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Acute Interhemispheric Subdural Hematoma Case Report and Review of Literature

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Summary

Acute interhemispheric subdural hematoma is an unusual condition, where hemiparesis, more severe in the lower limb, or monoparesis of the lower limb can be found on the contralateral side of the hematoma. This falx syndrome has been regarded as being pathognomonic for interhemispheric subdural hematoma. We encountered a 52-year-old female who did not show falx syndrome and recovered without a craniotomy and hence, accentuates the significance of a direction of head trauma, a careful neurological examination and serial follow-up CT (computed tomography).

Introduction

Subdural hematoma localizing in the interhemispheric space is rare in adults and not more than thirty cases have been reported since Aring and Evans described an autopsy case in 1940 (1–28).

Head trauma is the most frequent cause. Minor head trauma in patierts with hemorrhagic diasthesis or under anticoagulant therapy, as well as a rupture of an anterior cerebral artery aneurysm, bring about acute interhemispheric subdural hematoma.

Removal of the hematoma has been proposed as valid therapy in this disorder, however, a few patients have been successfully managed by conservative treatment[9,18,22,23,25]. In this report we present a case of acute traumatic interhemispheric subdural hematoma (AIHSH) and a review of the literature.

Key words: Head injury, Interhemispheric subdural hematoma, CT scan, Traumatic interhemispheric subdural hematoma, Falx syndrome.
索引語：頭部外傷，大脳半球間硬膜下血腫，CT スキャン，外傷性大脳半球間硬膜下血腫，大脳鎌症候群.
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Case Report

After a 52-year-old female was involved in a traffic collision, she was transferred to a local hospital and a skin laceration of the mandibular region was sutured. A loss of consciousness

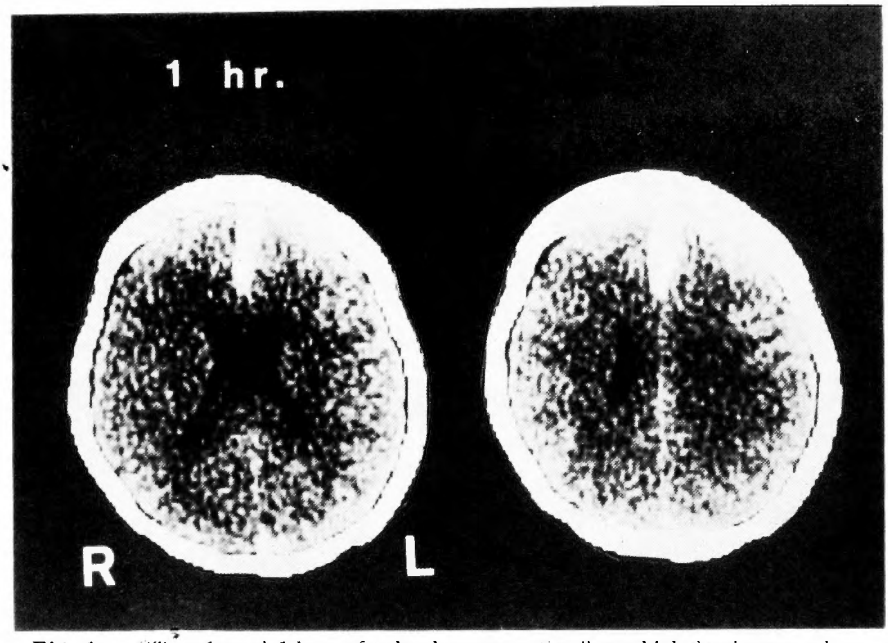

Fig. 1a. CT performed 1 hour after head trauma. Semilunar high density area along the left anterior half of the falx.

