Short Notes and Clinical Cases

THE PATHOGENESIS OF CATAPLEXY ON ANGER

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SOME narcoleptic patients complain of attacks of cataplexy occurring when they are angry. On first thought it might seem fair to assume that cataplexy thus provoked arises from the same mechanism as cataplexy on laughter, since in each case there is loss of power and muscle tone brought on by emotion. In this paper I shall try to show that the two mechanisms really are different.

Concretely, we may consider a number of cases in which cataplexy occurred while the patient, in angry mood, was striking his child, or was about to strike him. I do not know in how many cases this phenomenon has occurred, but anyone familiar with the literature will agree that the number is large. The following are examples: Henneberg's case, Somer's case 1, Goldflam's case 1, Wenderowic's case 2, Janzen's case 2, Kinnier Wilson's case 3, Sperling and Wimmer's case, and van der Scheer's case 1. In all these cases cataplexy occurred when the patient struck, or was about to strike, his child. In three cases cataplexy occurred when the patient struck, or was about to strike, an animal: Wenderowic's case 1, Cave's case 24, and Thiele and Bernhardt's case 6. Another instance to be considered occurred in Wenderowic's case 2. The patient, a streetcar motorman, occasionally had cataplexy when angered by wagon drivers arrogating to themselves the right of way on the car tracks and refusing to allow him to pass.

In considering the pathogenesis of these instances of cataplexy, I submit that the important thing about them is that the emotion in question, anger, *is accompanied by an impulse to action which the patient, consciously or unconsciously, strives to suppress.* Thus in Wenderowic's case 2 we may assume that the patient felt a strong impulse to leave his streetcar and forcibly eject the wagon driver from his path. Actually he did not carry out this impulse. As a self-restrained person he suppressed it. This suppression, a psychological phenomenon, has its physiological correlate, which I shall now examine.

In a consideration of the central processes correlative with movement, Hughlings Jackson's views are of the greatest importance. I shall therefore

begin by presenting those of his views that bear on the present discussion. In the following quotation ⁵ (II, 199) I have made two minor alterations in the first sentence :—

‘In all voluntary operation there is preconception ; the operation is nascently done before it is actually done ; there is a “ dream ” of an operation as formerly done before the operation ; there is dual action. Before I put out my arm voluntarily I must have a “ dream ” of the hand as being already put out. So, too, before I can *think* of now putting it out I must have a like “ dream,” for the difference betwixt thinking of now doing and now actually doing is, like the difference betwixt internal speech and external speech, only one of degree ; in one there is slight discharge of a certain series of nervous arrangements, in the other strong discharge of that series. The “ dream ” must occur before I either think of now doing something, or before I actually do that thing, just as words must be reproduced in me before either I can say them to myself or aloud.’

Coming now more particularly to the parts excited when we have a ‘ dream ’ of a movement, Jackson believed that these parts are the highest centres. Thus he said ⁵ (II, 95, footnote) :—

‘When I actually move my arm (say that it is what is popularly called a “ voluntary movement ”) there is a process from highest motor centres, through lower centres, then by nerves to some muscles, which are discharged in a particular way. . . . When we think of the movement, or remember it (popularly “ have an idea of it ”), the physical process is limited to the highest centres ; *the very same* nervous arrangements of these centres are engaged, but they are slightly engaged.’

In the light of these views we may now consider the events transpiring in the highest centres of the streetcar motorman whose case was reported by Wenderowic. When a wagon driver refused to move off the car tracks the motorman must have felt an impulse to put him off. Psychically, he had ‘ dreams ’ of certain movements (the movements he would make in putting the wagon driver off the car tracks) ; physically, there were excitations in his highest centres, their strength corresponding to that of the impulse. To say that the impulse was suppressed is to say that these excitations failed to be conveyed to the lowest motor centres. They failed of conveyance not because they were weak (they must have been very strong), *but because they were opposed by even stronger inhibitions.*

Elsewhere ⁷ I have shown that symptoms supervening upon the suppression of a strong impulse are of two kinds : (1) Excitation may be diverted from the substrate of the suppressed impulse into neighbouring substrates. For example, a soldier suppressing the impulse to run away from the front-line trench may become aware of a feeling of muscular tension. The result here is a positive symptom, in Jackson’s sense of the term. (2) The inhibitions opposing the excitation may overflow into neighbouring substrates. Thus, the same soldier, instead of reacting with muscular tension, may react with

an attack of sleep, arising from the overflow of inhibition into the 'substrate of consciousness.' The result here is a negative symptom.

