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## EXOPHTHALMIC GOITRE WITH MENTAL DISORDER.

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In the subjoined paper I have only recorded cases in which Graves' disease was associated with mental disturbance of a marked kind. We asylum physicians are perhaps a little too much inclined to make much of mental disturbance when it occurs with other disorders of the body, but, on the other hand, I think general physicians err in the other direction by not taking sufficient notice of the mental aspect of general disease. If delirium occur it is noticed because it asserts itself, but the slighter changes in disposition and character are passed over. Many diseases, if not all, have their special nervous aspect, and this aspect is more clearly defined in the cases seen in an asylum than in those in a general hospital. Every physician is used to the hopefulness of the phthisical patient and the low spirits associated with digestive trouble; in an asylum the same symptoms are seen in similar cases, only they are much more marked, especially in the latter.

With this introduction I would add that with Graves' disease from the first it was noticed that there was marked nervous disturbance. It occurs generally in women, and generally in young women, and we might at once expect that there would be a nervous colouring to any affection occurring under such circumstances.

Besides the cases of true and complete Graves' disease with

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mental disorder I have to record some cases in which, with mental disorder, one or more of the symptoms of this disease were present.

The disease itself requires no description from me, and I would only say that in my experience it is not uncommon to see partially developed Graves' disease which may either be recovered from or may pass into the complete state.

I do not think any good purpose will be served if I write a long paper on the bibliography of this disease or on the insane relations which have been described by others. Suffice it to say that though few cases have been described of fully-developed insanity with this disease, yet several have been observed by both English and foreign authors. Soon after its first description by Graves, Dr. Laycock considered it carefully and wrote several interesting articles in the 'Edinburgh Medical Journal,' in which he fully recognised that with exophthalmic goitre there might occur epilepsy, hysteria or insanity. Dr. Morell Mackenzie described a case with insanity in the 'Clinical Society's Transactions' for 1868, and Dr. A. Robertson recorded one in the 'Journal of Mental Science' for 1875. German writers were careful in reporting similar occurrences. But there are still a few only to be referred to, and I look upon the subject as one that is especially interesting from the close association of the bodily and mental disturbances.

We have got so used to talk of the disease as one of the sympathetic that it will not be without use if we are made to reconsider the data upon which we found this opinion.

The sympathetic may have something to do with the disease, but I for one believe we shall find that the higher centres are not free from suspicion.

In one of the cases in which a post-mortem was made I found the supra-renal capsules disorganised; this is of interest, and may be of use to explain further the functions of those bodies.

I shall now proceed to give the cases which have been under my care, and which form the basis of this short article.

In the first place I shall consider these three cases of exophthalmic goitre, and then deal with certain other cases of mental disorder which have occurred in the hospital, and in which, although there has been no true disease of this kind, one or more of the symptoms common in the disease were present, so

that, although we have not the complete picture, we have a sketch so like it as to make one believe that there is some similarity in the conditions producing both the mental and the physical disorder. I shall not spend much time in investigating the causation of this disease. I shall have to refer shortly to the autopsies in the cases of two of my patients, and then to point out that nothing was specially noteworthy in the condition either of the nervous centres in general, or in the sympathetic ganglia, so far as examined, in particular. By exophthalmic goitre I understand the disease described both by Graves and by Basedow and named after them respectively—a disease in which the most marked symptoms are prominence of the eyeballs, enlargement of the thyroid gland, and rapidity of the pulse. I have now seen several cases in which one or other of these symptoms preceded the others by an indefinite time, so that the disease under discussion began in one case with unusual rapidity of pulse, in another was marked by prominence of the eyeballs, and in a third was first noticed in the prominence of the thyroid body. It seems to me that in some cases the disease runs its course without all these symptoms being present at any time—that the exophthalmos or the rapid pulse may be the chief or only marked signs. If I had to fix upon the most characteristic symptom of the disease, I should be inclined to say that in my experience rapidity of pulse was the most common. In the first cases that I have to describe, all the symptoms were present, and thoroughly characteristic. The thing that struck me most, and at first, was the eyeball prominence, but at once, on investigating the pulse, I found that it was rapid, and on further examination the throat was discovered to be unusually large. The three cases to which I am about to refer are alike in occurring in young women, and in two of them there was strong neurotic inheritance. One case had an insane father, another had insanity and eccentricity on the maternal side, and the third had an insane cousin. In two of the cases a fatal result has followed, and I fear that we shall only have to wait a comparatively short time before the youngest and last case follows the others. In the end, these patients suffered from visceral troubles, diarrhœa being the proximate cause of death in two. Before making further remarks upon the cases in general, I shall briefly give the history of each case.