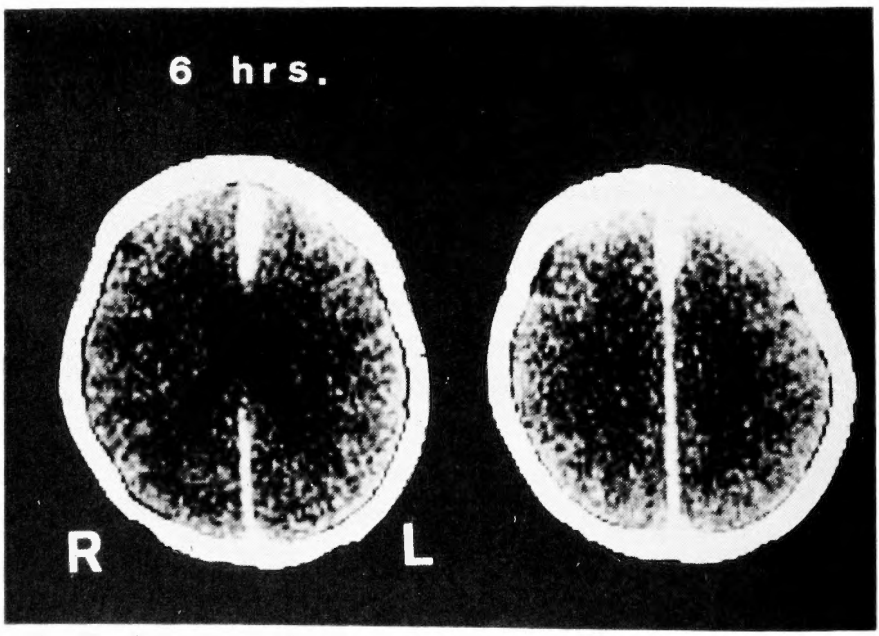

Fig. 1b. CT performed 6 hours after head trauma. No apparent increase in the size of the hematoma.

occurred, and lasted about one hour. Since the CT taken one hour after the accident (Fig. 1a) revealed a semilunar high density area along the falx cerebri, she was referred to our department. Upon admittance, seven hours after the accident, she was alert and free from nuchal rigidity and motor weakness. Contusions were found in the forehead, the right hypochondrium, and the right upper quadrant of the abdomen. Laboratory findings did not reveal hematological disorders. A plain skull film showed no fractures. Because the size of the hematoma was found to be unchanged on the successive CT (Fig. 1b), conservative therapy was chosen. The next day two episodes of vomiting occurred but the level of consciousness did not worsen. A neurological examination showed no hemiparesis or motor weakness in the lower limb. Follow-up CT scanning confirmed a gradual decrease of the interhemispheric subdural hematoma (Fig. 2). Two weeks later she was discharged without any loss of neurological functioning. A CT performed 38 days later showed the complete disappearance of AIHSH (Fig. 3).

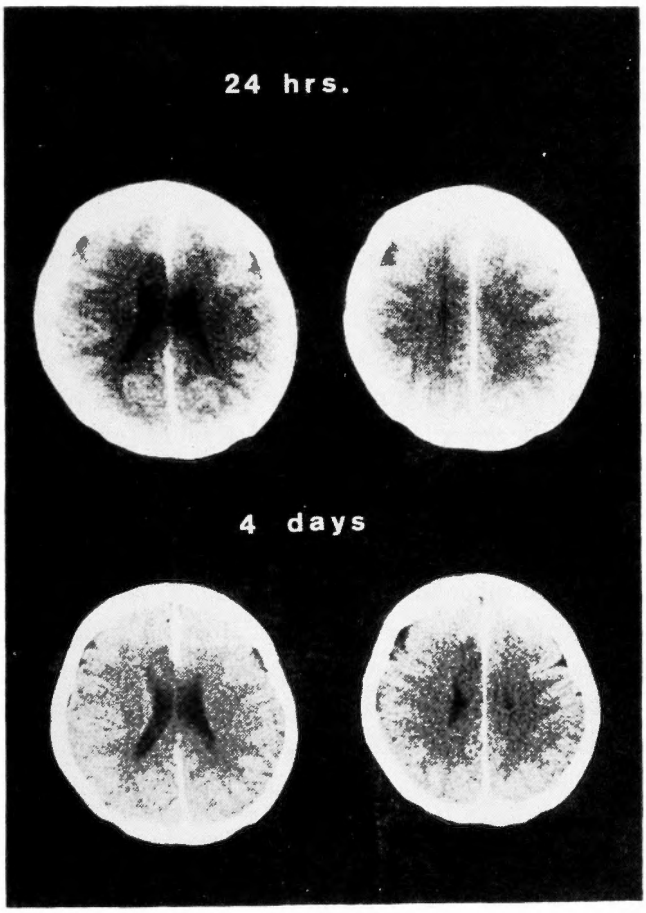

Fig. 2. Upper: CT 24 hours after the head trauma. A decrease in the size of the hematoma along the anterior half of the falx was confirmed. A slight hematoma along the posterior half of the falx was found.
Lower: CT 4 days after head trauma. A belt-like high density area along the falx cerebri decreased in size.

