of the excessive nervous irritability of the subject, combined with the ordinary dyspeptic symptoms associated with this condition. These vertigoes belong primarily to the neurotic group; but dyspepsia, constipation, anæmia, and various reflex causes, such as ocular and auditory troubles, all help to produce it. The treatment is, of course, the treatment of neurasthenia, and this is a subject into which I have not time now to enter. I shall begin her treatment by giving one drachm of fluid extract of valerian and twenty grains of bromide of sodium, three times a day, until the nervous irritibility is quieted, and then I shall prescribe hydro-therapy, electricity, tonics, and proper diet.

DELIRIUM TREMENS AND OTHER FORMS OF SURGICAL DELIRIUM.

CLINICAL LECTURE DELIVERED AT ST. GEORGE'S HOSPITAL.

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GENTLEMEN,—There has lately been an opportunity of observing in the wards of the hospital several different kinds of delirium occurring in connection with surgical cases: so that it may be useful to devote a clinical lecture to the consideration of this subject.

In the first place we may notice two cases of delirium tremens, both furnishing illustrations of some characteristic points concerning this disease.

Both of these were men; and it is remarkable with regard to delirium tremens that it is very seldom seen in women. Yet the causes which are usually, and I believe rightly, considered conducive to this disease in men are largely operative also upon women. I am afraid there can be no doubt that there is a good deal of drinking among women, and that their intemperance is often combined with mental anxiety, physical fatigue, lack of rest, and insufficient or inappropriate food. We also see a good many cases of injury among intemperate women. Yet in spite of all this, and of the greater mobility of their nervous system, we rarely meet with a case of delirium tremens among them. I suppose the fact is that though many women are intemperate, yet the actual amount of stimulant taken by them is generally less than in the case of men. Among the poorer classes the money usually has to filter through the pocket of the man before it reaches the wife, by which time there is mostly but little margin for her to spend on drink; and probably the needs of the children act through her maternal instinct as a material restraint on much expenditure in that direction: so that she has to satisfy her craving with less than would content the man.

These men were both strong men in the prime of life,—one a stable-

man, the other a mason. Both had been accustomed for several years to drink largely of various kinds of stimulants,—beer and spirits. In both an injury was the immediate cause of the attack of delirium.

Case I.—In the case of the stableman the injury was a fractured leg, and when he was admitted to the hospital he was talkative, and evidently excited by drink. When, however, the fracture had been reduced and placed in splints, and the man put comfortably to bed, he became quiet, and showed no tremor even of the tongue (the organ often most difficult in this, as in other conditions, to control). The night after admission he slept for short intervals after a morphine injection; it was not until the next evening that symptoms of nervous disturbance began to appear. He then became restless, wanting to sit up, his movements and speech were jerky, he refused his food, and later in the evening insisted that he was quite well and must go home. The bowels had been freely opened by a purgative, and a subcutaneous injection of morphine was given, and repeated during the night. He did not sleep, however, but spent a restless and talkative night, and next morning had well-marked delirium tremens. His tongue and certain muscles were tremulous, he perspired profusely, he tried to leave his bed, said he must go home, and addressed incoherent remarks to imaginary comrades. His tongue was moist and coated with a thick white fur; his pulse 110, soft and compressible; temperature 100.2°; urine loaded with lithates, free from albumin; he objected to food. If asked a direct question, he replied rationally, but in a sudden, jerky manner, and then wandered off again into incoherent talk. It was ascertained that he had lately been often out of work, and had been living badly for some months past, and thus, in addition to his drinking, there was impaired nutrition, due to insufficient food, as another predisposing cause of the disease.

You will observe that the immediate effect of the rest and food obtained by his admission to the hospital was a temporary quiet, but that as the second night came on he became fidgety and restless, and, failing to obtain sleep, then became delirious. That is a sequence of events very commonly to be noticed. These cases usually become worse towards night, and when the habitual time for sleep comes, if the needed rest is not obtained, delirium begins. It is therefore desirable to see such patients late in the evening, when the need for sedatives can be best appreciated.

This man, having been freely purged, was given a draught of bromide of potassium and chloral every three hours. He was after some perseverance persuaded to take some strong beef-tea, and subsequently a

sandwich of pounded meat and bread. A screen was arranged round his bed, and a nurse placed in attendance upon him, who by judicious persuasion kept him in bed and fed him and thus prevented the need of apparatus of restraint. Under this treatment he gradually quieted, and the following night slept soundly, and the delirium was at an end.

