MULTIPLE INTRACEREBRAL HEMATOMAS WITHOUT TUMOR: REPORT OF AN UNUSUAL CASE

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ABSTRACT

A case with three intracerebral hematomas detected by computed tomography is reported. These regions were the left thalamus, the subcortex of the left parietal lobe and the right caudate nucleus-internal capsule. At surgery, two hematomas were observed in the left cerebral hemisphere, but the presence of tumor could not be recognized macro- and microscopically.

INTRODUCTION

Although multiple intracerebral hematomas are sometimes found at autopsy, clinical reports on the multiple intracerebral hematomas are exceptionally rare. One of the reasons seems to be that the conventional diagnostic methods are not appropriate to make a diagnosis. However, the recent remarkable progress with the appearance of computed tomography (CT) enabled us to diagnose most of the intracranial diseases, especially intracerebral hemorrhage. Recently we have experienced a case in which CT showed three intracerebral hematomas, and we wish to report here the case.

CASE REPORT

The patient was a 65-year-old male, who suddenly fell down in a rice field about 11 a.m. on May 17, 1977. He was confined to his bed due to cloud consciousness, right-hemiparesis and headache. However, his condition was unchanged, and he visited on May 21. He was admitted to the hospital

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due to the detailed examinations and the treatment. The patient had left-hemi-
paresis on August 15, 1976. He had then been admitted to our hospital under
the diagnosis of cerebral infarction from August 17 to September 4. At the time
of discharge from the hospital, he could walk and grasp a cup.

On the second admission, he was moderately developed and nourished. Tem-
perature was 36.5°C, pulse rate was 96 and regular, and blood pressure was
180/116 mmHg. Neither anemia nor jaundice was observed. No lymph nodes
were enlarged in the neck. The thoracico-abdominal region was clear on percus-
sion and auscultation. No edema was noted in the lower extremities.

The neurological examination revealed the following: His consciousness
tended to be somnolent. Mental functions, such as orientation, capacity to count,
short-term memory and general information were generally lowered. He had
difficulties in speaking spontaneously and in understanding a language. Neither
papilledema nor hemorrhage was observed in the optic fundi. Conjugate devia-
tion was observed on the left. Although anisocoria of the pupils was present (the
right eye < the left eye), light reflex was prompt. There were no other abnormal
findings of cranial nerves. From the standpoint of the motor system, he could
scarcely move the right upper and lower extremities due to remarkably decreased
muscular power. There was only mildly decreased muscular power in the left
upper and lower extremities. The sensory system was not disturbed. The deep
tendon reflexes were slightly increased on the right side. The abdominal reflexes
disappeared bilaterally. There were sucking and snout reflexes with positive
Hoffmann and Trömner reflexes bilaterally. Chaddock and Babinski reflexes were
negative bilaterally. He had recto-vesical disturbance.

The laboratory findings revealed: the erythrocyte sedimentation rate was
3 mm/hr, erythrocytes 463×10^4/mm³ and leukocytes 11900/mm³. Urinary findings
were normal. Stools were negative for occult blood. Examinations of hemorrhagic
tendency showed normal findings. Liver function tests showed slight disturb-
ances; jaundice index 3 (normal, 2–8), GOT 47 K.U. (normal, less than 35),
GPT 31 K.U. (normal, less than 30), A1-P 5.9 K.A.U. (normal, 2–10) and LDH
465 W.U. (normal, 50–400).

Renal function, serum protein fraction and electrolyte were normal. The
serum Wasserman reaction was negative. C-reactive protein was 1(+), and both
HBs-antigen and HBs-antibody were negative. Glucose tolerance test showed a
normal curve. ECG showed a left anterior hemi-block. The examination of the
cerebrospinal fluid done on May 22 showed xanthochromic fluid with 200 mmH₂O
of the opening pressure. The number of the cells was 2/3. Protein was 66 mg/dl,
and sugar was 110 mg/dl. Left carotid angiogram revealed a deviation of Sylvian
point infero-medially and a compression of lenticulostriate arteries medially (Fig.
Fig. 1 Left carotid angiogram (anteroposterior view). Sylvian point deviated inferro-medially (←) and lenticuloistriate arteries are compressed medially. (→)

Fig. 2 Left carotid angiogram (lateral view). Branches of the middle cerebral artery are separated from each other and extended. (arrows)
In the venous phase the internal cerebral vein deviated to the right. Lateral view showed that the angular artery, the posterior parietal artery and the posterior temporal artery were separated from each other and extended. There was an evidence of a mass near the surface of the brain (Fig. 2). Noninfusion CT scan revealed obscure lesions (Fig. 3-a). However, the infusion CT scan revealed masses with enhanced zone (ring blush) around the left thalamus, in the subcortex of the left parietal lobe and in the right caudate nucleus-internal capsule (Fig. 3-b), which were diagnosed as multiple intracerebral hematomas.