CASE 1.—C. S—, single, 28, admitted in 1877, an artist, having two insane relations. This was the first attack of unsoundness of mind, the cause being unknown. Two months before admission into Bethlem she became incoherent, was noisy and excitable, had delusions, thought that she was an actress, and had false ideas of her power and influence. The chief characteristics of her insanity were excitement, incoherent talking, violence, destructiveness, and sleeplessness. She had suffered a good deal from palpitation of the heart, and according to her friends, exophthalmic goitre had been developing for about a year, and she had worried herself considerably about the change in her personal appearance. On admission she was found to be a pale, anæmic girl, with marked and pretty uniform protrusion of both eyeballs, and slight enlargement of the thyroid gland. The number of the pulse was not then recorded, but later it was 140 to the minute. She continued to be acutely maniacal during the next month, became filthily dirty in her habits, constantly filling her mouth with dirt, stones, and sticks. She was treated medically with liquor ergotæ and tinctura belladonnæ, but without any benefit. Within ten weeks of her admission she became much weaker, and was confined to her bed. She suffered much from vomiting and purging; the pulse was 135, respirations 40, temperature 98°. The eyes were more prominent than ever, especially the left; the pupils, which at first were large, became somewhat smaller; she was still dirty in her habits, but less noisy; palpitation of the heart was marked, and a systolic bruit was heard at the base of the heart. This was very rough in character, but was not audible at the apex. A bruit also occurred at the base of the neck on both sides. The patient now became dull and sleepy, the skin hot and dry to the touch, although the temperature was really normal. She became more dull and sleepy, and could hardly be roused. Pulse 140, respirations 50, temperature 100. No lung complications could be detected; heart palpitating; conjunctiva suffused, optic discs pale, vessels appeared large and dilated; the vomiting had become less, purging continued. On the next day she was reported to be gradually sinking. Before death she recognised her father, but this was the only sign of mental recovery throughout her stay in Bethlem.

*Post mortem.*—The brain was found to weigh  $44\frac{1}{2}$  oz., the

dura mater was thick but free, the arachnoid thin and quite normal. There was an appearance of congestion about the finer vessels, giving a bright red dendroidal appearance to the surface of the brain. There were no local wastings of the convolutions; there was slight excess of subarachnoid fluid, grey matter normal but thin; white matter soft; ventricles with excess of fluid, walls and floors of ventricles granular, vessels at base normal; sympathetic normal in appearance; lungs congested at base, and having several patches on the surface like apoplexies. Heart  $13\frac{3}{4}$  oz., firmly contracted; early atheroma visible in the aorta; clot in the right auricle. Both kidneys congested, capsule thick and adherent; liver very fatty; supra-renal capsules small and breaking down. There was some fulness in Peyer's patches, and the spleen was normal. On careful investigation of the cervical ganglia of the sympathetic, perfectly healthy appearances were found; in fact, I have never examined a more typically healthy sympathetic in my life. The case, then, so far as the post-mortem is concerned, exhibits no marked disease except in the supra-renal bodies. The congestion in Peyer's patches was remarked upon from the fact that similar conditions have been described by Mr. Howse, in the '*Pathological Transactions*' for 1877, as having been found in another case of this disease.

CASE 2.—A. J. B— was admitted in July, 1879. Her father had been insane; a sister died of phthisis. She was single, twenty-four years of age, and engaged in a paper manufactory. This was the first attack of mental unsoundness, and had lasted one month before admission, the predisposing cause being said to be inheritance, and the exciting cause grief at the death of her sister. The earliest symptom noticed was melancholia. This gradually became more marked, and the patient at last became dull and unoccupied. This depression passed off, and she became very excited, and before admission she was described as being in a state of great excitement, howling, singing, and dancing alternately. She was under the delusion that she had committed some great crime, and talked to imaginary people. Her mother said that she was constantly talking, and refused her food. She is described then as having staring eyes, and it was said that she was in great dread, and started at the smallest



noise, almost declined to speak, or only said a single word at a time. She wrung her hands and trembled when any one approached her. Since the death of her sister she had been much excited about religious matters. Her general health had been fair up to the time of admission. The catamenia were regular. After the announcement of her sister's death she became profoundly depressed, and then acutely maniacal.

