

EPILEPSY—ITS PSYCHOPATHOLOGY, AND MEDICOLEGAL RELATIONS.*

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Epilepsy, independent of any gross disease or lesion of the brain, to which it is a sequence, has no distinctive morbid histology, so far as known. Gowers¹ says: "In considering, then, the pathology of epilepsy, we must seek other evidence as to its nature than that which is afforded by the negative anatomy of the idiopathic disease, and must draw our inferences from the morbid changes in organic disease attended by convulsion, from the results of experiment, and from the facts ascertained by the clinical study of the disease."

It is seldom that an opportunity is offered for the study of the histology of the brain in idiopathic epilepsy before the development of those changes which are common to all forms of degeneration, and which obscure everything else. The occasional epileptic who dies of some intercurrent disease, during the earlier stages of his epilepsy, does not present any brain changes different from those found in cases where death resulted from a similar condition, but where no epilepsy existed; and the morbid histologic changes in the cortex in those cases where epilepsy has followed gross disease or traumatism of the brain, do not present anything peculiar nor specific. Therefore we have practically no anatomic basis for the psychopathology of epilepsy. However, we have still to consider the probability that those individuals who become epileptic, do so because of some primary defect in the development of the brain which renders the cortical cells in the motor area abnormally unstable; so that causes of disturbance occurring in infancy, during the period of second dentition, or at puberty, may be sufficient to give rise to these explosive discharges of excessive motor activity, which we know as convulsions, and which have a tendency to become habitual. The fact that, in children, disturbances in the alimentary canal are the most common sources for the origin of the conditions which give rise to the convulsive outbreak, suggests that, as a result of the autointoxication, there are developed changes in the nutrition of the cortical cells, resulting in increased irritability and the production of these undue and untoward manifestations of motor activity.

This view of the pathology of epilepsy naturally suggests the mental status of the epileptic, his stability, and the extent of his cerebral potentiality. In accordance with current physiologic speculation, and the interpretation of the results of experiment, there are three general divisions of functional activity in the cortical portion of the brain mass. Impressions from the general surface of the body and tactile sensations are probably distributed indifferently, and coördinated with relation to such activities as they have previously given rise to. The special sense impressions are grouped in the posterior portion of the parietal, the temporal and occipital lobes; this grouping being the natural result of the necessities of their relation; because, to appreciate the significance of a visual impression, for instance, involves not only the necessity of its relation to a pre-existing similar impression, but also the recognition of the other attributes of the source of the impression, as they come through the other special senses;

so that their coördination may result in the proper direction of the motor activity which results through the stimulation of the contiguous area in the superior and anterior portion of the parietal, and the posterior portion of the frontal lobes.

The one cerebral function which is least clearly understood, and yet which is the most important: the inhibitory and directory, almost certainly has its seat in the frontal lobes anterior to the precentral fissure; and the nature of this function necessarily implies that this portion of the brain is concerned principally with the function of intellection. We have direct evidence of this in the fact that mental reduction always advances *pari passu* with the destruction or atrophy of the frontal lobes; that is, the smaller the frontal are in proportion with the parietal lobes, the greater the instability of the individual. Considering the functions of the two portions of the brain, this should be obvious, for if the area for the reception of external impressions is disproportionately large so that the intellectual portion of the brain can not control nor direct them into the necessary channels of activity for the preservation of the organism, the result must necessarily be confusion and incoördination. How, then, shall we apply these deductions?

In order that we may understand the psychology of the epileptic, and appreciate what there is that is distinctive, it will be necessary to consider previously the dominant tendencies in his mental development. If he is congenitally endowed with a defective cerebral structure, we have a right to presume that which experience shows to be a fact: the tendency to the persistence of primitive characteristics, reduction in mental capacity, and the reversion toward the characteristics of a lower order.

