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1. A Device of the New Stereotaxic Instrument for Man

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Up to today, many types of stereotaxic instrument for man has been devised and produced, those machines are classified roughly into two groups that is, rather simple equipment fixed on the skull, and the other, which is comparatively large, and the skull is fixed within the instrument.

Although the latter one has somewhat complicated mechanism and functioning, has such a good advantage as correct approach to the operative destination.

Needless to say that stereotaxic surgical procedure is blind operation, what is more, operative destination of this procedure is basal ganglia and the surrounding area containing and gathering very important and significant nerve center, therefore a minimal aberration of technique develops very serious trouble, so this operation should be aimed mainly at accurate approach, and brain damage due to meaningless re-incertion of the stereotaxic needle must be avoided.

Considering of the problem described above, we devised a new type of stereotaxic instrument. Characteristic advantage of this instrument is summarized as follows,

1) Holder mounted on the skull, and A-P, L, X-ray are taken. The needle is guided to the target by drawing. The aberration between the target point and the tip of incerted stereotaxic needle is within one millimetre.

2) Decision of the operative target point can be carried out without detachment of the instrument. Phantom using for measurement of the point is not necessary.

3) Measurement of the target can be performed by ether pneumography or skull itself.

4) Distance between X-ray film to the skull is within 10-15 cm in length.

Discussion to No. 1.

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Two types of stereotaxic apparatus have been devised and instituted for the treatment of extrapyramidal disorders in our service since last ten years. The apparatus, in which the coordinates of target point should be set up by means of calculation from pneumoencephalogram of the patients, showed a certain range of error in the surgery because of limited accuracy of the apparatus and individual differences of location of basal ganglia in the patients. The other simplified type of apparatus, in which the probe should be radiographically controlled during the surgery, hit the target in each case. When the first target point was inadequate, the second target could be aimed and proceeded the surgery in the latter type of apparatus. Thus, surgical results became satisfactory since the last 3 years.

It can be safely said that the apparatus using radiographical control for aiming of the target, i.e. pneumotaxic method, would be a choice of apparatus for the human stereotaxic surgery.