

# Rapid resolution of acute subdural hematoma : A case report and review of literature

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**Abstract:** Acute traumatic subdural hematoma is a common condition. Cases of rapid resolution of acute subdural hematoma have seldom been reported in the literature. We are reporting one such case of 53 year-old-male admitted after road traffic accident. Patient became unconscious immediately after the accident. Computed Tomography (CT) done after one hour of accident showed an acute hyperdense subdural hematoma with low density area between skull and hematoma and subarachnoid hemorrhage (SAH). He improved quite rapidly during transportation and became conscious at the time of admission in our hospital. Repeat CT scan done after 7 hours showed marked resolution of hematoma but there was evidence of subarachnoid hemorrhage (SAH). Another CT scan done after 72 hours of injury showed complete resolution of hematoma with evidence of SAH. Possible mechanism of spontaneous resolution of the hematoma in our case was dilution and washing-out of hematoma by the cerebrospinal fluid due to an arachnoid tear. Clinician should suspect possibility of resolving hematoma if CT scan shows presence of SAH and hypodensity between hematoma and skull. Such patients who do not deteriorate while awaiting surgery because of delay due to any reason should get a repeat CT scan before planning any surgical intervention.

**Keywords:** acute subdural hematoma; traumatic; intracranial subdural hematoma

## INTRODUCTION

Acute traumatic subdural hematomas (SDHs) are very common. These hematomas are usually neurosurgical emergencies, although a conservative therapy is indicated in selected cases. Slow and progressive resolution of SDH occurs in patients treated conservatively. However, rapid spontaneous resolution of an acute subdural hematoma is rarely reported<sup>1-10</sup>. Several mechanisms of spontaneous resolution of acute subdural hematoma have been reported. Important suggested mechanisms in the literature are dilution and washing-out of hematoma by the cerebrospinal fluid (CSF) through an arachnoid tear<sup>2,3,4,6,7,8,10</sup>, blood redistribution in the subdural space<sup>5,9</sup> or extra cranially<sup>1</sup>. Diagnosis of acute SDH likely to resolve rapidly is difficult. One can avoid unnecessary surgery in such cases if diagnosed in time. We are reporting one such patient of rapidly resolving acute SDH.

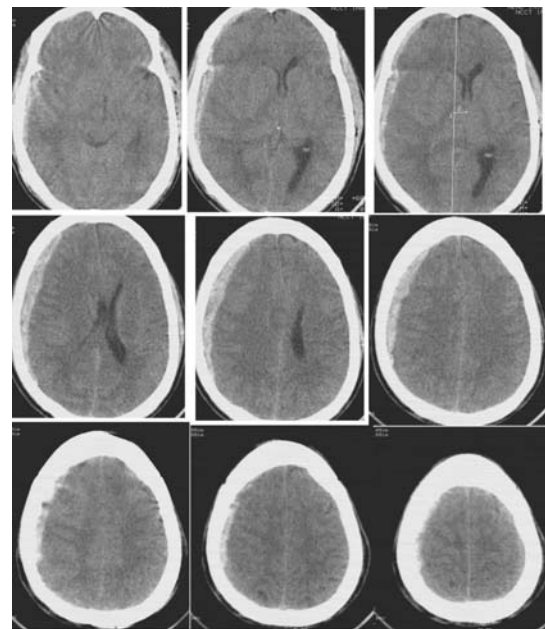
## CASE REPORT

Fifty five year old male suffered road traffic accident due to hit by motorcycle. Computed Tomography (CT) of head performed one hour after the injury showed right sided large acute SDH with significant midline shift

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(Fig 1). There was a hypo dense area lateral to the hyperdense acute SDH. There was evidence of subarachnoid hemorrhage (SAH) also. Patient was unconscious (E1V1M4) at the time of first admission. He was then transferred to our hospital for neurosurgical care. Patient improved significantly within next 5 hours



**Fig 1:** CT scan showing acute SDH in right frontotemporoparietal region. There is evidence of subarachnoid hemorrhage and midline shift of 6 mm

during transportation from district hospital to our centre. He was conscious but drowsy (E3V3M6) at admission in our hospital. A repeat CT scan done after 7 hours of the accident showed markedly resolved right sided acute SDH (Fig 2). There was evidence of subarachnoid hemorrhage. Conservative line of treatment was decided. He improved quite rapidly and was conscious and oriented within 10 hours of injury. CT scan done 72 hours after accident showed complete resolution of acute SDH (Fig 3). There was SAH in the region of falx. Patient continued to improve and was discharged on 10<sup>th</sup> day of admission with no neurological deficit.