Assuming that the individual who becomes epileptic during infancy or childhood, is born with an average cerebral potentiality; the development of some pathologic condition which is serious and persistent enough to bring about the phenomena of an epileptic seizure, and the formation of the epileptic habit; is also powerful enough to check or interfere with the development of the plastic brain mass of the child. Following the usual tendency of such processes, that part of the brain will be most affected which is latest in the order of development and most unstable. The result would therefore be the production of excessive instability, and the establishment of an abnormal irritability, with incoördination in the relation of the activities of the different parts of the brain mass. As the obvious result of this condition, there would be a constant tendency toward undue and irregular discharges of nervous energy; and in the presence of a sufficiently powerful stimulus, indefinite and explosive outbreaks of motor activity, instead of those which were uniform, coördinate, and habitual.

However, we are confronted with the fact that the pathologic or physical conditions which are supposed to be the basis of the epilepsy, are common in the life-history of most people. Prolonged high temperature, gastro-intestinal disease, and other causes of convulsion, are common to many infants; as chronic gastro-intestinal autointoxication and cerebral traumatism are to adolescents and adults; and yet relatively few become epileptic. The converse of this statement is also, in a measure, true; because the epileptic habit often owes its apparent establishment to some relatively trivial cause; but, at least in the majority of these cases, it will be found that the grand convulsion which apparently ushered in

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Nervous and Mental Diseases, and approved for publication by the Executive Committee: Drs. Frederick Peterson, Richard Dewey and H. A. Tomlinson.

1. Epilepsy—Gowers, 2d Edition, p. 214.

the disease was preceded for an indefinite period by attacks of petit mal; or even nocturnal convulsions, which were not severe enough to attract attention by their effects.

It seems necessary to assume, therefore, that no one ever becomes epileptic who has not, what for want of a better name may be designated the epileptic constitution; or, to express the same conclusion in physical terms, a brain mass in which there is a tendency in the cells of the motor area of the cortex, to respond unduly to slight stimuli; thus bringing about an irregular, incoördinate and explosive discharge of motor energy which, if extensive enough, will and does produce unconsciousness from ischemia and shock, just as a blow on the head would. Indeed, it is quite common for insane epileptics, after a convulsion, to insist that some one hit them, and they point to the bruise made by striking the head as they fell, as evidence of the truth of their accusation. It is not probable that so powerful an expression of nervous energy can take place without involving, to some extent, in its effects other portions of the brain particularly, as well as the whole mass generally, as shown by the production of unconsciousness; and this involvement is made apparent by the existence of those manifestations which are termed the epileptic aura; especially that particular form which concerns the subject of this paper, the psychic aura. This form of aura is most common among the epileptics who are hysterical or insane, and may be compared with a dream; as a series of pre-existing impressions incongruously arranged; the vividness of which will depend upon some anticipated or suggested experience of the individual. It is probable that in those cases of epilepsy in which the psychic aura occurs, the loss of consciousness is comparatively gradual, and that the picture formed follows the same course of development, as do hallucination and illusion. The confusion resulting from the approaching cerebral storm, results in the wrong relation of external impressions, to be followed by the formation of a picture in the fast-dimming consciousness, usually untoward, disagreeable, or malevolent; because the nature of the seizure necessarily forces upon consciousness the conception of violence or discomfort; and external impressions of no matter what nature, would liberate in consciousness preëxisting impressions of experiences which had been painful and alarming. There are some cases, however, where there develop out of the physical discomfort attending returning consciousness well defined beliefs with regard to the environment of the victim, and the responsibility of those about him for his condition.

It is true that epilepsy may persist indefinitely and the outbreaks be frequent and extremely serious, without there being any marked mental reduction, but commonly, even in those cases where there is no mental aberration, and especially when the epilepsy has begun early in life, there is a progressive mental reduction, so that some epileptic children are entirely demented by the time they reach puberty. In others the mental reduction is not marked until maturity, when there is developed, as a sequence, a premature senility. This is also true in those cases of epilepsy where mental aberration is associated with the convulsive process. The individual either breaks down during the period of adolescence, in consequence of some profound disturbance, during adult life as from disease, or, more commonly, at the approach of senility. So far, then, as the psychopathology of epilepsy is concerned, we can omit the consideration of those cases in which there

is no aberration nor reduction of mental capacity, because the term psychopathology necessarily implies the presence of both.