Case II.—The other man, the mason, was admitted on account of a rather severe and contused scalp-wound, due to a blow from a piece of iron which fell upon him. He was somewhat stunned by the blow, and lost a considerable quantity of blood. So that here we had the complication of an injury to the head, and it was necessary to differentiate the ensuing delirium from such as might be due to intracranial inflammation. In this case the delirium set in the night after the injury, and the following day the man was very noisy and troublesome, so that it was necessary to place him in a separate ward. The symptoms were very similar to those which I have described as displayed by the first patient. The delirium was what Sir Thomas Watson so well named, in his admirable description of the disease, a "busy delirium." The man was constantly talking and fidgeting, throwing off the bedclothes, sitting up and wanting to leave his bed, and every now and then shouting noisily to some imaginary person who annoyed him. The tremor was very slight and only occasionally noticeable; and you must remember that this symptom, though it gives the name to the disease, is not always present or well marked. This man was in a better nourished condition than the first patient, and I think the tremor is more apt to be displayed by the ill fed and badly nourished. So that although the tremulous tongue or hands may often help you to anticipate the onset of delirium tremens, or to diagnose it when developed, yet the absence of this symptom must not lead you to doubt the nature of the attack if the other symptoms are characteristic of it. The man was given a senna draught, which he vomited, and vomiting continued after food during the next twelve hours, but ceased after a dose of calomel. He received an injection of morphine, but did not sleep. It was difficult to count the pulse, because it was very rapid, as one would expect from his active and excited condition. He perspired profusely, his face was flushed, his tongue thickly coated with a moist white fur. The scalp-wound, in spite of frequent disturbance of the dressings, went on fairly well, but suppurated slightly. His bowels acted freely, and after the vomiting ceased he took the greater part of the fluid food offered him. He was then given bromide and chloral in frequently-repeated doses, but the delirium continued as actively as ever, until forty drops of laudanum were administered, followed after

two hours by twenty drops, after which he slept soundly for about eight hours, and awoke quiet and sane.

Now, these two cases are fairly typical specimens of delirium tremens, and, having thus briefly described them to you, I will add a few comments, and then pass to the consideration of some other forms of delirium with which these may be usefully compared and contrasted. I told you at the commencement of the lecture that both these men whose cases are before you had been accustomed to drink largely, and it is in the habitually intemperate that delirium tremens is chiefly met with. A single indulgence in large quantities of alcohol may produce various other harmful effects, such as may result from any other poison, but it does not produce delirium tremens. The nervous system must have undergone some change due to prolonged alcoholic poisoning which renders the drunkard predisposed to the attack. But something more than this is usually needful for the production of the disease, and most commonly this is want of sleep or want of food; and with these is often combined fatigue or anxiety. You will observe that these are all depressing influences, and you will see how easily these may all occur together with intemperance. A person suffering from severe anxiety or grief is apt to sleep badly and to lose appetite; if he is intemperate he will have the less moral power to combat his trouble, and feeling depressed and unable to take food, he is tempted the more easily to drink, and has thus entered a vicious circle.

I saw recently a very bad case of delirium tremens in a delicate young man who had been for some years drinking a good deal, and in whom the fatigue of dissipation had been aggravated by loss of sleep caused by cystitis and irritability of the bladder.

And one of the few cases I have seen among women was that of a lady whose sleep had been prevented by the terrible itching of acute eczema, and who had, moreover, been taking large quantities of alcohol. In other cases nervous shock is the immediate cause of the attack, as was the case in the two men in whom it followed an injury. The shock, however, may not be traumatic, but mental, as from the sudden communication of bad news. Loss of blood, too, may be the depressing influence which develops the disease, and this cause probably contributed something to its production in the second case I have related.

The diagnosis does not usually present any material difficulty. The history is, of course, very helpful when it can be obtained and is reliable; but the true history is often concealed from us or is purposely

distorted. Remember, however, that the sequence of events is first restlessness, then disturbed sleep, then no sleep, then, lastly, delirium: not delirium and therefore loss of sleep, but loss of sleep and therefore delirium.

In the second case, as may not infrequently happen, an injury of the head preceded the delirium, so that the question arose whether the delirium was due to the injury or to drink. But there cannot often be any real difficulty in deciding this. The history, the mode of onset, the character of the delirium, and the concomitant symptoms are entirely different. The delirium of inflammation of the brain or its membranes is more acute, violent, and constant, without the intervals of more or less coherence seen in the drunkard, who will often be recalled for a moment from his irrational jabbering by a question put to him in a decided manner, which he will answer in a jerky, sudden way, but it may be quite reasonably. Moreover, in the case of inflammation, pain in the head precedes delirium, the pulse is not only quick but hard, the tongue is parched and dry, the temperature is high, the skin dry, the pupils contracted, and though there may be muscular paralysis there is no tremor. These conditions are in marked contrast to the soft, weak pulse, the moist tongue, the sweating skin, and the comparative absence of fever seen in delirium tremens.

