

Epidural hematomas were comparatively few in children. Subdural hematomas were found in any age and in any region though less in occipital. Most cases of epidural hematomas associated with scalp injuries and skull fractures, and occurred at the same side of the temporal scalp injuries. From this post-mortem examination, it will be concluded that scalp injuries and fractures of the localisation of the hematoma.

Acute subdural hematomas were found in 81.2 percent of them were associated with cerebral contusions and lacerations and other cerebral injuries. From these data it is supported that the subdural hematoma is likely to occur at the frontal and temporal regions where is the favourite site of the cerebral contusion.

2) Ultrasonic examination

We have applied ultrasono-echography in order to diagnose acute and chronic subdural hematomas. This ultrasonic echogram have two apparatus. Namely, which are A-Scope and B-Scope (Ultrasono-tomography). At this time reported about the application of A-Scope which indicates echoes as the wave pattern on the cathod ray screen. The suitable frequency of ultrasonic pulse wave in these cases are 1-10 megacycle per second. We examine the shift of the 3rd ventricle pressed by subdural hematoma and abnormal echo of subdural hematoma.

This method was applied to the out patients after craniotomy in operating room. Accurate depth and extent of subdural hematoma was determined.

After operation, we usually observe shift of the 3rd ventricle that gradually return to the midline.

Recently discovered that ultrasonic attenuation was related to the brain edema as a rule. This examination is very valuable for the diagnosis and to determine the operative results.

17. Experimental and Clinical Studies of Brain Injuries.

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1) Influence of brain injuries to endocrine system

In rabbits with experimental brain injuries, the fluctuation of neurosecretion was histologically examined at the pituitary posterior lobe and hypothalamus, employing the Gomori-Halmi Staining method. In cases with general brain injuries without the hypothalamic lesions, Gomoriphyll substances increased one hour after the injuries, accompanying the gradual decrease and then recovered to the normal state in about one week. In cases with hypothalamic lesions the decrease of neurosecretion was observed several hours after the trauma but about 48 to 72 hours the abnormal intense increase, regarding as a rebound phenomenon, was temporary recognized.

In β -cells in the pituitary anterior lobe, the same transition as in neuro-secretion was indicated; numbers and deying grade of β -cells decreased several hours after trauma but in 48 to 72 hours the violent increase was observed.

In the antidiuretic activity in these subjects, the just same tendency was recognized.

In the thyroid gland, the thyroid follicle showed the various size and the mean height of follicle cells decreased but about 48 to 72 hours numerous little size follicles and the increase of mean cell height were observed.

ASA in the adrenal gland showed the decrease immediate after the trauma and then the gradual increase.

2) Intracranial pressure and the bleeding in brain injuries

In the experimental intracranial hypotension of rabbits with the application of Urea and the removal of cerebrospinal fluid, the quantity of the hemorrhage in brain injuries was examined.

In cases with the application of Urea, much quantity and delayed resorption of blood were observed.

18. Clinical Statistic Study of Head Injuries in Our Clinic.

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The clinical statistic study of 175 patients of head injury are reported, who were admitted to the 1st Surgical Clinic of Kurume University Hospital between 1951 and 1960.

The following results were obtained by treatment of head injury.

- 1) The incidence of head injury, particularly in cases with acute problems was seen most frequently as the result of traffic accidents. Cases of chronic post-traumatic syndrome were due mostly to mine cave-ins.
- 2) Among the 12 cases of death, those who expired relatively early after the trauma did not recover from their state of shock. Those who expired within several days after the trauma manifested extremely high fever. Those who expired later than any mentioned above had the complication of pneumonia.
- 3) Many of survival cases with chronic post-traumatic syndrome were found to have some pathological findings on various tests.