On admission she was described as having a pale, pimply face; exophthalmic goitre, with a pulse of 140. The first cardiac sound is described as a slap, the second being almost inaudible. There was a well-marked *bruit de diable*; and bronchial breathing, with mucous râles at the left apex. She had some cough. She did not answer questions, and was in the habit of slipping from her chair on to the floor, and lying there. She was unoccupied, dirty in her habits, refused her food, would not dress herself, and was generally obstinate. She had to be fed, within a week of admission, with the stomach-pump, became furiously excited, and bruised herself so much that she had to be confined in the padded room. The stomach-pump was continued for some days, but in the end she took her food fairly well. Twelve days after admission diarrhœa and sickness came on; the pulse became very feeble, though she at the same time became very excited. She slowly lost strength, and, though fed by nutrient enemata, she sank and died sixteen days after admission.

Post-mortem examination showed a brain of 46 oz., very soft, but the membranes generally and intensely congested; the lungs exhibited old pleuritic adhesions and hypostatic congestion at the bases; the heart weighed  $9\frac{3}{4}$  oz., and is described as normal; the liver was  $31\frac{3}{4}$  oz., somewhat fatty; the kidneys were normal; the exophthalmos had quite disappeared after death; nothing, with the doubtful exception of the excess of morbid fat, was found in the orbit; the cervical chain of sympathetic ganglia was removed on the left side, but presented nothing abnormal, either to the naked eye or to microscopic examination.

CASE 3.—E. S. C—, single, æt. 23, telegraph clerk, admitted in June, 1880. Cousin insane; no inheritance of disease known. Cause unknown. Symptoms had lasted two months before admission. They began with reserve and depression,

and she became slowly more depressed and restless. She was sleepless and excited, refusing food ; she kept saying that she ought to have died, that it would have been better for every one if she had died, that I was right in saying she ought to have died. Her father thought that she listened to voices. She refused her food, saying there was something on her mind, and that she would die in a few minutes, and that it would be all the better for others if she did. She seemed depressed, but was very restless.

On admission she is described as hearing voices, and noises in her ears ; she has also experienced flashes of light. She thought people were watching her. Menstruation had been regular. She was a tall, slight girl, with large dark eyes, eyeballs slightly protruding—exophthalmos. She had a nervous manner, and was emotional. Complained that she had bad thoughts, and wished to die. She was first treated with shower-baths daily, and then tincture of belladonna was given internally. For the next few months she steadily gained in weight, but there was little or no change in her mental condition. It is reported that at times she was very excitable and troublesome, and also noisy. Four months after admission she was said to be slightly better in mind and body, but she soon became more excited again, and in the earlier part of 1881 she had to be removed to a lower gallery, in consequence of her violent and destructive habits. In July, 1881, she had a pulse varying from 120 to 140, eyes uniformly prominent, pupils widely dilated, and marked increase in the circumference of the neck. This patient was full of all sorts of miserable ideas—thought she was unnatural, that she was not a woman but a beast, that she had caused all the troubles and all the distresses that she saw around her in the hospital, that she must die, that she could not get better. She fully recognised where she was. She remembered her friends, and at the same time said she did not want to see them. At times she was dirty in her habits and obstinate about her food. She pinched and injured other patients if not carefully watched, but she kept her clothes on and was fairly tidy.

In this case we have only given the history so far as it had gone while she was in Bethlem, but from our experience of the other two cases, so similar in respect of age and symptoms, one feels quite sure that the end will be the same.



I do not for a moment wish to insist upon this disease having very special mental symptoms associated with it; all I would say is that the disease seems nearly associated with nervous changes, and that, as far as I have yet been able to make out, these changes are not to be found in the cervical sympathetic at all events. In all these cases there was depression at one time, followed by the most violent mania—mania of the noisy, destructive, incoherent kind, not of the simple delirious form. In all the cases there were periods of quiet and of improvement. I regret to say that I cannot attribute any of their improvement to medical treatment, for although they were all treated according to the newest lights—with belladonna, digitalis, arsenic, shower-baths, and galvanism—the results were the same. In all cases there was a tendency to impulsive violence, to refusal of food, and to dirtiness in habits, so that these patients were not only negligent, but absolutely filthy in their behaviour. In each the sexual functions seemed little or not at all affected, menstruation being recorded as regular in all three. In all these cases the patients were single.