The prognosis of delirium tremens depends very much upon the ability of the patient to take and digest food. Vomiting is therefore a serious symptom, for, besides preventing the administration of food, it is in itself exhausting. If the delirium is violent, the case is the more serious because of the exhaustion which violent delirium causes. The heart and blood-vessels in drunkards are apt to be deteriorated, and thus are the less able to stand the increased strain upon them. Exhaustion, which is the usual cause of death, thus the more easily ensues, and is often indicated by the change of the delirium from a violent to a low, muttering form. Very severe tremor is a bad sign, especially if tremors occur during sleep. Epileptiform attacks are also of serious import. A serious and not uncommon complication is pneumonia. On the other hand, if food is readily taken and digested, if the patient is young, if the organs are fairly sound and the delirium easily restrained, recovery is to be expected.

And now let us consider the treatment of this disease. You will have observed that the immediate causes which, acting upon the predisposed, bring on delirium tremens, are of a depressing character,—fatigue, loss of sleep, privation, want of food, shock, physical or mental, anxiety, grief. So, again, the symptoms show depression,—the

compressible pulse, the sweating skin, the tremors. The most common complication is a low, spreading pneumonia; the usual mode of death, exhaustion. Obviously, then, the treatment must not be of a lowering character: recovery must be obtained by food and sleep. Food is more important than physic, for if food is freely taken, and the patient is kept quiet, sleep will probably ensue. Of course the more nourishing and easily assimilated the food is, the better; but the patient's inclination must often be to some extent considered. Besides the ordinary forms of nourishment, such as strong soup, milk, eggs, and butter, a very useful food will be found to be pounded raw meat. This should be reduced to a pulp and passed through a fine wire sieve, and may be given on buttered toast or in a sandwich; it will often be acceptable when the fluid foods are refused. Oysters, of course, are also useful. Stimulants should certainly be avoided if possible, though sometimes their administration may be necessary. But if necessary, they are a necessary evil, which should be dispensed with as soon as possible, and used with the greatest caution. A free purge at the outset is almost always useful; and although purgation should not be carried to an exhausting extent, its repetition at intervals will be generally beneficial. You will have noticed that although we do not usually wish to disturb patients suffering with recent fractures by the administration of aperients, yet in the case of the man with delirium tremens and fractured leg we gave aperients with evident benefit. With regard to other medicines, it must be admitted that no rule is universally applicable, and that the drug which has produced sleep in one patient may fail with the next. But, speaking generally, I should say that the most useful medicine is a combination of chloral and bromide of potassium given every two or three hours till sleep is obtained. If, however, the pulse is very feeble, the bromide is not desirable, and then chloral may be given alone, or sulphonal. In some cases, however, full doses of opium answer better than anything, and when the stomach will not retain the drug, morphine may be subcutaneously injected. But when the presence of albumin in the urine shows the kidneys to be damaged, or if there be any pneumonia, opium had better be avoided. If nausea is troublesome, small pieces of ice may be given; but it must be remembered that the continued swallowing of iced water is seriously depressing. It is of the utmost importance that the surroundings of the patient should be as quiet as possible. Light should be subdued and noise excluded, as well as any sources of bodily or mental irritation. A good nurse who will treat the patient with a judicious combination of firmness and gentleness is

a most desirable aid, and will usually render any apparatus of restraint unnecessary.

Before leaving this subject I would remind you that delirium tremens is occasionally met with in persons who are not drunkards, but who have been subjected to a long-continued nervous strain, with loss of appetite and sleep, to which has been added some injury, loss of blood, or other nerve-shock. But there is another kind of delirium, met with in intemperate persons whose blood-vessels are degenerated, which must be distinguished from delirium tremens. This comes on in connection with some febrile disturbance or exhausting disease. We recently had an example of this in a man who was admitted on account of cellulitis of the foot, which rapidly led to extensive sloughing. He had been intemperate, and had atheromatous arteries and impaired digestion. When the discharge became profuse and exhausting, he grew delirious, and continued so for several weeks. But the delirium was quite unlike delirium tremens. He was constantly chattering and throwing his arms about, but he slept frequently for short intervals; he had a high temperature and dry skin, a dry, brown tongue, and a quick, feeble pulse. He took food freely, though he was sometimes nauseated, and was benefited by a moderate amount of stimulant. For this form of delirium opium in small doses frequently repeated is the best treatment in addition to judicious feeding and stimulation. Another form of delirium, of which we have recently had two examples in the wards, is what may be called "senile delirium," for it is seen only in old people, who are subjected to some sudden shock or injury. It is important to recognize this delirium, for it sounds a serious note of warning to which we should at once take heed. The two patients of whom I spoke as exhibiting this form of delirium were both old men, one with fracture of the neck of the thigh-bone, the other with an injury to the ankle and tarsal bones, with severe general bruising. Both of them were healthy-looking old men, and when admitted seemed to suffer comparatively little from their injuries. But after being in bed a few days they both began to babble in a feeble manner. If asked a question they would answer in a fairly coherent manner, but at once relapsed into a senseless chatter. In this condition there is no violence, and though the patient may try to do something undesirable, such as leaving his bed, he is at once and easily controlled. The chief characteristic of this delirium is a subdued but constant talkativeness, generally in a low voice, the words being often imperfectly uttered and even unrecognizable. Sleep is disturbed, and lasts only for short periods. The bowels are confined, and the appetite is impaired.

