; and we know now that, although perforating ulcers may occur in connexion with other cord lesions, it is with tabes that the vast majority of these lesions are associated. The commonest

site of a perforating ulcer is the one in which it occurred in this man, that is to say, under the ball of the great toe. It ordinarily begins as a corn, and this corn or thickening of epithelium is ultimately followed by an ulcer which penetrates—or bores—deeply, and gives rise to this name of perforating ulcer. It does not extend over a large area, but tends to perforate without making any very large open sore. It is very liable to quickly penetrate the joint, and in not a few cases it results in some destruction of bone, either by caries or by actual necrosis. Our patient here has lost a considerable amount of bone from both feet, so that the toes are very much shrunken and shortened. But yet at present they are perfectly sound. And there again I want you to remember that perforating ulcers are things which can get and can remain perfectly well. There is a tendency to believe that a perforating ulcer necessarily cannot get well, that amputation may be required for it, and even then it is liable to recur in the stump. This man's statement is of some importance. He stated that the ulcers always reopened if he took alcohol in any form, and that they healed readily if he left off the alcohol. You know that alcohol is liable to cause neuritis; and I am certain that there are a good many people who have perforating ulcers who do not get well if you allow them to take alcohol. The other thing to remember is that if this ulceration is treated so as to relieve the part from pressure and to get it clean and aseptic, then, so long as there is no actual dead bone remaining behind, these sores can heal and can remain perfectly well.

INCONTINENCE.

I have spoken so far of the surgical complications in the limbs; but this man of whom I am speaking said he had occasional attacks of incontinence of urine and faeces. Those are complications which you must keep in mind, because a patient may come to you complaining of nothing suggestive directly of tabes, but on account of some trouble connected with urination. He may come because he has difficulty in passing his water, complaining that he cannot begin; or he may tell you that at times, without any particular cause, he has a sudden desire to empty his bladder, and, whether he will or not, the bladder insists upon emptying itself, so that he may easily pass his urine into his clothes unless within a few moments of being called upon to empty his bladder he can empty it into a suitable receptacle. In such cases tabes is often overlooked and the incontinence is put down to all sorts of other conditions; but incontinence, especially spasmodic incontinence, is very suggestive of tabes, and, like many of the other tabetic lesions I have spoken of, it may be quite transient. This man has had no trouble for some years; it was there for a time in the same way as diplopia may be there for a time, and, like that, it may pass away. The same is true of the rectum. It is, fortunately, not so common, but here again there is this same sudden call to pass the motions, and under these circumstances again, whether the patient will or not, the rectum insists upon emptying itself. But you have this satisfaction, that it seldom persists even in bad and progressive cases of tabes, and gradually or suddenly passes away.

GASTRIC CRISES.

In a certain number of these cases there are sudden attacks of violent sickness. This man has not had any such troubles, but the woman, whose case I read to you, and who had spontaneous fractures, was liable to these attacks of sudden vomiting without any feeling of nausea, and quite independently of food. And there, again, that is, in most cases, a transient condition.

EYE SYMPTOMS.

One other complication in our patient is grey atrophy of the optic disc on one side and loss of a great deal of vision. The eye may be affected in various ways in tabes. I mentioned to you first of all that there may be diplopia and squint. In the next place, there may be grey atrophy—that is to say, there may be atrophy of the optic disc, which assumes a curiously pearly-grey appearance—not a white appearance, such as might occur after acute optic neuritis, or after severance of the optic nerve, but the characteristic greyish appearance which gives rise to the name. Here, again, you must remember that, although there may be rapid atrophy, it may come to an end. This patient has never completely lost his vision, but he was

losing it in one eye so rapidly that at one time it looked as if he were going to become completely blind on that side. The other eye has not been materially affected.

PROGNOSIS IN TABES.

I want you to keep this man's case in mind in connexion with all these complications which I have mentioned, because they illustrate that tabes may be a very chronic disease; that, after having progressed up to a certain point, it may cease to progress; and that all these various symptoms and complications, even such things as disease of bone, alterations in joints, etc., may all, or any of them, be transitory. Under those circumstances you must not give too bad a prognosis; you must not think that everybody who begins with tabes is necessarily going to continue to get worse. The patient's symptoms may either progress or the disease may be arrested, and the arrest may occur at either an early or a comparatively late stage of the disorder. It is seldom that all the complications come together. You know that they may arise, but you must not forecast them and predict that they will arise, because they do not necessarily do so. And the outcome of this is that, as far as treatment is concerned, you must not look upon these cases as incurable in any way. It is true you cannot do much to alter the progress of tabes. The main thing which you can do is to improve the general nutrition of the patient. Antisyphilitic remedies, as I have said, are of no use. You should treat surgically all these various complications, feeling you are justified in encouraging the patient to believe that most of the complications are transitory. In the case of the man of whom we have been speaking, he is now able to walk about and earn his living, because he was carefully splinted and kept quietly in bed at the time when his joints were rapidly becoming worse and tended to become dislocated. It is because this woman who had fractures was treated like anybody else with fractures that there was a chance of their mending, and therefore I say you must take an encouraging view of the complications of tabes, and not neglect to treat them with every care.

THE BACTERIOLOGY OF A "COMMON COLD."

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THOUGH colds are almost universal during the winter months, and their remote effects possibly much graver than is usually supposed, the subject has been very imperfectly investigated. I have endeavoured to throw some light on the question by the bacteriological examination of a series of 27 cases of mild "common cold" occurring in the neighbourhood of Brighton from November, 1905, to January, 1906. The work has been carried out at the Stephen Ralli Memorial of the Sussex County Hospital, under the direction of Dr. Bushnell, whose help and advice have been invaluable, and I should like to acknowledge the kindness of Dr. Gordon Dill, who suggested the research, and other members of the staff of the Hospital, and also several colleagues, who provided some of the clinical material.

The literature bearing directly on the subject is scanty.

In 1873 Hüter¹ described a micrococcus as a cause of coryza.

In 1890 Paulsen² mentioned the occurrence of various cocci and bacillary forms in common colds.

In 1894-5 Dr. Edmund Cautley³ examined 8 cases of common cold, and in 7 of them isolated a bacillus which he named the *Bacillus coryzae segmentosus*.

This bacillus was subsequently found by Dr. Gordon⁴ of St. Bartholomew's Hospital in all of 7 cases examined.

In 1906 Dr. Prosser White,⁵ of Wigan, examined 21 cases of common cold. His experiments will be published in book form shortly. He finds a bacillus probably identical with that of Cautley in 17 out of 21 cases, that is, in 81 per cent. Inoculation experiments on the noses and genital tracts of guinea-pigs, rabbits, and monkeys, were negative.

The only positive results which I have been able to ascertain were those of Gordon in 1902, who injected 2 guinea-pigs with a pure culture of Cautley's bacillus, and observed that they were evidently ill for a few days, but recovered.

Literature dealing with more severe epidemics simulating influenza is abundant, and a large number of such epidemics are recorded in which Pfeiffer's bacillus was not found.