Frequency of epidural hematoma in our series (14 cases) showed rather common occurrence of it in children. Skull fractures were noted in all cases in contrast to many reports of relatively absence of them. Lack of initial loss of consciousness was very common in childhood, and symptoms and signs were much more mild with prolonged course than those of adult. Even in such cases fairly large amount of the hematoma was evacuated at operation. These facts suggest that children, especially the young, might possess large tolerance for acute increased intracranial pressure or cerebral compression. On the other hand, when cerebral decompression occurs, very rapid deterioration of the condition may ensue. The various patterns of these cases must be recognized for their successful diagnosis and treatment.

Subdural hematomas (16 cases) were all derived from postnatal head injury. In 9 of 13 acute cases they took place with minor head injury such as falling on Japanese mattress, and 8 of them were under 2 years of age. Common site of impact in these patients was the occiput, and no skull fracture was noted in all cases. In a case showing typical course convulsion developed immediately after injury, followed by rapid lowering of level of consciousness. There was no association with cerebral contusion in any cases. In 5 of such patients it was recognized at operation that rupture of bridging vein into the superior sagittal sinus was the source of bleeding. Mechanism involved in such occurrence of the hematoma would be explained by shear strain produced between the brain and skull on the impact.

Other hematomas, intracerebral, combined and hydroma, were also mentioned, and follow-up study was presented in conclusion.

G-6. On the Acute Subdural Hematoma in Infancy and Childhood

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The prognosis of the acute subdural hematoma is in general very poor and reported to be 70–90% of mortality in adult and 30–60% even in children. But there is a small amount of reports on the acute subdural hematoma in early childhood. From our recent several years-experience on this problem the following conclusion were obtained.

Our cases with the traumatic intracranial hematoma in childhood were 37, consisting of 10 acute extradural, 15 acute subdural, one acute intracerebral and 11 subacute or chronic subdural hematoma. These cases were characteristically under 10 year-old in about 90% of the cases. About 60% of the cases with the acute subdural hematoma was under 2 year-old and the average age of these cases was 2 year 6 month old, which was 4 years younger than the age of the pediatric acute extradural hematoma in our clinic. The causative trauma was overwhelmingly fall from a height as
upstairs and baby-bed. The minor head injury as the cause was experienced in 6 of 15 cases, that was not particular but ordinary trauma in everyday life of children. The energy direction of the trauma was sagittal from the occiput or forehead. As the initial clinical symptom some consciousness disturbance were found direct following the injury in most cases. The mild onset of the symptoms with apathia and repeated vomiting was experienced in some cases, in which it seemed difficult to differentiate from other pediatric disease like the cyclic vomiting. Of the neurologic findings except consciousness disturbance 10 cases of 11, who were fundoscopically examined, gave some retinal hemorrhage. This was remarkable difference from the extradural hematoma of small children. A deep coma and respiratory distress meant the poor prognosis, especially the respiratory condition played great role from the point of view of the prognosis. Of the x-ray findings any skull fracture was not found in 6 cases, and the linear, compound and basal skull fracture were found in 9 cases. This was great difference from the extradural hematoma in our childrens-cases, in which 9 of 10 cases showed some skull fractures. The bilateral hematoma was found in only 2 cases, which was also quite difference from the chronic subdural hematoma in early childhood. The problem on angiograms came into the cases without the anterior cerebral shift, which were diagnosed on some lateral view of the carotid angiogram, that is, the lateral view showed so wide fronto-parietal avascularity as covering the cerebral convexity.

It was very important to know, how severe the patients with the hematoma on admission is. For example, their hemogram showed striking anemia and decrease of value of the hematocrit. Such fact meant a great deal at deciding on the further clinical plan. The authors performed, as first choice, preferably the trephination, subdural irrigation and drainage, but not the craniotomy. Our clinical result in 11 cases of the trephination-drainage method and 4 cases of the craniotomy, of which 3 cases died (21% of mortality).

For 5 months to 5 years' follow-up period we observed slight neurologic deficits in only 2 cases of 13 alive cases. On leaving the hospital there were some cases with a little amount of the subdural effusion, but this disappeared in most cases. In only one case the subdural-venous shunt should be tried. The fatal cases showed the severe primary brain damage at autopsy, but no residual subdural hematoma. One case of our series suffered from frequent attacks of hemiconvulsion after a procedure of the initial subdural trephination-drainage and the control carotid angiogram next day showed increasing of the avascularity, therefore we had to remove 20 gm. of the clot by craniotomy. Beneath the clot the bleeding point of a small cortical artery was found. This baby discharged uneventfully on 16th postoperative day. Such arterial bleeding was in general rather rare and reported to be within 10% of the acute subdural hematoma.

As the pediatric cases of the acute subdural hematoma were in very poor general condition, the procedure such as large craniotomy and searching for a bleeding source should be avoided. Our trephination-subdural drainage method was thought to be beneficial and of choice on emergency.