I-9. Anterior Cervical Fusion for Severe Fracture and Dislocation of Cervical Spine

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1) A series of 13 patients of complete quadriplegia caused by severe fracture and dislocation of cervical spine was studied and have been followed up over 1 year.

2) In 9 patients anterior cervical fusion by modification of Clowerd's or Robinson's procedure was undergone within 12 hours after injury.

The result was as follows, 4 of 9 died after operation, one by paralytic ileus, two by respiratory distress and one by diabetes mellitus. 5 patients recovered after operation, 2 of them almost recovered without neurological deficit and have excellent active daily living. Another 3 patients are suffered with some neurological deficit.

3) On the other hand, 4 patients who treated conservatively by means of Crutchfield's skull traction and Stlyker's flame. Only one is alive under complete quadriplegic state and 3 patients died within 1 week after injury.

4) Some neurosurgeons saggested that result of operated procedure within 12 hours showed high mortality, but authors' mortality was 44% (in excluding diabetic patient, mortality was 38%).

Early operation for severe cervical lesion has several advantages compared with conservative treatment as below. i) Low mortality ii) Functional recover in all cases and good stability of spine iii) Easy for medical care.

I-10. The Surgical Treatment of Thoracolumbar Disc Lesion

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Thoracolumbar disc lesion has been well-known as a relatively rare condition. However, from the constructional and physiological point of view in these lesion, where is located in the juncture between the mobile lumbar spine and the relatively immobile thoracic spine, it is logically proved that incidence of these lesion may not be rare. Actually, there are a lot of cases including radicular and/or discogenic

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pain with no evidence of spinal cord signs.

Statistics

For the past 5 years, 114 cases of disc lesions were treated by the surgical intervention at our clinic. Out of 114 cases, 5 cases (4.3 per cent in ratio) were varified as a thoracolumbar disc lesion with spinal cord signs.

Age and Sex Distribution

Disc lesions are, in general, accumulated to the age from the 20th to 40th and males in sex incidence, and also there is no exception in thoracolumbar disc lesion. Our 5 cases, of which mean age was 35.4 years, were aged 27, 32, 37, 40, and 41. And our cases in this series were distributed 4 cases in male and a case in female.

Diagnosis

The clinical features of thoracolumbar disc lesion are of most important in diagnosis because of different diagnosis from other spinal cord involvements especially spinal cord tumor in the thoracolumbar region. The C. S. F. examination in lumbar puncture and plain roentogenograms are also indispensable in diagnosis. It leaves no room for doubt that the myelogram has unmeasurable value to ascertain thoracolumbar disc lesion. Moreover, the discogram, which has been routinely even in the thoracolumbar region at our clinic, is favored to confirm the degree of disc degeneration.

Surgical Treatment

Surgical approach for the treatment are divided into two groups namely posterior and anterior. The posterior had been most common. But posterior route is endangered to occur the spinal cord injury because the herniation commonly situate in the midline. On the other hand, anterior route, which we recently prefer, is secure to perfectly remove the disc and then graft the autogenous iliac bone. All our 5 cases were treated by the anterior approach.

In anterior route to the thoracolumbar vertebrae, we use the extrapleural approach in the thoracic region and the extraperitoneal approach in the lumbar reion, the costal and lumbar fibers of the diaphragma are spread using blunt dissection, in order to expose the vertebral bodies extending from the tenth thoracic to the second lumbar vertebra. The skin incision is carried obliquely downward along the rib corresponding to one or two thoracic vertebra above the involved disc. The rib is exposed subperiosteally, cut at its anterior part, and help up with a retractor, it is not resected. The left-sided approach is preferable anatomically.

In order to expose the involved disc, the intercostal or lumbar vessels corresponding to the involved disc are ligated and divided. The involved disc is careful exposed with a raspatory. After exposure, the involved disc is massively resected, and the bony spurs projecting into the spinal canal are also resected together with the vertebral body margin in the involved disc space by a osteotome or surgeairtome. The resected cavity is filled completely with autogenous iliac bone.

Post-operation

Postoperatively, the plaster jacket for rehabilitation early is worn by the use of a sling immediately after healing the surgical wound.

Follow-up

All our cases were followed up from one and a half year to four years after operation. The end-results were sufficiently satisfied.

I-11. Symptomatology of Cervical Spondylotic Myelopathy

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In spite of earnest efforts for half a century, exact mechanism of spondylotic myelopathy is still unknown. Further investigation in its pathology and clinical features is essential together with experimental study.

It is due to this uncertainty that spondylotic myelopathy is often mistaken for a spinal cord tumor or degerative spinal cord disease. This study has been, therefore, carried out to establish the symptomatology of cervical spondylotic myelopathy, on the basis of clinical and pathological investigation of 14 advanced cases suffering for 19 years on an average.

1) Patients showed incomplete tetraplegia in which there was inequality in severity on each side of the body.

2) From beginning severe cervicobrachialgia was hardly felt in these cases.

Myelopathy, therefore, did not develop from cases with typical cervicobrachialgia due to radicular involvement.

3) There were two types of symptoms manifested in upper extremity. Pyramidal tract signs and symptoms in arm and hand showing flexion and pronation deformity in some cases. Segmental cord involvement, disclosed with muscle wasting, hypotonia and sensory loss incompatible with dermatomal distribution in others. Latter type was encountered in the cases with extensive cervical spondylosis.

4) Complete loss of pain sensation in the lower extremity and spontaneous pain in back and leg were found characteristic.

5) Bladder sensation was often preserved even in the terminal stage. Bowel control was also hardly deprived of completely.

6) Intrinsic hand muscle atrophy and incapability to stand revealed irreversible cord destruction.

7) Pathological examination showed marked demyelination in anterior and lateral tract. Destruction of grey matter was localized and mild in cases with single level spondylosis.

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