

spondylosis were mainly multiple.

Local findings of the spinal cord at operation several severe pathologic changes. Arachnoid were thickened and adherent. The spinal cord was wasted, thin, atrophic, anaemic and softened. The spinal roots were atrophic or edematous. These findings suggest irreversible degeneration of nerve elements in the spinal cord—softening, gliosis and fibrosis. As a degenerated spinal cord is extremely susceptible to trauma, excision of bony bar or bosses is not always indicated but division of ligament denticulate is optional.

The results of the operations were 33 improved, 5 unimproved, and 6 deaths.

39. Palsy of brachial-plexus accompanying head-injury.

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Because of its unbeneficial position, the brachial-plexus is easily injured on the positional correlation of upper arm, skin and the muscles of the neck.

Recently, with the increase of traffic accidents, cases of brachial-plexus injury (over-stretching or avulsion type) have occurred in increasing numbers due to the rapid motion of the part involved at the time of accident, that is, when the person suffers abrupt and strong forces in different directions between his head and his upper arm, or suffers forces with his upper arm overstretched. Of the 3 cases of this type which we have experienced, the first one was plexus type, upper palsy, the second one was suspicion of the combined type, upper palsy, and the third one was intradural type, lower palsy as classified by Iwahara and Inoue. All cases, when hospitalized, were found to have at once lacerations on the frontal and temporal regions on the same side of the head with the injured upper arm and disturbed consciousness lasting for 20 minutes to 5 days.

Generally, the patient suffering a brachial-plexus injury shows bad prognosis, therefore, it is important to determine the injured part as early as possible. With regard to this problem, the electromyogram and myelogram have been discussed, but the axon-reflex—postganglionic lesion in case of negative reaction and pre-ganglionic in the case of positive one—introduced by Bonney in 1954 is considered by the authors to be a fairly effective method of determining the injured portion.

The reflex was positive on the radial side with reference to Case 2 and on the ulnar side with reference to Case 3, respectively. 7 months after the injury, Case 2 had particular complications consisting of diffuse swelling, dry skin and brachialgia in the affected side which lasted for one month.

We succeeded in making these complications disappear by means of stellate-ganglion blocking and ultrashort wave therapy.

It is to be noted that when a force causes the patient's head to move swiftly

toward a certain direction, its dynamic power may concentrate in his neck and as a result, various syndrome may appear. Although it is difficult to determine whether the above stated complications are the effects of stimulating the posterior neck sympathetic nerve system by rapid movement of neck or by some secondary effect of that movement, considering our therapeutic effect the possibility can not be altogether denied. We have discussed about the brachial-plexus injury caused by rapid movement of the head and neck, and other related complications.

40. Pneumoencephalogram of the posttraumatic sequelae of head.

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In 50 cases of posttraumatic sequelae of head, pneumoencephalography was performed. The dimensions of the lateral ventricle were measured with planimeter, the longitudinal and transverse diameter of the 3rd ventricle and the distances between the definite part of the lateral ventricle and the specially fixed points of cranium were also measured.

Results were as follows:

1. It is the best method in determining an enlargement of the lateral ventricle to know the ratio of the dimensions of the lateral ventricle to the intracranial dimensions.
2. In order to know the enlargement of the ventricles in antero-posterior PEG exactly, it is important to measure the sizes not only of the butterfly pattern, but also of the shadow of the anterior horn, and ratio between the two must also be measured.
3. Regarding the lateral view, the ventricle must be measured as well as in the antero-posterior view. This is of use in determining whether the enlargement of the lateral ventricle is formed or not.
4. In 43 cases of all 50 cases, pathologic changes of the pneumoencephalogram were noticed.
5. 6 patients out of 11 cases showed a view of subdural effusion in standing position at 24 hours after injection of air into their lumbar subarachnoid spaces.