on EEG. Then the change of ultrasonic attenuation in the brain of epilepsy seemed to be related with grand mal seizure.

141. A Contribution to the Mechanism of Facial Twitches Produced by Electrical Stimulation of the Amygdala

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In the preceding reports, we have demonstrated the pathway of the facial twitches synchronous with the rhythmic sharp waves considered as the evidence of the afterdischarges elicited by electrical stimulations of the amygdaloid nuclei in cats. Namely that is like this; these motor phenomena are conducted from the amygdaloid nuclei to the magnocellular subdivision of the ipsilateral dorsomedial thalamic nucleus via the inferior thalamic peduncle. And we confirmed the fact that the cerebral cortex including motor areas had no relation with these facial twitchings.

Now, in order to detect the descending pathway from the dorsomedial thalamic nucleus, further experiments in cats were performed.

First, destructions of those nuclei which have close relations with the dorsomedial thalamic nucleus; the habenula, the interpeduncular nucleus, and the dorsal tegmental nucleus, did not affect the facial twitchings. And the destruction of the extrapyramidal system which has close relation with the involuntary movements; the globus pallidus, the subthalamus, and the red nucleus, also gave no influences on these motor phenomena.

Next, interruption of the ipsilateral cerebral peduncle was performed. After electrolysis of that peduncle, especially of its medial part, the facial twitchings could not be elicited by stimulation of the amygdaloid nuclei. And finally, destruction of the seventh cerebral nucleus gave the same result.

Summing up the above results, about the pathway responsible for conducting the facial twitchings elicited by the stimulation of the amygdaloid nuclei, it is as follows, that the discharges from the amygdaloid nuclei, after passing through the ipsilateral dorsomedial thalamic nucleus via the inferior thalamic peduncle, descend along the medial part of the cerebral peduncle and finally reach the seventh cerebral nucleus.

The dorsomedial thalamic nucleus is considered to be situated in a position to convey and to integrate neural events pertaining emotional be-

havior which pass between the frontal cortex and the hypothalamus. However, we could assume the interesting fact that the involuntary motor phenomena on the face pertaining to psychomotor seizure could be attributed to the said amygdalo-thalamic mechanism and have no relation with the extrapyramidal system.

142. A Connection between the Bilateral Lenticular Nuclei through the Mid-line Nuclei of the Thalamus

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The connection between the lenticular nuclei of both sides has not been clarified yet. We found that the lenticular stimulation yielded the response of the opposite lenticular nucleus. This experiment was performed to examine the possible pathways which would connect the bilateral lenticular nuclei.

Forty-two adult cats were used. After intraperitoneal anesthesia by chloralose 70 mg per kg, animals were fixed on the stereotaxic apparatus and the coaxial electrodes were used for recording and stimulating. Acute section of the brain along the mid-sagittal plane was performed to test the effect upon the lenticulo-lenticular response. The response was not influenced by complete section of the corpus callosum, but it disappeared after complete separation of the two halves of the thalamus by cutting of the massa intermedia.

Two recording electrodes were inserted symmetrically along the bilateral para-sagittal plane 1 mm lateral from the mid-line and the responses to the lenticular stimulation were recorded from the various levels of the diencephalon. The result of these records showed that the area locating in the massa intermedia yielded the ipsilateral and contralateral responses simultaneously. On the other hand, when this area was stimulated, the responses were obtained from the lenticular nuclei of both sides.

Furthermore the destruction of the bilateral Forel's H fields, the section of the supraoptic commissure and supramammillary commissure and the transection at the level of the rostral mid-brain proved without any obvious effect upon the lenticulo-lenticular response. These findings suggest that the impulses from the lenticular nucleus travel to the opposite lenticular nucleus crossing the mid-line nuclei of the thalamus.