

smaller in diameter and much longer in the length.

When the clot which has been produced by the mixture of CSF and blood is inoculated subdurally in the dog, a cyst encapsulated with the membrane is formed within one week. Histological examination of the capsule demonstrates that the external membrane consists of sinusoidal layer and fibrous layer and internal membrane is formed by a fibrous layer. These findings are comparable to those usually found in human cases.

When clot which has been formed in the existence of CSF is inoculated subcutaneously, it grows gradually to reach its maximal size after two weeks, then thereafter the size of subcutaneous tumor is reduced. Again, histological findings of the capsule are quite similar to those seen in human chronic subdural hematoma.

When the surface of a regular clot is coated by fibrin membrane and inoculated subcutaneously a similar encapsulated cyst is formed.

In conclusion, it is assumed that fibrin membrane, particularly fibrin which is formed in the existence of CSF, plays an important role in the formation of chronic subdural hematoma.

n-2. Chronic Extradural Hematoma

Yutaka INABA, Hiroshi HATA, Shigeru TOYOTA, Shunpei TAKAHASHI,
Yasuyoshi KAYAMA, Akira KAMISASA, Yutaka HOSHII
and Takashi MORIYAMA

Dept. of Neurosurgery, School of Medicine, Tokyo Medical and Dental University

Discussion to n-2.

Extradural Hematoma with Prolonged Course

Kenichiro HIGASHI

Second Surgical Department, Yamaguchi University Medical School

Although it has been thought that chronic extradural hematoma having a long period before its disclosure was a relatively rare occasion, we experienced seven such cases which was operated on after more than 3 weeks following the head injury. These cases correspond to 13.3% of 52 extradural hematomas which have so far been operated on in our clinic. Therefore, we believe that the occurrence of extradural hematoma with a prolonged course is not so infrequent since cerebral angiography has become a prevalent diagnostic technique in recent years.

In only one out of these 7 cases, hematoma was found out unexpectedly at

the operation of depressed skull fracture, whereas remaining 6 cases were correctly diagnosed as intracranial hematoma preoperatively by means of the angiography.

All of them appeared in our clinic with various complaints, mainly headache, during a chronic stage of head injury which had been in varied severity from without unconsciousness to unconscious for 3 days. The case having the longest course, as long as 41 days before surgery, had no symptoms other than persistent tinnitus. Ankle clonus which was observed in 2 cases was the only objective neurological finding throughout the cases.

In spite of such a mildness of symptoms, relatively large hematomas were found at the surgery in most cases. Three of them had the hematoma as thick as 3 cm. Hematomas were localized in the frontal region in 2 cases, temporal in 2, temporoparietal in 1, parietal in 1, and occipital in 1. Hematoma in the frontal or occipital region is apt to be overlooked during acute stage because of scarcity in symptoms leading to miss diagnosis.

Macroscopic appearance of the extradural hematoma receiving operation after more than 2 weeks following head injury was shown in Table 1. The contents of hematoma was a clot in the majority of cases. In a case having the course of 37 days before surgery, hematoma was already organized.

Table 1. Macroscopic appearances of extradural hematomas having a course of more than 2 weeks before surgery

No.	Age	Sex	Lapsed Time Between Trauma and Operation	Contents of Hematoma	Hematoma Membrane
1	37	♂	15 days	liquid	(—)
2	42	♀	16 days	clot	(—)
3	1	♂	18 days	clot	(—)
4	64	♂	20 days	clot	(—)
5	16	♂	22 days	clot	(—)
6	54	♂	22 days	clot	(—)
7	28	♂	22 days	clot	(—)
8	61	♂	23 days	clot	(—)
9	14	♂	32 days	liquid	(—)
10	25	♂	37 days	organized clot	(—)
11	34	♂	41 days	clot	(—)

Two hematomas with liquid contents were encountered in this series. In these unusual cases, bleeding tendencies which probably was the factor interfering the blood clotting mechanism was disclosed preoperatively.

Almost all cases having a course of more than 3 weeks had a hematoma membrane, so that the membrane was thought to be established around that time. This may be the similar finding as the membrane formation in subdural hematoma. Histological findings of the hematoma were also appeared to be the same as that in subdural hematoma.