Returning to the case of the motorman, I suggest that the powerlessness which supervened during his frustrated anger resulted from the inundation of his motility substrate by the inhibitory process which came into being when he undertook to suppress his aggressive impulses.

Similar remarks apply to the cases in which cataplexy occurred when the patient lifted his hand against his child. Perhaps there are some persons who derive unalloyed pleasure from whipping their children, but certainly the average parent raises his hand with conflicting emotions, however great the provocation. The ancient parental saw 'This hurts me more than it does you' contains a measure of truth, incredible as it may seem to the young culprit to whom it is addressed. In the motility substrate of the parent about to strike his child there is, therefore, besides a strong excitation, an equally, or almost equally, strong inhibition. When, as in narcolepsy, the motility substrate is unduly inhibitable, it may succumb to this inhibition, a cataplectic attack being the result.

What has been said regarding the pathogenesis of cataplexy occurring during the chastising of a child applies equally to that occurring during the chastising of an animal.

In the cases so far discussed, therefore, it would be misleading to say simply that the cataplexy is caused by anger. Viewing the matter more realistically, we must say that anger is accompanied by an impulse to some aggressive movement. When this impulse is socially unacceptable, the excitation concomitant therewith is checked by an inhibitory process. If the motility substrate is unduly inhibitable, it may succumb to this inhibitory process, the result being a cataplectic attack. It is, then, not anger but the suppression of a strong impulse which brings on cataplexy in the cases under discussion.

Utterly different is the mechanism of cataplexy on laughter. Here the emotion is accompanied, *not by action or the impulse to action, but by the opposite*. Hearty laughter makes one feel relaxed, weak. Whatever the mechanism of this weakness may be, cataplexy on laughter is, unlike cataplexy on anger, a *direct* concomitant of the emotion. Of course, cataplexy on anger and cataplexy on laughter have this in common, that they arise basically from the fact that the motility substrate is unduly inhibitable. Beyond this, the idea that they have anything in common is an illusion.

We now pass from positive evidence to a piece of negative evidence. Daniels² (p. 13) mentioned a narcoleptic who reported that he 'had not experienced difficulty in punishing those who would make sport of his infirmity.' This seeming exception is perfectly consistent with the hypothesis here presented. The significant thing about the case is that the situation permitted the patient to punish his tormentors *without internal hindrance*. Anyone so cruel as to make sport of another's misfortune may be punished

without scruple. We may be certain that during the execution of this punishment there was less cortical inhibition than there would have been had the patient been chastising a child or dumb animal.

SUMMARY

Cataplexy on anger and cataplexy on laughter, while superficially comparable, probably arise from different mechanisms. Anger is usually accompanied by aggressive impulses aimed at the cause which has provoked it. Under ordinary circumstances these impulses are opposed by inhibitory processes. For example, when a man is about to yield to the impulse to chastise his child, there is probably at the same moment a strong contrary impulse. Physiologically, besides excitation of certain cerebral areas, there is strong inhibition tending to nullify this excitation. If this inhibition is sufficiently strong, and if the motility substrate is sufficiently inhibitable, a cataplectic attack may ensue. Cataplexy in such cases is, therefore, due not so much to anger as to the suppression of a strong impulse. By contrast, laughter is accompanied not by impulses to action, but by the absence of such impulses, i.e. by relaxation and weakness. Comparatively speaking, then, cataplexy on laughter is a direct, while cataplexy on anger is an indirect, result of the emotion.

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