We will now speak of some other cases, recently under notice, having some of the symptoms of exophthalmic goitre. In one case, at all events, the symptoms are recurrent and periodic, and in the other progressive, but associated with that fatal form of nervous disease—general paralysis of the insane. The first case that I report is that of a young lady who suffered from recurrent mania, and in whom most marked exophthalmos is present with each recurrence of excitement.

A. M—, single, æt. 21, governess. Over-study the supposed cause of insanity. Her mother is insane, and her father was eccentric and brutal in the extreme. The patient had suffered from headaches for years. She had scarlet fever two years before admission. The first attack of insanity occurred when she was nineteen years of age, and passed off; for this attack she was under treatment in another hospital. The present attack is described as having come on ten days before admission. It began with sleeplessness, and constant counting and multiplying aloud all day long. It was said that before she broke down the children under her charge noticed this

peculiar habit, which seemed to be growing upon her—this habit of exercising herself with figures as if to distract her attention. Her wild appearance, and her statement that she never slept, but kept awake in order to repeat tables out loud, and other odd behaviour, are recorded as signs of her insanity. She is said to have become totally changed in manner, threatened her aunt with violence, and became untidy in her appearance. She took a dislike to others of her friends, and was violent, destroying her clothes and refusing food. On admission she had delusions to the effect that her relations were against her, and also that she had a certain amount of study which must be done within a fixed time. She had not slept for two or three nights, refused food, but was easily managed. Menstruation regular. On the night after her admission she was muttering through the whole night, and was a good deal excited. She complained of headache. The next day she slept for four hours, and the attack gradually passed off. The next point of interest in the case is that although some of the attacks were synchronous with the menstrual periods, others occurred between them at irregular intervals. There was some dysmenorrhœa, but no menorrhagia. The temper and temperament of the patient were opposed to those generally seen among the hysterical. She was distinctly strong-minded, and struggled against these attacks, which she felt to be terrible in their effect on her nature and character, and to be destructive to her self-esteem. The attacks became more frequent, and left her with but few days of quiet between, till she was put under the influence of hyoscyamine, which acted most powerfully upon her, and by judicious administration prevented the recurrence of the attacks for some months. After she had been on leave of absence without medicine she again broke down, and was again under treatment for the same conditions from which she was suffering on admission, though I think the hyoscyamine did not act so readily and efficiently as it did when first given nine months before. It may be well to give a description of one of her attacks. The first symptom noticed is a staring condition of both eyeballs, with a tendency in the hair to become dry, stiff, and upraised from the head. At the same time the patient is seen to be restless, avoiding contact with her fellows, and especially avoiding recognition by the doctors.



For a few hours after the almost sudden onset of these symptoms she remains in much the same condition, if no medicine be given. She then goes to bed, but talks, counts, and repeats the whole night through, not seeming to close her eyes for a minute. Next morning she looks haggard and worn, the eyes being much more prominent, the hair much rougher, the complexion more sallow. By this time she is either slightly emotional, rushing about, or dull and heavy, seeking corners of darkness where she will not be seen by the doctors or others who may be in the ward. Her whole mode of dress and of decoration is changed. She no longer takes the slightest interest in books or in her old accomplishments. In this condition she may pass another twenty-four hours, and then, after an emotional storm and an improved appetite she slowly passes from the attack to a period of health; from the first onset of the attack to this conclusion a period of from two to five days will have elapsed. In her case the pulse at these periods has been rapid, and between the intervals it is still rather rapid, but normal as far as the tracing is concerned. There is no other disease to be noticed beyond the prominent eyeball, the prominent neck, and a pulse varying from 100 to 140.

This patient has now recovered sufficiently to go from the hospital, at first on prolonged leave of absence, and later well. She has followed a steady and rather arduous occupation, and though once or twice she was a little upset, she has kept well enough to be at large and to be considered by her employer perfectly sane.

I fear with the strong nervous inheritance and the general unstable condition of the case that sooner or later we shall see her again suffering from insanity, and then the progress of the other diseased conditions will be compared. There are several points of special interest which have been noticed in reporting this case, but which I would once more allude to—the strong inheritance, the recurrence of the insanity, associated with the recurrence of the symptoms of Graves' disease; besides this the fact that at least for a time there was marked improvement under the treatment by hyoscyamine.