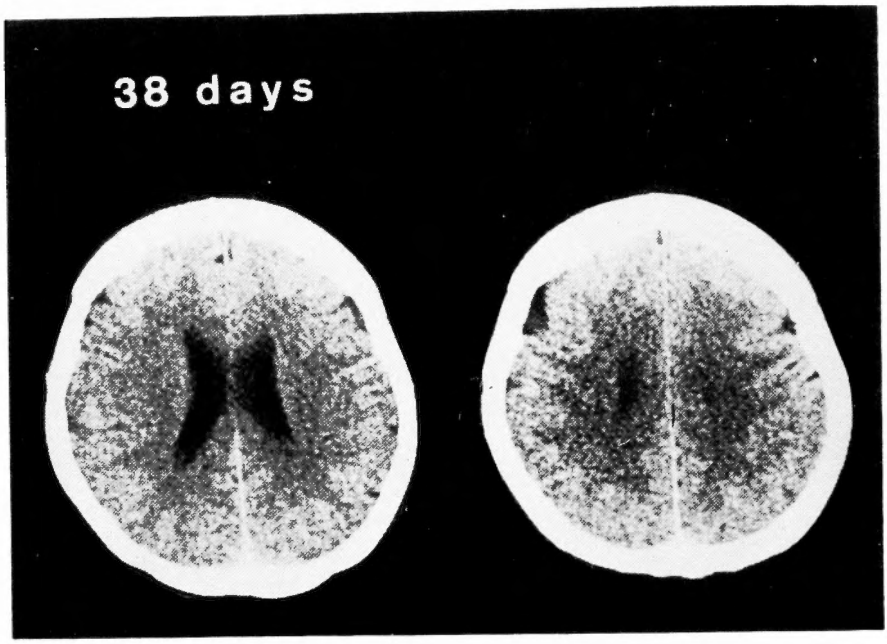

Fig. 3. CT performed 38 days after the head trauma. The interhemispheric subdural hematoma disappeared.

Discussion

A traumatic episode is the most frequent cause of AIHSH Another inducing factor is anticoagulant therapy[13,26]. Minor head trauma complicated by bleeding diasthesis, for example, hemophilia or thrombocytopenia give rise to AIHSH[5,15,23]. KASDON reported a case of mild head trauma with a ventriculoperitoneal shunt[17]. Ruptures of a callosomarginal aneurysm were also described[7,8]. ZIMMERMAN published 15 cases of child abuse and showed that AIHSH in children is frequent in the parietooccipital region[27,28]. AIHSH is not uncommon in children[2].

Cases of interhemispheric subdural hematoma in adults due to head trauma without any inducing factor are summarized in Table 1. Impact from the median direction, i.e. frontal, parietal, and occipital region are frequent. Our case may have had an impact in a median direction since the mandibular skin was lacerated. This impact may have produced a rotational injury, which stretched and disrupted the parasagittal bridging veins.

Interhemispheric subdural hematoma due to head trauma in adults (Table 1).

1) Age and sex

The youngest patient was 23 years old and the oldest 78. Male preponderance was found (male 15, female 7).

2) Clinical manifestations

Almost all cases are symptomatic within the third day[3,19]. Hemiparesis, more prominent in the leg, or monoparesis of the leg, that is, falx syndrome is characteristic. Motor weakness

Table 1. Interhemispheric subdural hematoma due to head trauma in adults.

