

## DISEASES OF THE GENERAL NERVOUS SYSTEM.

IN diseases of the general nervous system, the brain and spinal cord and the nerves which come off from them all share in the morbid process, yet the extent to which the different parts are implicated varies very much in different cases. Sometimes, in so far as clinical symptoms would lead us to conclude, the trouble lies mostly in the brain, sometimes in the spinal cord. In the latter case, again, we may have a more marked implication of the substance of the cord itself, lesions of certain tracts, or perhaps the lesions of the peripheral spinal nerves may come more into the foreground. Between such extremes there exist manifold intermediate forms, but to say much about the course of these diseases which would be applicable to all becomes all the less possible because a second point has to be taken into consideration, namely, whether, and if so how far, the whole organism shares in the disease of the nervous system. This participation varies in many ways, and there are diseases of the general nervous system which can exist for years without any serious implication of the general organism; while there are others, and these are far more numerous, in which sooner or later the nervous disease grows, as it were, into a general disease, in which the organs which have to do with digestion, circulation, secretion, excretion, sometimes even respiration, are affected more or less seriously. That the course of the disease and the prognosis must sometimes be materially influenced by this we need not say, and one rule is forcibly impressed upon us by such cases, a rule which must never be lost sight of by the physician, viz., never in a case of disease of the general nervous system to content ourselves with an examination of the nervous system, but to remember

that the same care must be devoted to all organs without exception. This rule, self-evident enough to the conscientious observer; we have dared to emphasize again because it is more especially in nervous diseases that it has been allowed to fall into abeyance. As to the pathology of the diseases which we are about to consider, our knowledge is unfortunately in many respects very scanty, and in many of them no lesions at all have been found after death, although the assumption, that in the majority of cases some anatomical changes, macroscopical or microscopical, must have been present, would appear to be justifiable. Only for certain of the diseases in this category, as tabes, dementia paralytica, multiple sclerosis, and certain chronic intoxications, have anatomical changes been demonstrated, and even here we are not always clear about their significance. Again and again it has happened that after an accurate analysis of the clinical symptoms a diagnosis has been made *intra vitam* and this and that anatomical change has been reckoned upon with certainty, and then at the autopsy the whole nervous system was found to be absolutely intact. Among such cases we may mention that of Westphal, where a multiple sclerosis was diagnosed; that of Killian, a supposed chronic myelitis, a certain case of ophthalmoplegia externa progressiva of Eisenlohr and an apoplectic bulbar paralysis of Senator (Neurol. Centralbl., 1892, 6). Instead of the pathological condition expected, the brain, spinal cord, and their nerves were found to be absolutely normal. On the other hand, it has happened that where hysteria, epilepsy, or chorea had been diagnosed and one had prophesied most confidently that the condition of the central nervous system would be found normal, the autopsy has shown extensive changes—multiple foci in the spinal cord or in the brain cortex, recent or old areas of softening, etc. To such errors even the most reliable observer is exposed, and it is just the man who has observed accurately the greatest number of cases and assisted at the post-mortem examination of them who will be most cautious in his diagnosis and in his prophecies as to what will probably be found at the autopsy.

Uncertain, then, as is the condition of our pathological knowledge in these cases, still, if we decide to treat of diseases of the general nervous system not simply one after the other, but to adopt some arrangement into groups, it is best to base this in a general way on the conditions which we find after



death, and to distinguish two classes, the first including those nervous diseases in which up to the present time no anatomical changes have been demonstrated at the autopsy, diseases which we therefore call functional neuroses; the second, those diseases which are always associated with known anatomical changes.

## PART I.

*DISEASES OF THE GENERAL NERVOUS SYSTEM  
WITHOUT ANY RECOGNIZABLE ANATOMICAL  
BASIS.*

## "FUNCTIONAL NEUROSES."

In almost all affections which belong to this group the so-called individual predisposition—that is, the personal inherited peculiarities—play a prominent rôle, and in this connection the careful studies of Anton (Wien, Hölder, 1890) upon the congenital diseases of the nervous system are of undoubted value. Nevertheless, it must be said that in many of these cases no anatomical changes whatever have been discovered. In presence of the number of these conditions it would seem desirable to divide them into smaller groups, an undertaking, however, that presents the greatest difficulties, because any classification must always appear to a certain extent forced. But inasmuch as no pathological anatomy enters into the question, it may, for practical purposes, be justifiable to group these affections according to the influence which the neurosis exercises upon the general condition of the patient. It will be found that while some of them (though these cases are few) disappear after running a shorter or longer course without leaving behind them any bad effects, or, even when they last for years, never entail serious general symptoms, there are others which are characterized not only by their long duration, their obstinate resistance to treatment, and their tendency to recur, but also by the baneful influence which they exert on the general system. The former, for the sake of brevity, we shall designate as mild, the latter as grave neuroses, although we do not mean to exclude the possibility that now and again among the ordinarily mild types we may encounter a serious disease running a tedious course, while among the grave forms we may have cases of far less severity than usual.