The second case I would call attention to is that of E. N—,

male, married, 39, a commercial traveller, whose disease was supposed to be due to business anxiety. No relations have been similarly affected. This is his first attack, and has lasted three months. The first symptom detected was alteration in his general manner. This alteration became more marked. He claimed persons whom he had never seen before as friends. His memory seems to be affected, and he denies having done acts which he has only just finished. His wife says that he has been writing letters and ordering goods without reason or necessity. He was full of plans for his future quite inconsistent with his position in life. He fancies he is of large means, and can spend as much money as he likes. He was at times very excitable, especially at night, when he fancied he was in other towns. He took little notice of his children, was morose with his wife, and altogether changed in temper.

On admission, he had great ideas of his property, was willing to give money away, and constantly ordering things. He believed he was possessed of large amounts of jewellery. He was a good-looking, rather slight man, eyes very prominent, pupils contracted, hair thin. He was constantly walking about, with a rather shaky, unsteady gait. There was a shakiness, too, about his hands. The knee-reflex was quite absent in the right and only slightly present in the left leg. The body was well nourished, skin slightly greasy, tongue tremulous. He was constantly in the habit of telling us that he was going to join the Horse Guards, that he would put an end to all wars, that he was going to buy large numbers of horses, and was as well as he had ever been in his life. He was restless to an extreme, so that he never seemed able to sit for more than two or three minutes at a time, but would get up, and in a purposeless way walk hither and thither in the airing courts. There is no doubt about his symptoms being markedly ataxic. On closure of the eyes the patient staggers and reels, and would fall if he did not open them again. There is no marked prominence of the thyroid body, but the pulse varies from 100 to 150, and the eyeballs are very prominent.

This last case is one of several similar ones in which marked general paralysis of the insane has been present with symptoms of Graves' disease. At present I am not prepared to say



whether the one disease occurs independently of the other or whether the two diseased processes depend upon one central nervous degeneration.

The association is further of interest from the fact that both general paralysis and Graves' disease have been considered as due to diseased states of the cervical sympathetic.

To sum up my experience, I should say that among the insane Graves' disease is more common than among the sane; that with this disease the mental symptoms are of a melancholic type. This may be readily explained as a secondary mental result, for on more than one occasion have I been able to trace the growth of a delusion of suspicion; in fact have traced the growth of an idea that a person was being watched to the circumstance that the person was peculiar in appearance, or was developing some peculiarity. Many a sane person with a physical defect becomes morbidly sensitive to his defect, and the stammerer or the man who squints is often irritable or shy.

I have seen one case in which the myxœdematous change in aspect caused a woman to become suspicious, irritable, and violent.

And the mental aspect of an insane person depends greatly on his general conditions and surroundings before the outbreak of the disease.

So I should have expected that persons of nervous stock developing Graves' disease would almost certainly be suspicious, and would fancy others were watching them, and would very likely suspect persons of influencing or affecting them. In our cases we had more than this, for the melancholia in all passed into most violent mania, hallucinations were present, and the patients presented examples of mania of the most violent, destructive, and dirty kind.

I have said there was something special in the type of insanity, and yet I have been unable to give any very distinctive characteristics in writing, for mania following melancholia is common enough under other conditions; and I can only further say that with the marked symptoms of Graves' disease, I have generally met with melancholy of the suspicious type, followed by mania of a very violent kind, with tendency to emaciation and death.

Between the fully-developed disease and insanity we have seen

some connexion, and I would call attention to the case of A. M—, for here we have conditions which have not been described, though I have seen at least one photograph of a case of recurrent mania in which the prominence of the eyeballs was very remarkable.

In this case the recurrences of insanity were always associated with recurrences of the symptoms of exophthalmic goitre, at least as far as most marked exophthalmos and rapid pulse were concerned. In this case strong neurotic inheritance is present, and I have already noticed that in the cases I have described this taint is common. This patient after a long time, nearly two years, was discharged from the hospital and has kept well.

In her case slight exophthalmos at times was present in the intervals between the attacks, associated with some emotional disturbance of a less marked nature than the fully-developed attack.

The case of general paralysis not having been watched to the end is so far unsatisfactory, and I shall hope to be able to record at some future period a complete case of that kind which may be of service both in the study of Graves' disease and of general paralysis of the insane.