The more rapid the mental reduction after the establishment of the convulsive habit, the greater the psychic perversion and the more frequent those manifestations of mental aberration which belong to the epileptic; the post-convulsive furor, and automatism. The study of these maniacal outbursts indicates that they are the response to the impelling suggestions of unreasoning fear, following vivid hallucination, usually visual, but sometimes auditory. Or in cases where there is much mental reduction it is the expression of brutal impulse to wanton cruelty, in response to the gross irritation of the convulsive seizure. This latter is, of course, only the persistence in an exaggerated form of the tendency which is one of the most conspicuous survivals of primitive human characteristics. Sometimes these outbreaks, especially in the procursive form, are mere "running amuck," without regard to anything which comes in the way, and with no purpose.

Epileptic automatism implies a lesser degree of mental reduction and the persistence of considerable intellectual capacity. From a psychic standpoint this condition involves the suspension of active consciousness and the projection of activities which have their origin in centrifugally generated stimuli; which in their turn respond, in a regular sequence, to external impressions, without regard to their nature or origin, as shown in somnambulism. The persistence of automatism after the convulsion constitutes what is known as double consciousness. From what we know of the development of the brain functions, it is certain that most ordinary cerebral activities have a definite hereditary representation in the cortex, so that, as the experience of the individual brings them into active use, they become habitual and automatic long before others which are wholly acquired. It is therefore possible, in the presence of some condition which dominates active consciousness, or some defect in the development of the cortical cells, which lessen their potentiality and reduce their capacity, that the functions of relation and coördination of external impressions are for the time being seriously interfered with or even annihilated; and habitual activities, whose acquisition has been aided by heredity, although centrifugally generated, become for the time being the life expression of the individual. In three cases of double consciousness known to the writer the characteristics manifested by the individuals affected were distinctly of the family type; aside from those primitive ones which had to do with immediate self aggrandizement, such as the imperious will, the low cunning, and the lack of moral sense. If chicanery, brutality, or aggressiveness are actively manifested during automatic states the history of the case if carefully studied will show that they are but the exaggeration of traits natural to the individual. Furthermore, it is worthy of note that epileptics in whom automatism or the so-called epileptic psychic equivalent exist will almost invariably be found to be hysteric as well. The term psychic epilepsy has no real significance, because it implies a condition which in the nature of things could not exist; that is, that there was a mental instead of a motor convulsion. It is almost certain that this condition is a post-epileptic phenomenon; where the initial attack is the petit mal, which is obscured by the mental aberration which follows, and is manifested as automatism or a maniacal outbreak. Therefore it is a sequence to the explosion and not its equivalent.

The medicolegal relations of epilepsy cover such a wide field that it is important to understand what we mean by the term before we attempt a classification of those conditions present in epilepsy, which may have a legal bearing or present a legal aspect.

Such relations would imply that, any act of the epileptic which interfered with the welfare of another, or jeopardized the welfare of the epileptic himself, might bring him within the cognizance of the law, to determine, first, as to the nature of the act; next, how far it was habitual under similar circumstances; then the extent to which the epileptic was capable to, and did appreciate the significance of the act or acts, with relation to his environment. Finally, how and to what extent he might be able to appreciate his relationship to his fellows and control his conduct so as not to jeopardize their welfare.

In order to understand these different aspects of the relation of the epileptic to his fellows it will be necessary to understand his position in the family, the community, in society, and those abnormal conditions resulting from his disease, which might interfere with his relations to those about him.

Aside from the convulsion itself, the acts of the epileptic do not differ from those of other men. The question then, is, not the nature of the conduct itself, but how far it is an unnatural and unusual response to the conditions in the environment of the individual which gave rise to it.