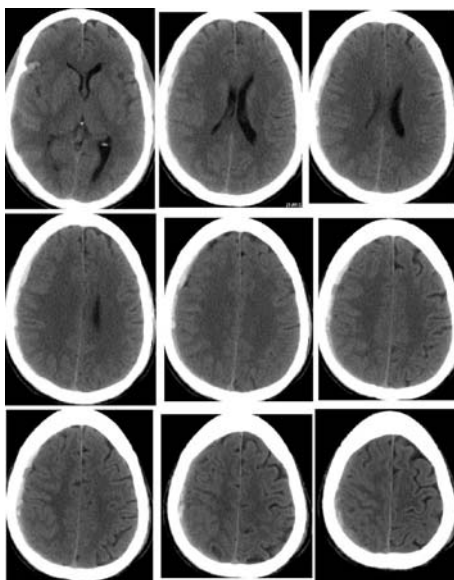


Fig 2: CT scan showing significant resolution of acute SDH. There is evidence of subarachnoid hemorrhage.

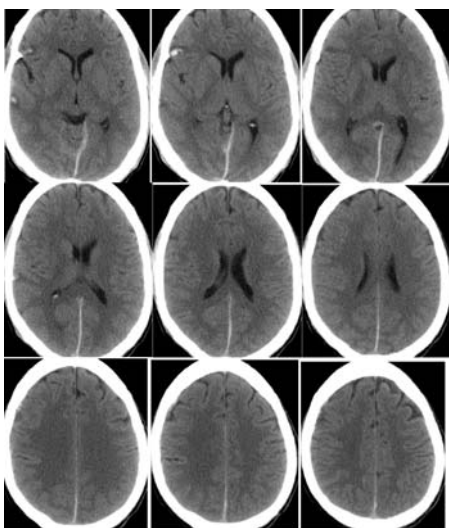


Fig 3: CT scan showing almost complete resolution of acute SDH with the evidence of SAH in the region of falx.

## DISCUSSION

Acute subdural hematomas are usually neurosurgical emergencies. Small sized hematoma in good neurological grade patients can be managed conservatively. Rapid spontaneous resolution of an acute subdural hematoma is seldom reported. Diagnosis of patients with acute SDH likely to resolve rapidly can avoid unnecessary surgery in some cases.

Radiological diagnosis of acute SDH which is likely to resolve spontaneously is very difficult. Some researchers observed<sup>4,6</sup> a low density layer between the hematoma and the inner wall of the skull. Presence of low density layer suggests CSF in the subdural space. The hematoma could be partly in the subdural space and partly in underlying subarachnoid space (SAS)<sup>7</sup>. The so called SDH could therefore be a combination of both SDH and localized SAH. Presence of SAH has been reported in few cases<sup>3,4</sup>. Beaking into sulcus or cistern was also seen in the CT scan of the patient reported by Fernández-Portales I et al<sup>3</sup>. So the presence of SAH, beaking and hypodensity on the outer side of clot could be the radiological indicators of resolving clot.

Mechanisms for the spontaneous resolution of acute SDH are still unclear. Few important suggested mechanism are dilution and washing-out of hematoma by the cerebrospinal fluid (CSF) through an arachnoid tear<sup>2,3,4,6,7,8,10</sup>, blood redistribution in the subdural space<sup>5,9</sup> or extra cranially<sup>1</sup>. Possible mechanism in our case of spontaneous resolution of the hematoma was due to the dilution and washing out by the CSF.

Presence of hypodensity on the outer side of acute SDH, beaking and SAH seems to be an important factor in the rapid resolution of the hematoma as also seen in our case. In such cases if patient condition is stable and there is delay in surgery due to any reason, one should go for a repeat CT scan. Hematoma might have resolved by that time and unnecessary surgical intervention can be avoided. However if the patient of acute SDH is in poor neurological status with signs of herniation, one should not wait and go for immediate surgical intervention.

## CONCLUSION

Patients of acute SDH who do not deteriorate and there is delay in surgery due to any cause, should undergo repeat CT scan to avoid unnecessary craniotomies. Tear in the arachnoid layer and redistribution of blood in the

subarachnoid space is a possible mechanism of resolution of acute SDH in our case.

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