A further classification might be made according to the symptomatology. It is true that the symptoms present so many variations that it appears difficult to arrive at any principle according to which we can conveniently group the diseases, despite the fact that in some cases the symptoms point rather to a cerebral, in others more to a spinal affection. Nevertheless, since we find that in some cases the motor nerves, in others the sensory nerves, and again in others the trophic nerves, are pre-eminently implicated in the morbid process, we may for the present utilize this fact in the arrangement of our groups. It is scarcely necessary to state that we are in no wise satisfied with this classification, and look upon it only as a temporary makeshift, to be superseded as soon as some better method shall have been discovered.

## FIRST GROUP.

*NEUROSES WHICH ARE WONT TO RUN THEIR COURSE WITHOUT ANY ESSENTIAL IMPLICATION OF THE GENERAL ORGANISM.*

## A. AFFECTIONS IN WHICH THE MOTOR NERVES ARE CHIEFLY IMPLICATED.

## CHAPTER I.

CHOREA—CHOREA ST. VITI—ST. VITUS'S DANCE—BALLISMUS—MELANCHOLIA SALTANS—SYDENHAM'S DISEASE.

THE term chorea no less than epilepsy is often too loosely applied. A person may suffer from chorea-like motor disturbances without having genuine chorea. Various cerebral and spinal affections are capable of producing such symptoms; but a careful observer will rarely find difficulty in deciding whether they are the outcome of a functional neurosis or of anatomical lesions in the central nervous system.

By chorea, in the sense in which the term will be used here, we mean a functional neurosis characterized by the occurrence of peculiar irregular movements entirely beyond the control of the patient. They appear in the upper extremities and in the face, as well as, though to a lesser extent, in the lower extremities and in the trunk. They attack only the voluntary muscles, and may persist for days, weeks, and even months uninterruptedly, except during sleep. If these movements, as is frequently the case, are confined to one side only, to one half of the face, to one arm and the corresponding leg, we speak of a hemichorea. The distinction which is made in some of the older books between chorea major and chorea minor has become superfluous, since the symptoms which were formerly described as constituting the clinical picture of chorea major do not represent an independent disease, but belong to the



domain of hysteria. Hence we can also dispense with the designation "chorea minor."

The "choreic" movements may appear independently where it is impossible to find any coexisting symptoms of another disease, or they may be no more than symptoms of another affection, be it of the brain or spinal cord. Our examination will have to decide between these two possibilities. We shall deal here only with the idiopathic, genuine chorea, and we need hardly say that only this form is to be regarded as a mild neurosis in the sense pointed out above.

**Symptoms.**—To describe the choreic movements in detail is not easy, because they present very many varieties in degree and extent. In the relatively severe cases all the muscles participate, the head is thrown about and shaken, the neck is twisted, the forehead is wrinkled and smoothed, the eyelids closed and opened, and the eyeballs rolled around. The facial muscles, including those of the lips and the mouth, take part in the movements, thus giving rise to the most varied expressions—e. g., those of terror, anxiety, or joy—according to the particular muscles most strongly affected. Hasse states that the tip of the nose may be moved, though I myself have never seen this. Very conspicuous are the movements of the tongue muscles, since they interfere with speaking, chewing, swallowing, and with the protrusion of the tongue, which in the worst cases become entirely impossible. If the muscles connected with the function of respiration are affected, disorders in breathing are encountered; the implication of the muscles of the trunk gives rise to rotatory and other involuntary movements of the body; the patient rises and falls down again, and may work himself into the most peculiar and marvelous positions ("*folie des muscles*").

In the great majority of cases the movements do not take place in the way we have described, except, perhaps, the twitchings of the face, but are confined to the upper extremities, or are at any rate most marked here. Shoulders, arms, and fingers are constantly in motion, the affected muscles twitch, the arms are extended and flexed, the fingers spread apart, and so forth. A similar restlessness is observed in the muscles of the thigh and calf, the feet are alternately lifted, the toes moved, although the lower extremities are generally attacked to a lesser extent. Sometimes the movements are gone through with lightning quickness, in which rare in-

stances the name chorea electrica is justifiable. In milder cases the patients may at times be able to remain perfectly quiet, and only slight twitchings in the arms, the fingers, perhaps also in the facial muscles, will betray the existence of the disease. It is a characteristic feature of idiopathic chorea that all movements entirely cease when the patient is asleep, although going to sleep may be rendered somewhat difficult. Once asleep, however, such patients rest quietly, and are not disturbed by any muscular unrest.

That the intended movements are influenced by the pathological ones goes without saying, and it is quite possible that at a time when the disease is still at its beginning and has not yet been recognized, but is already exerting its influence upon the voluntary movements, the patient may be simply regarded as awkward and clumsy. If this happens to children who have to write in school, or recruits who have to drill and learn the different manipulations, much unpleasantness for the patient may arise from this condition, which might have been avoided by a careful examination by a physician. Generally the voluntary movement is normal in its first phase, but soon the muscles begin to be seized by the spasms and the patient is not able to carry out the movement intended. This is noticed in dressing or eating, or in other ordinary actions of daily life, but most of all is it seen in writing, playing the piano, or in the performance of other movements requiring a high degree of co-ordination, and may even be marked if we ask the patient to put out his tongue.

