Case Series on Rapid Spontaneous Resolution of Massive Acute Sub Dural Haematoma

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Abstract:
• We are reporting a case of 60-year-old female with head injury due to road traffic accident, NCCT head s/o Right sided acute SDH. Patient improved clinically en route to the hospital and repeat NCCT done after 14 hours showed marked resolution of Sub Dural Haematoma.
• Similarly a 40 year old female with head injury due to a road traffic accident, NCCT head s/o Left sided acute SDH improved clinically under observation and repeat NCCT head done after 12 hours showed marked resolution of Sub Dural Haematoma
• Proposed mechanism of spontaneous resolution was dilution and washing out of haematoma due to a tear in the arachnoid membrane by CSF.
• As a clinician one should keep an eye out for patients who do not deteriorate while awaiting surgery with NCCT having characteristics of SAH and a repeat CT scan should be done before any surgical intervention.

I. Introduction:
• Acute SDH, with thickness more than 10mm require immediate surgical evacuation in most situations.
• Rarely, rapid spontaneous resolution of acute SDH can occur.
• It has been theorised that:
• The hematoma is diluted by CSF flushing from a tear in the arachnoid membrane.
• Cerebral oedema compresses the haematoma redistributing it in the sub dural space or extracranially
• We can avoid surgical intervention in such cases if diagnosed in time. We are presenting a case with spontaneous resolution of acute SDH, discussing the mechanisms involved and possible indicatory factors.

CASE REPORT – I
• A sixty-year-old lady suffered a road traffic accident with L.O.C. +ve, Vomiting – 1 episode, no history of ENT bleed or seizures.
• NCCT Head done one hour after trauma was suggestive of Acute sub dural haematoma in Right FrontoTemporo – Parietal Region with a maximal thickness of 13mm causing a midline shift of 10mm to the left side associated with diffuse cerebral oedema and Sub Arachnoid Haemorrhage.
• She was then referred to our hospital for further management. Patient improved clinically during transportation and on admission in our hospital was conscious, oriented to time, place and person.
• GCS : E4V5M6. Routine investigations done for the patient showed severe anaemia (Hb : 7.6gm/dl).
• Patient was planned for emergency craniotomy after blood transfusion and kept under strict monitoring in the Intensive Care Unit. Two units PRBC transfused over the next 6 hours and the pt was started on antiepileptics and mannitol.
• Repeat NCCT done after 14 hours showed markedly resolved acute sub dural haematoma (maximum thickness of 3mm) and sub arachnoid haemorrhage noted along posterior falx cerebri.
• Patient continued to improve clinically and was discharged on the 11th day without any neurological deficit.

CASE REPORT – II
• A forty-year-old lady suffered a road traffic accident –L.O.C. +ve, Vomiting – 2 episodes, H/O Left ear bleed.
• No h/o seizures; nasal/oral bleed.
• NCCT Head done one hour after trauma was suggestive of Acute sub dural haematoma in Left Fronto-Temporo Region with a maximal thickness of 8mm causing a midline shift of 6mm to the right side
associated with diffuse cerebral oedema, Sub Arachnoid Haemorrhage and multiple areas of haemorrhagic contusions.

- Patient on admission in our hospital was conscious with a GCS of E3V4M6 and b/l reactive pupils.
- Patient was kept under strict monitoring in the Intensive Care Unit and started on antiepileptics and mannitol.
- Repeat NCCT done after 12 hours showed markedly resolved acute sub dural haematoma (maximum thickness of 3.4mm) and a contusion noted in the right parietal lobe.
- Patient continued to improve clinically and was discharged on the 5th day without any neurological deficit.

II. Discussion:

- A Subdural haematoma of greater than 10mm maximum thickness or causing a midline shift of more than 5mm is considered operative.
- Rapid spontaneous resolution is a rare occurrence, a pre-emptive diagnosis of this can avoid unnecessary surgery.

Proposed mechanisms with their radiological pointers:

- The presence of SAH in such patients could indicate partial distribution of haematoma in Subdural and subarachnoid spaces; this along with hypodensity on the outside of the clot are signs of a resolving clot.
- Redistribution of clot can occur extra cranially due to fracture or sutural diastasis. In our case the patient had a right temporal linear fracture, and subsequent NCCT Head showed increasing scalp haematoma. Thus, complimenting this hypothesis.
- Intracranial redistribution occurs due to a tear in the arachnoid membrane that leads to CSF flow in the subdural space and helps in flushing of the haematoma. CSF can be seen as a low-density band as a hypodensity between the hematoma and the inner table of skull.
- Anaemia may also be a contributing factor as low PCV makes the haematoma more amenable to being flushed.

Fig. 1- CASE REPORT I
NCCT Head done 1hr after trauma s/o Right Fronto-temporo parietal acute SDH with 13mm thickness and 10mm midline shift.
Repeat NCCT Head after 14 hours suggestive of grossly decreased acute SDH with maximal thickness of 3mm; SAH, increased scalp hematoma and a low density band between hematoma in inner table of skull.

NCCT Head done 1hr after trauma s/o Left Fronto- temporo acute SDH with 8mm thickness and 6mm midline shift and right temporal contusion

Repeat NCCT Head after 12 hours suggestive of grossly decreased acute SDH with maximal thickness of 3mm; negligible midline shift and a resolving Right Temporal Contusion.

**III. Conclusion:**

- In a case with any of the above radiological pointers if the patient is stable and there is a delay in surgery for any reason – a repeat NCCT scan should be done.
This may keep the patient from an unnecessary surgical intervention.
In our case, CSF flushing and following further redistribution intracranially would be the probable mechanism of resolution.

References: