middle meningeal artery. This pattern was demonstrated in 13 of 22 cases (59.1%) and was most frequent. Pattern 2: In rather near the stem of the meningeal artery there existed two rows of extravasation like a tram-track running parallel with its both sides proximal to its injuried site. This seemed to result from a shunt developed between the middle meningeal artery and the vein. This pattern was seen 6 of 22 cases (27.3%). Pattern 3: A psudoaneurysm was demonstrated in 2 cases (9.1%). Pattern 4: A large quantity of extravasated contrast medium was visible in the fracture line into the subgaleal area. This pattern was seen only in 1 case (4.5%).

The extravasation of contrast medium seen in cerebral angiographs of traumatic intracranial hematomas is mostly confined to the case of epidural hematomas. This fact seems to be very helpful for discriminating subdural hematomas from epidural ones together with the finding that the middle meningeal artery is displaced inwards from the inner table of the skull.

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90. Changes of Dura mater in Case of Extradural Hematoma and its Treatment

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91. Treatment of the Sagittal Sinus Hematoma

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Sagittal sinus hematoma is an atypical type of the epidural hematoma. During past seven years, twlves cases (1st group: epidural hematoma only 7 cases, 2nd group: combined type 5 cases) with the acute sagittal sinus hematoma after head injury were admitted to our clinic.

We will report in this paper on the pathogenesis, examined findings and treatments of the sagittal sinus hematomas.

The frequency on the occurrence of the sagittal sinus hematoma in our clinic

was relatively high from the other reports, that is 33.3% in the 1st group and 23.8% in the 2nd group respectively. The cause of head injury was traffic accident on the whole. Some conciousness disturbance was observed in all cases. Pyramidal disturbance was not seen. Anisocoria was observed in only 2 cases of the 2nd group. Plain craniogram revealed fracture in all cases. In carotid angiogram, abnormal findings of the superior sagittal sinus on lateral view (especialy, in venous phase) was observed, that is, downward displacement of the superior sagittal sinus from the inner table of the skull and the lack in anterior one third part of the superior sagittal sinus.

In all cases, the removal of the clot was performed by osteoplastic craniotomy and the causes of bleeding were generally the tear of the superior sagittal sinus. The bleeding from the superior sagittal sinus could almost always be controlled by applying pressure over a spongel placed over the bleeding site.

The postoperative prognosis was good in all cases.

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92. Studies on the Posttraumatic Cerebral Atrophy. Relation Between the Degree of Cerebral Atrophy and the Duration of Consciousness Disturbances

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Purpose and method: The purpose of this study was to investigate the relation between the degree of cerebral atrophy and the duration of conscious disturbances of 18 cases. These cases were divided into 4 groups. First group: only cerebral contusion (5 cases). Second group: cerebral contusion and intracranial hematoma (5 cases). Third group: cerebral contusion and depressed fracture (5 cases). Fourth group: cerebral contusion and without direct cerebral displacement by shock (3 cases). These four groups were studied by neurological examination, carotid angiography, and pneumoencephalography.

Results: First group: Cerebral atrophy was ascertained not only in the side of head injury, but also in the contrary side of that by Contre-coup. When the duration of conscious disturbances was within seven days, these pateints had light partial cerebral atrophy in both sides. However, in cases of more than fourteen days, there was diffuse cerebral atrophy in both sides. Second group: As in the first group cerebral atrophy was ascertained in both sides. Light cerebral atrophy was found in two cases of epidural hematoma where conscious disturbances occurred for five days. One case had recived the operation about three hours after the head injury and the other about eighteen hours after. In the two cases of subdural hematoma the opera-