His apparent awkwardness excites the patient very much, and the more he tries to execute the intended movement, the more he tries to govern his unmanageable muscles in the usual manner, the less he succeeds and the more he is annoyed by the involuntary movements. Only a few particularly well disciplined patients are, at the height of the disease, able to keep their muscles for a few moments at absolute rest. The reflex and automatic movements are not interfered with. Protective movements are performed as by healthy persons; coughing and sneezing are done normally; neither do the cardiac or respiratory movements suffer.

The sensibility is in no way interfered with. Tenderness over the spine may be present, although not regularly. Otherwise nothing abnormal can be noticed in the domain of the sensory nerves. It is remarkable to note that there is no sense



of fatigue, which we certainly should expect after such excessive muscular action. The body temperature and the urine remain normal throughout the disease if no complications are superadded. On the other hand, the psychical condition of the patients, especially if they be young people, undergoes more or less marked changes, which constitute a prominent feature of the disease if the course be prolonged; children who have up to this time been kind, obedient, diligent, and willing, become willful, peevish, and spiteful; although learning nicely and without difficulty and making good progress in school before they had any symptoms of chorea, they become slow at grasping and understanding what they are taught; the easiest things must be repeated and impressed upon them, and often enough they are forgotten again in a few hours. If, and this is not rarely the case, an impediment in speech is added in consequence of the choreic movements of the tongue, the children become wholly unfit for school. It is at this time no longer necessary to advise keeping the child at home, since the teachers themselves will no longer permit it to attend. The influence of the disease upon the psychical functions is generally much less marked in adults.

In the idiopathic uncomplicated chorea the described manifestations persist usually for several weeks with varying intensity. From the onset to the cessation of the disease from sixty to ninety days may elapse (sixty-nine days, Sée; eighty days, Jürgensen; eighty-nine days, Riecke), yet, as we shall show later, the treatment is not without influence upon its duration. By far the most frequent issue is recovery, although the possibility of a relapse is by no means excluded, and in giving a prognosis this feature should be taken into account. Death from chorea is a very uncommon event, and occurs only in very weakly children or when complications arise; Powell, Handford (Brain, 1889), and others have reported fatal cases of chorea; in most instances, however, we are justified in giving a good prognosis.

**Complications.**—The complications and the relation that chorea bears to other diseases deserve much attention, more particularly as this relation is to a great extent still obscure. In the first place, articular rheumatism must here be mentioned, the connection of which with chorea everybody knows, but which, however, is not interpreted by all authors in the same manner. While the French writers especially, among

them Sée and Roger, regard rheumatism as an almost regular precursor of chorea, in Germany there is much diversity of opinion on this point. Several authorities (Lebert, Eichhorst, Strümpell) only state that the two affections are relatively frequently found together; others, with Brieger, draw attention to the alternating appearance of the two (Berliner klin. Wochenschrift, 1886, xxiii, 10); others, again (Henoch, Litten), look upon rheumatism as "the most important and best-founded cause of chorea"; while some, in contradistinction to the rest, deny the existence of any connection between the two affections (Romberg, v. Niemeyer, Prior). However obscure this association may be, to deny it absolutely would be to set facts at defiance. According to our own opinion, we have to deal with a common noxious agent, an infection which, if chiefly localized in the brain, gives rise to choreic movements, while if it affects the joints it causes acute rheumatism in them. Most probably, we may almost say unquestionably, it is the same infectious material which, if affecting the heart, produces endocarditis and myocarditis, for chorea is as frequently connected with valvular disease of the heart as with articular rheumatism, though the one relationship is as obscure as the other.

If chorea, or, we had better say, if certain forms of chorea are actually to be traced to an infection, we can not be surprised if choreic movements are found to appear after other infectious diseases—e. g., whooping-cough, typhoid fever, diphtheria, or cholera.

The possibility that chorea has some connection with epilepsy can not *a priori* be thrown aside. I have twice had occasion to observe children who up to the age of puberty had repeatedly suffered, as it seemed, from genuine chorea, and who afterward became subject to epileptic attacks. It is true the tongue was not bitten in these paroxysms, but otherwise all the signs of a classical epilepsy were present, not excluding the aura. A later communication of Marie (Progr. méd., 1886, xiv, p. 39), in which the occurrence of ovarian hyperæsthesia in the course of chorea is mentioned, led us to the idea that possibly the above-mentioned attacks were of a hysterical nature, and to question whether there may not be certain forms of St. Vitus's dance which could be designated as hysterical.

Lastly, those very rare cases of tropho-neurotic disturbances in chorea are of interest; thus, bald spots on the skull (Escherich, Mitth. aus der med. Klinik zu Würzburg, 1886, ii),