41. The Experimental Study on the Gigantism of Peroxidase Granules of the Blood Cells

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Previously we have reported that the cerebral decortication induced a marked alteration of stain characteristic of circulating blood neutrophils, characterized by the increase of large peroxidase granules in the cytoplasm, in both intact and adrenalectomized rabbits. The apparent increase of peroxidase activity of leucocytes following decortication may be taken as the result of removal of the inhibitory effect of the cerebral cortex upon the peroxidase center (Sato 1925) in diencephalon through the operative decortication.

For the confirmation of the presence of a relationship between the diencephalon and the peroxidase activity of blood neutrophils, however, further studies are required.

In the present investigation, by the use of the shortest peroxidase stain time method, we could follow the changes of peroxidase activity of blood neutrophils induced by the cerebral decortication more closely than before.

42. Influence to Electrocardiogram in Neurosurgical Operation

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The electrocardiographic patterns of 84 cases of neurosurgical operation in our clinic from July, 1961 to July, 1963 are examined comparing between in preoperation, during operation and postoperation.

In 32 cases out of 84 cases, various abnormal findings such as change in ST-T, arrhythmia, prolonged Q-T interval were noted. According to the abnormal finding, change in ST-T was noted in the most 26 cases. The abnormal change being confirmed to be remarkable at the lesion of cerebral hemisphere, especially occipital and temporal region.

Experimentally, the electrocardiographic observation were carried out using 12 mongrel dogs. A balloon was inserted into the subdural space in 8 cases, and in 4 cases cerebral contusion were conducted. At the infusion of air, sinus bradycardia, suppression of sinus and atrio-ventricular nodes was always noted and in some cases nodal escaped beat was recognized. And these changes were recovered immediately after the air was released. Otherwise, such change as frequent occurrence of extrasystole, supraventricular tachycardia and abnormality in ST-T were confirmed.

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

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In the preceding report, the emergence of rhythmic sharp waves, considered as evidence of after-discharges elicited by electrical stimulation of the amygdaloid nuclei, were proved to be synchronous with ipsilateral facial twitches in cats. The observation resulted in conclusion that the facial cramps occurred in "psycho-motor seizures" might have their origin in the amygdala.

In subsequent series of experiment to clarify the process of discharges evoking facial phenomena, the results obtained so far are summarized as follows.

Ipsilateral and/or contralateral ablation of the cerebral cortex including sensory-motor areas caused no change on the facial twitches.

Though the experimental lesions in the ipsilateral dorsomedial nucleus of the thalamus did not elicit facial twitches, the after-discharges were observed evidently on the amygdaloid electrodes. On the contrary, the stimulation of the similar thalamic nucleus produced ipsilateral facial twitches, whereas the stimulation of other thalamic nuclei did not present the said phenomenon.

Basing upon the above mentioned data, also supported by the results of our collaborators, the nucleus medialis dorsalis of the thalamus seems to be responsible as the relay nucleus of the impulse from the amygdala to the facial motor nerve.