	Authors, Year	Site of Trauma	Age	Sex	Skull Fracture	Loss of Consciousness	Falx Syndrome	Other Symptoms	Study	Treatment	Result
1	Aring, 1940	occipital	45	M	no	yes	yes	seizure	autopsy	burr holes	died
2	Jacobsen, 1955	not given	23	M	?	no	yes		CAG	burr holes	recovered
3	Gannon, 1961	not given	*	M	yes	yes	yes	VII	CAG	burr holes	died
4	Isfort, 1967	not given	61	M	yes	yes	yes		CAG	burr holes	recovered
5	Clein, 1969	parietal	38	M	no	yes	yes	dementia	PEG, CAG	craniotomy	recovered
6	Sibayan, 1970	not given	42	M	?	no	yes	headache	CAG	craniotomy	recovered
7	New, 1974	not given	58	M	?	?	yes	headache	CT, CAG	yes	
8	Ogsbury, 1978	occipital	70	F	no	no	yes	headache vomiting seizure	CAG	craniotomy	recovered
9		not given	44	M	?	no	no	headache seizure	CT	burr holes	recovered
10	Glista, 1978	occipital	27	M	?	no	yes	seizure	CT	craniotomy	recovered
11	Fearnside, 1979	frontal	24	M	no	no	yes		CT	craniotomy	recovered
12	Kusunoki, 1980	not given	69	M	?	yes	yes		CT, CAG	conservative	recovered
13	Fukamachi, 19821	parietal	53	F	yes	yes	no		CT, CAG	craniotomy	died
14	Shigemori, 1982	occipital	69	F	no	no	no	hemiparesis	CT	conservative	recovered
15	Satoh, 1982	frontal	43	M	no	no	yes	headache	CT, CAG	conservative	recovered
16	Pozzati, 1982	not given	54	M	no	?	no	decerebrate posture, III	CT	burr holes	died
17	Woimant, 1983	not given	54	F	no	no	yes		CT	conservative	recovered
18	Frum, 1984	occipital	59	M	no	no	yes	headache vomiting	CT	conservative	recovered
19	Drábek, 1984		68	F				hemiparesis	CAG, SC.	yes	
20			74	M				dementia	CAG, SC.	yes	
21			78	F			yes		CAG, SC.	yes	
22	Yamagami, 1985	unknown	52	F	no	yes	no	vomiting	CT	conservative	recovered

?: unknown, VII: facial paresis, III: oculomotor palsy, SC.: scintigram
*: elderly, M: male, F: female

is usually contralateral to the hematoma, but ipsilateral or bilateral motor weakness has been reprted[8,11,16,17,19]. Ipsilateral monoparesis or hemiparesis is due to the compression of the contralateral cerebral vasculature.

Other symptoms are headache, vomiting and seizure[9]. Clear consciousness was retained in many cases. In our case a loss of consciousness continuing for about one hour occurred. Falx syndrome which has been regarded as being pathognomonic for diagnosis did not appear during the clinical course.

3) Neuroradiological findings

Skull fractures are rarely found on a plain skull x-ray. In our case skull fractures were not recognized. WOLLSCHLAEGER described the significant findings on CAG: (1) midline situated pericallosal artery, (2) a turning away from the midline of anterior and middle internal cerebral branches of the pericallosal artery, (3) avascular space between pericallosal and callosomarginal arteries, (4) no deviation of internal cerebral veins, and (5) no positive findings in the lateral view[26]. A decrease or disappearance of alpha activity, delta frequency, and phase reversal were shown on EEG[3]. Unfortunately, neither CAG nor EEG was performed in our case. DRÁBEK showed that a scintigram was also useful[4].

Since the advent of CT, this neuroradiological technique has acquired the main role. A semilunar high density area along the midline, bounded medially by falx cerebri, and laterally by the convex border, are the common findings on CT[13,28]. Even mild AIHSH as ours can be diagnosed by CT.

4) Therapy

Craniotomy or burr hole formation with removal of the hematoma have been performed routinely. Recently, conservative therapy has been employed.

The prognosis is good when the primary head trauma is not fatal and appropriate diagnosis is obtained. A craniotomy with removal of the hematoma may be recommended. In the case of a small hematoma, without aggravating clinical signs, conservative therapy with repeated CT monitoring is also acceptable. Our case was treated conservatively because major neurological deficits did not occur and size of hematoma did not increase by sequential CT examination.

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和文抄録

大脳半球間急性硬膜下血腫 症例報告と文献的考察

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山上 達人，半 田 肇，長澤 史朗，永田 裕一，鄭 光 珍

大脳半球間に生ずる急性硬膜下血腫は稀な病態で，血腫側と反対側の下肢の麻痺や下肢に強い運動麻痺を特徴とする．

我々は，52歳の女性で，大脳半球間急性硬膜下血腫例を経験した．この例は，特徴的な falx syndrome を呈さず，また，follow-up CT にて血腫の増大ないため，開頭術を施行することなく，保存的に加療することができた．文献的考察を加えて報告する．