The relation of the epileptic to the family does not differ materially from those common to all who are defective or afflicted. Like the hysteric, the epileptic becomes self-conscious, egotistic, imperious in will, and exacting. On account of his condition the family is disposed to yield to him, and protect him so far as is possible from the consequences of his condition or from anything he may do as a result of it. If the parents of the epileptic child do not exercise good judgment, nor appreciate the tendencies which are sure to develop from the lack of proper restraint and judicious training, the result is always serious, so far as the relation of the individual to the community and society is concerned. This is especially true of those epileptics in whom the motor manifestations are transient and slight, while the psychic disturbance is considerable and persistent.

Having been accustomed in the family to dominating its members, to have his slightest desire always acceded to, and to suffer no punishment nor discomfort as the result of any outbreak of temper or aggressiveness which may follow or supplement his epileptic attack, the indifference and want of consideration for his desires and comfort which he finds when he gets out into the world, and is thrown on his own resources, naturally excites his resentment, increases his morbid self-consciousness, and prompts him to believe that the people by whom he is surrounded are not only indifferent to his welfare, but actively aggressive in the manifestation of their dislike toward him.

Under these circumstances the uncomfortable feelings which precede or follow his convulsions, the bruises or injuries he may receive in falling, or his failure to accomplish any set purpose, on account of the want of capacity and persistence, are attributed to the attitude of the community toward him, and he is to that extent a paranoiac.

The persistence of this attitude, with outbreaks of violent temper from slight causes, are usually the first evidences of mental reduction. The loss of intellectual

capacity may never go any further, although the mental reduction continues.

If the epileptic has shown evidence of mental aberration preceding or following his epilepsy, and especially if the history of the case shows he has been markedly unstable and hysteric as well as epileptic, the mental reduction, to the point where self-control is easily lost, may be followed by outbreaks of excitement, or the development of persecutory ideas with depression, which characterize the insanity of epilepsy.

Again, none of these manifestations may be apparent, but there may be instead automatism, and its persistence in double consciousness; therefore, the medicolegal relations of the epileptic, paradoxical as it may seem, do not concern his epilepsy but rather the conditions associated with it; not necessarily growing out of it, but on the contrary, probably always due to progressive degenerative changes resulting from the primary condition out of which they both grew.

As a consequence, in determining how far the epileptic may be responsible for his acts, we have to consider, not his epilepsy, but the degree of primary defect in his mental make-up, as manifested by his cerebral potentiality and intellectual capacity.

EPILEPSY: ITS TREATMENT, HYGIENIC, MEDICINAL AND SURGICAL.*

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The want of success in the treatment of epilepsy arises from a variety of causes. First, from the speculative character of it, of the pathogenesis of the disease, from the want of careful study of individual cases and the failure to differentiate the various forms, such as the primary essential, the toxic, the traumatic, the accidental, etc., and from the further fact that there is soon established in the epileptic a habit, and this once established is not destroyed by the simple removal of the originating cause of the disease. Not only must the cause be removed, but the habit must be broken up; and then, again, there is present in every epileptic a peculiar mental state characterized by a want of stability, and it is extremely difficult to have him follow any line of treatment long enough and systematically enough to bring about a cure. His tendency is always to fly off at a tangent, reaching out for some kind of treatment that promises more rapid relief.

THE HYGIENE OF THE EPILEPTIC.

The hygienic treatment, so often neglected, is of the greatest importance, and in the primary idiopathic cases it should be disciplinary, pedagogic and dietetic. These patients, who have by inheritance a neurotic diathesis upon which epilepsy has been engrafted, should from the very beginning be taught self-control, restraint of passions and of appetites. They should be obedient, truthful and industrious. They are, as a rule, strongly inclined to indulgence in the stimulating narcotics, tobacco, alcohol and the like. These should be eschewed by them *in toto*. Another point: Their sexual organs are early brought into activity, and they should be warned against the evils of masturbatory and sexual excesses. Their pedagogic training should be carefully directed. As a rule, they do badly in the ordinary pub-

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