2. An Experimental Study of Stereotaxic Destruction on the Cat Brain by Focused Ultrasound

Kazuya TAKEUCHI, Tatsuo TAKEUCHI, Minoru ISHII
and Kazufumi ITO

Department of Surgery, Juntendo University School of Medicine

In recent years, medical application of intense focused ultrasound has developed not only in the experimental study but also in the clinical medicine.

We have been studied on the stereotaxic destruction in cat brain by focused ultrasound using a frequency of 1 and 3 megacycle and reported the success of detecting the focused lesion by ultrasonic echo method.

The focused lesion was detected by the same concaved transducer after the irradiation.

3. Ultrasonic Examination of Stereotaxic Lesion

Keizo MATSUMOTO, Hiroshi CHIKUBA, Takashi OHMOTO
and Kazuhiko SADAMOTO

Dept. of Neurological Surgery, Okayama University Medical School

Stereotaxic thalamic lesions by electrocoagulation have been produced on thirty cases of extrapyramidal disorders by means of newly devised simple electrocoagulation probe, which is made of 300 mm of straight steel wire with one millimeter in diameter covered loosely by 293 mm of hard teflon pipe as insulation to electricity and the local heat. The probe, therefore, has retractable 7 mm bare tip, so it can be safely withdrawn without any danger from hemorrhage of destructed tissue after coagulation.

As a preliminary experiment, stereotaxic thalamic lesions by the probe have been produced in the dog brain as well as the formalin suspended human brains under observation with ultrasonic A-scope apparatus by reflection method. The transducer provided with barium titanate (2.25 Mc, 10 mm diameter) were used. It was clearly identified that the echoes were corresponded to size and location of the lesions in the dog brain as well as human brain specimen. During the surgery, echo was noted from the tip of probe which was in the target area of the thalamus of the patients. In

every case, the lesion echoes showed high fluctuating amplitude and width during coagulation procedure. Lesion echoes were observed up to one week after the surgery. They maintained stable duplicate echoes during the period.

It is our suggestion that the ultrasonic examination of the stereotaxic lesion is useful to note accidental hemorrhage in the lesion of a convalescent patient. It is also a great aid for this purpose to check the midline echo at the same time.

4. Basic Researches for Stereotaxic Surgery

II Changes in and around the Target Point

Shinken KURAMOTO, Mitsuo WATANABE, Ryoichi OONAKA
and Toshiro TACHIBANA

Dept. of Surgery, Kurume University Medical School

5. Considerations on Hemiplegia due to Stereotaxic Thalamotomy

Isao MIURA

Dept. of Psychiatry, Keio University

Nobuo YOSHII, Shigetomi MIYAGAWA and Toshiro SHIZAWA

Dept. of Neurosurgery, Keio University

Sakae FUFUDA

Dept. of Neurosurgery, Shizuoka Red Cross Hospital