Now, when an old person exhibits these symptoms under such circumstances as I have described, he must be taken out of his bed at almost any risk, or he will die. Even to place him in a chair and wheel him about his room is a great aid to recovery; but if the nature of the injury permits it, it is still better to let him walk about for short periods at a time. In the two cases in the hospital the injuries were in both of them of the lower extremity; nevertheless, a leather hip-splint for the fractured femur, and a silicate of potash bandage applied to the damaged foot, enabled them to leave their beds and to be wheeled about the ward, with the result that the delirium ceased, and they made good recoveries.

I recently saw, in consultation, an old gentleman who had been so unfortunate as to rupture simultaneously the quadriceps extensor in both thighs, a condition which would almost seem to necessitate confinement to the bed or couch. But at the end of a week of such confinement the patient began to babble nonsense and to sleep badly. I therefore urged that he should be enabled to get up at any risk, and by having a leather splint moulded to each limb this was rendered possible, and he was wheeled about his room, and after a few days about his garden. The delirium ceased at once, and he made a good recovery.

I might relate other cases to the same purpose, but what I wish to impress upon you is that in this condition old people who were becoming rapidly worse while lying in bed, and whom reasonable doses of opium failed to quiet, were immediately benefited by leaving their bed and moving about, and that almost directly the delirium ceased and they slept well under the influence of small doses of the same drug. Let me remind you, in passing, that old people are very apt to be constipated, especially if kept in bed or unable to take exercise; that constipation materially impairs their nutrition and favors the occurrence of senile delirium; and that it is often overlooked because the patient is said to have frequent movements of the bowels, which may only be the expulsion of a little mucus tinged with fæces, while the rectum may be blocked with a hard mass. It is often worth while in such cases to inspect the evacuation, or to pass the finger into the rectum to ascertain the amount and character of its contents.

Since the introduction of antiseptics we have seen less than formerly of traumatic fever and its sometimes accompanying delirium, but the diagnosis of traumatic delirium is not usually difficult. Perhaps the injury in which this form of delirium is most frequently met with is a severe burn. But here we have the high temperature, the dry skin,

and the character of the delirium, which is active in proportion to the elevation of the temperature, to distinguish it from the other forms of delirium of which I have been speaking. Traumatic delirium is best treated by frequent doses of quinine and opium.

Sometimes the case is complicated by the fact that we have to deal with two causes of delirium acting in the same patient. For example, I saw a short time since a young gentleman who had been under my care for syphilis, and who had suffered from great pain in the head and sleeplessness, and who had cranial nodes. He came a long journey to London, and the day after arriving at his hotel he became actively delirious. I was called to him in this condition, and expected to find that the syphilitic disease of the skull had spread to the coverings of his brain. But I found him sweating profusely, and with a moist, coated, tremulous tongue, a soft weak pulse, and natural temperature. It was found, on inquiry, that he had been drinking heavily; and in fact he had delirium tremens, for which he was treated with satisfactory result.

I will mention only one other kind of delirium of traumatic origin, —namely, that which sometimes sets in after a head-injury which has produced laceration of the brain or its membranes. This is an accompaniment of inflammation of which we have the other signs, —nausea or vomiting, rigors, pain in the head, high temperature, quick pulse, dry skin, contracted pupils, intolerance of light and noise. Here the treatment must be directed against the inflammation of which the delirium is only a symptom. But when, in such a case, delirium is a prominent symptom, a free bleeding is often of the greatest benefit. Of course you would also use free purgation, cold, or other appropriate treatment.

I will close this lecture by reminding you that occasionally a surgical operation is followed by an outbreak of acute mania.