
CASE REPORTS

Rapid Resolution of Acute Subdural Hematoma

Akut Subdural Hematomun Hızla Kaybolması

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Abstract : A patient with spontaneous resolution of an acute traumatic subdural hematoma within 6 hours is reported. The patient was discharged two days after admission in normal neurological condition. Previously published cases of acute subdural hematomas with rapid spontaneous resolution are reviewed and possible mechanisms for rapid resolution such as redistribution and/or washing out of the hematoma due to an arachnoid tear are discussed.

Key Words: Head injury, nonoperative treatment, spontaneous resolution, subdural hematoma

Özet: Akut travmatik subdural hematomu olan bir hastada hematomun altı saat içinde kendiliğinden kaybolduğu saptandı. Hasta iki gün içinde normal nörolojik bulgularla taburcu edildi. Daha önce yayımlanmış, hızla ve kendiliğinden kaybolan akut subdural hematoma olguları gözden geçirildi ve hematomun yeniden dağılımı ve/veya araknoid yırtığına bağlı olarak yıkanarak kaybolması gibi olası mekanizmalar tartışıldı.

Anahtar Sözcükler: Cerrahi olmayan tedavi, kafa travması, kendiliğinden rezolüsyon, subdural hematoma

INTRODUCTION

The natural course of acute subdural hematoma (ASDH) is not always predictable despite the frequency of its occurrence. Operative treatment is generally recommended since early operative intervention improves the prognosis (14). However spontaneous resolution of acute subdural hematoma with favorable clinical results are reported (3,11,13,16). The frequency of spontaneous resolution of subdural hematomas is not known but rapid resolution is distinctly uncommon. The earliest resolution reported in the literature was in 6 hours (12,13). Recently, we observed a patient with spontaneous resolution of an acute subdural hematoma within 6 hours.

CASE REPORT

A 12 year old boy was admitted to the emergency department two hours after a fall from a height of two meters. According to his mother he was alert shortly after the fall, but one hour later he vomited and his consciousness deteriorated. On arrival physical examination revealed a small subgaleal hematoma in the right occipital region and his Glasgow Coma Score (GCS) was noted to be 14 (E3M6V5). He had neither pupillary abnormality nor motor disturbance.

Computerized tomography (CT) was performed. The CT scan demonstrated a contre-coup lesion, namely a 5 mm thick left frontal acute

subdural hematoma which extended to the parietal convexity, and a small left frontal contusion with bilateral hemispheric swelling (Figure 1).

As the patient had no focal neurologic deficit, and the hematoma was thin without a midline shift, the patient was managed conservatively under close observation without any medication. The CT scan was repeated 6 hours after the first examination. To

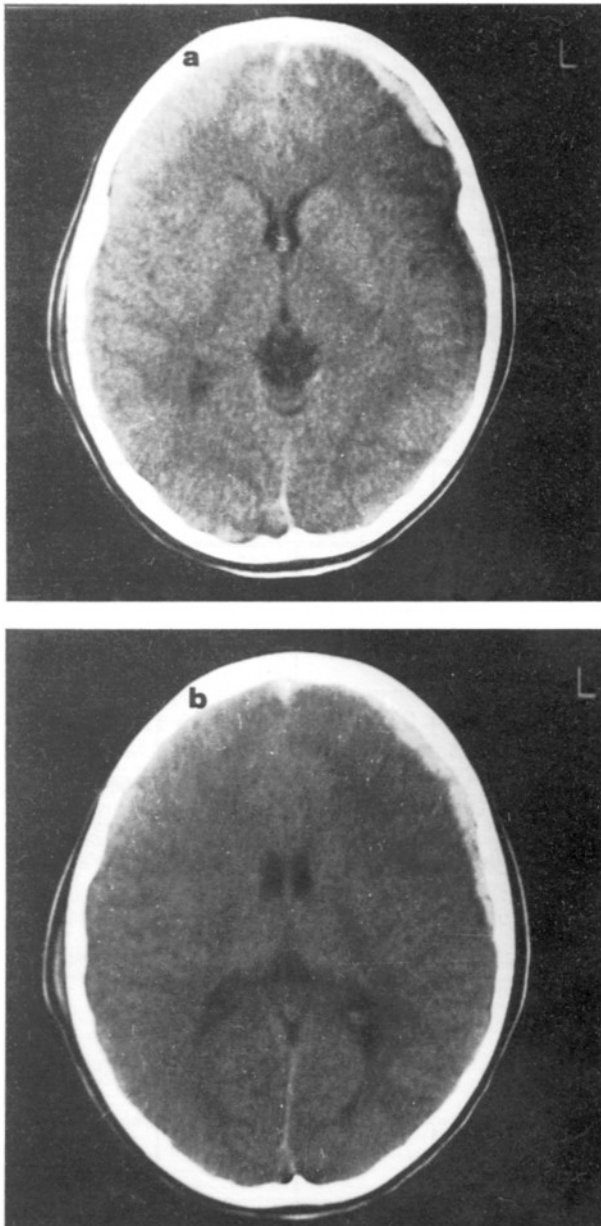


Figure 1, a and b. CT-scan two hours after trauma showing left frontoparietal acute subdural hematoma. Ventricles are compressed due to cerebral swelling. Note the small contusion in the left frontal lobe.

our surprise the subdural hematoma had completely disappeared and the ventricles which were compressed in the initial CT scan were normal in size (Figure 2). The patient's neurological examination remained unchanged.

After an uneventful clinical course and two days of hospitalization the patient was in good condition. His follow - up examinations at 15 days, one month, and three months yielded no abnormal findings.