After the admission, the level of consciousness and motor paresis were almost unchanged. The patient was diagnosed as having multiple intracerebral hematomas by findings of the cerebrospinal fluid and CT findings. Left parietal craniotomy was undertaken on June 20. The dura mater was remarkably strained. The flatness of the gyrus was moderate. When the puncture was made 3 cm backward and 4 cm upward from the external auditory meatus, it reached the comparatively solid wall about 0.5 cm from the surface of the brain. When the wall was broken down, a hematoma appeared. After several ml of fluid hematoma was mildly sucked, cerebrotomy was undertaken in the area of about 3 cm. The hematoma was removed fully. The hematoma weighed about 15 g, being composed mainly of clotted blood. The whole surrounding was covered by a thicken

![Fig. 3 CT scans.](image)
a) Noninfusion CT scan reveals obscure lesions.
b) Infusion CT scan reveals three masses with ring blush. (arrows)
wall. When the puncture was then made from the medial wall of a hematoma to the anterior inside, another hematoma was discovered about 3 cm from the medial surface of the wall. About 5 ml of fluid hematoma was sucked. It was supposed that clotted blood was present. However, if the clots had been removed, the internal capsule might have been broken down. Thus, we gave it up. Macroscopically there was no evidence of a tumor, an arteriovenous (A-V) malformation and an aneurysm. Histological examination did not also reveal the findings of them. After surgery, the level of consciousness, right-hemiparesis, aphasia and recto-vesical disturbance were gradually improved. However, mental function remained almost unchanged. CT taken on August 11 revealed marked decrease in the left-sided intracerebral hematomas and the lesion of the right caudate nucleus-internal capsule was very mildly enhanced by contrast material.

**DISCUSSION**

This patient was diagnosed as having multiple intracerebral hematomas by CT taken about 1 month after the onset in which contrast enhancement was revealed in three regions. At surgery, two hematomas were observed in the left cerebral hemisphere, and the presence of tumor, aneurysm and A-V malformation could be denied. In this patient, we can not deny a possibility that each hematoma without correlation may occur in three sites simultaneously or almost simultaneously. However, we thought that there were correlations among the three hematomas, and we considered it as follows: The diffuse pressure to the brain due to the increased intracranial pressure is competed with the local pressure due to a hematoma and they produce various abnormalities in the main blood vessels around the parenchyma of the brain. This may result in an increased preexisting hemorrhage lesion and in an increased new hemorrhage lesion at the site apart from the preexisting hemorrhage and on the opposite side of the tissues. By the way, although the contrast enhancement depends upon the size of a hematoma, CT of the hematoma taken about 1 month after the onset usually shows a high density area, and then it becomes to show isodensity and a low density. Infusion CT reveals that a ring blush begins to appear from about 1 week later and it continues for several months. Therefore, CT findings sometimes confuses us to distinguish a hematoma from a tumor, an infarction and an abscess. In cases of infarction, contrast enhancement is sometimes observed in the infarction lesion about 1-4 weeks after the onset. Therefore, a single CT makes it impossible to differentiate a hematoma from others. We should follow up the CT findings with reference to the clinical findings.

Multiple intracerebral space occupying lesions are generally considered to
be findings suggesting metastatic brain tumors.\textsuperscript{5} Multiple intracerebral hematomas without tumor are very rare. Gildersleeve et al.\textsuperscript{5} reported that it was important to consider metastatic disease as a cause of intracerebral hemorrhage in the presence of a) an atypical clinical setting or bleeding site, b) contrast enhancement early in the clinical course or c) multiple lesions. In this way, even if the CT enables us to find multiple lesions and to diagnose intracerebral hematomas, we must carefully differentiate the intracerebral hematomas due to primary or metastatic brain tumors from that due to primary intracerebral hemorrhages. That is, although multiple intracerebral hematomas without tumor have a high mortality, they are treatable potentially. As mentioned above, multiple intracerebral hematomas which have not so far been diagnosed easily may be increasingly diagnosed by CT, as shown in this patient, and thus we should be careful not to miss the time for a surgery.

\textbf{REFERENCES}