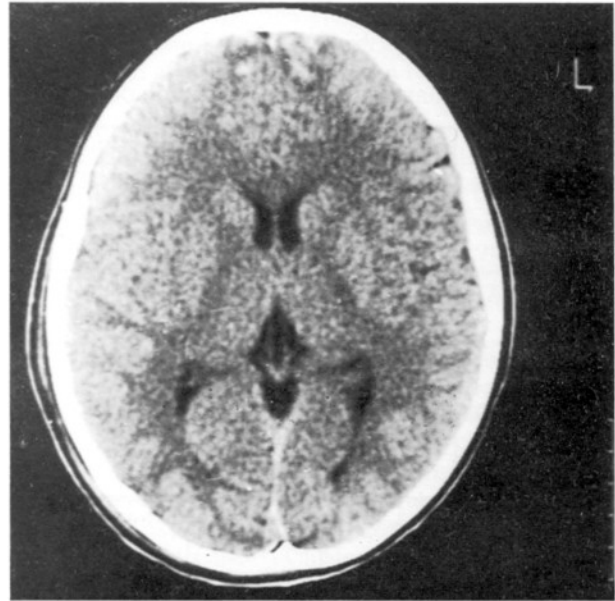


Figure 2. CT-scan six hours after admission showing resolution of subdural hematoma with normal sized ventricles. Note that the frontal contusion is more remarkable.

DISCUSSION

It has been shown that early operative intervention improves the prognosis in acute subdural hematoma (14). On the other hand the success of conservative management reported in non - acute hematomas presenting several days after injury shows that an intracranial extracerebral hematoma may resolve spontaneously (1,5,8,15). This resolution has been followed by serial angiography and CT scanning and usually takes weeks to months. In recent years several reports have been published with an even more rapid resolution of an ASDH (4,6,9,10,12, 13).

In addition to our report there are thirteen cases of ASDH with rapid resolution in the literature

(4,6,9,10,12,13). The details of these cases are summarized in Table I. Makiyama et al. speculated that ASDHs may have been spread and dissipated by the coexistent brain swelling (9). They further hypothesized that spontaneous disappearance of ASDH may not be a rare occurrence (10). Niikawa et al. assume that in one of their four cases brain swelling resulted in pressure induced redistribution of the ASDH (12). In contrast to Makiyama et al.(9), Joki et al. (6) suggested that the rapid resolution of ASDH may have been attributable to redistribution due to a decrease of intracranial pressure and

washing out by cerebrospinal fluid . The washing out of ASDH by cerebrospinal fluid secondary to tearing of the arachnoid membrane was pointed out by other authors also (4,11,12). Fujioka et al. observed the resolution of the hematoma and appearance of a thin high-density layer in the subdural space adjacent to the tentorium in the control CT scans of their two cases (4). Polman et al. clearly showed with magnetic resonance imaging that the hematoma in their patient did not disappear as shown on CT scan but was redistributed (13). Kaufman, in his comment to this article pointed out

Table I. Summary of 14 cases of rapid spontaneous resolution of acute subdural hematoma.

Author & year of publication	Age, sex	Interval between trauma and first CT	Consciousness level on admission	Focal neurological deficit	Associated cranial fracture	Cerebral swelling on the first CT	Interval between two CTs	Outcome (GOS)*
Makiyama et al. (9)	61, F	60 min	comatose	(-)	(?)	(+)	72 hours	dead
	17, M	50 min	alert	(+)	(?)	(+)	12 hours	good
Polman et al. (13)	26, F	30 min	alert	(+)	(?)	(+)	6 hours	good
Nagao et al. (11)	4, F	120 min	stuporous	(-)	(-)	(?)	48 hours	good
	Same patient	30 min	comatose	(-)	(?)	(?)	17 hours	good
Niikawa et al. (12)	63, M	no trauma history	GCS 13	(-)	(?)	(?)	24 hours	good
	16, M	(?)	GCS 3	(-)	(?)	(?)	48 hours	severe disability
	27, M	(?)	GCS 10	(-)	(?)	(?)	6 hours	good
	48, M	(?)	GCS 9	(+)	(+) contre-coup	(?)	6 hours	moderate disability
Fujioka et al. (4)	78, M	5 hours	alert	(-)	(?)	(?)	33 hours	(?)
	84, F	60 min	drowsy	(-)	(?)	(?)	14 hours	(?)
Joki et al. (6)	21, F	120 min	GCS 9	(-)	(?)	(+)	24 hours	(?)
	23, M	120 min	GCS 14	(+)	(?)	(+)	8 hours	(?)
Kırış et al.	12, M	120 min	GCS 14	(-)	(+) contre-coup	(+)	6 hours	good

*GOS : Glasgow Outcome Scale

that if there were dural tears and skull fractures such clots may be pushed into the diploe of the skull or into soft tissues where they may be more rapidly absorbed (7).

In our case, we noted a contre-coup linear fracture with compressed ventricles which suggested brain swelling. In the control CT scan the ventricles were in normal limits. It is possible that the bleeding has stopped due to compression of the swelling brain, and the hematoma was then redistributed probably with the flow of cerebrospinal fluid due to a tear in the arachnoid membrane. The fracture did not play a role in the resolution of the hematoma since it was on the opposite side.

Selected cases of ASDH (GCS 11-15, a thin hematoma <1cm , no focal neurologic deficits) can be safely managed non-surgically under close observation and repeated scans (2). The non-surgical management of these cases will provide knowledge about the natural history of ASDH.

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