Author's response to reviews

Title: Rapid resolution of acute subdural hematoma in severely head-injured child: a case report

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Author's response to reviews: see over
I’d like to thank the editor and reviewers of the ‘JMCR’ for taking their time to review our article. I have made some corrections and clarifications in the manuscript after going over your comments. The changes are summarized below. (In revised manuscript, the added sentences are expressed by **bold type**, the changed sentences are expressed by **bold type with underlines**, and the deleted sentences are expressed by **strikethrough feature**):

**Answers for the first reviewer’s comments**
1. In the introduction (line 5) the authors make a comment on treatment questions. I’d suggest being careful with the opinion: a hematoma with a thickness greater than 10 mm or midline shift greater than 5 mm should be surgically evacuated regardless of the Glasgow score.

   **Corrections**
   Introduction: Page 5, 6-11 lines, we changed and added sentences, as suggested.

**Answers for the 2nd reviewer’s comments**
1. Has your routine practice of head injury management changed due to this case? Would you recommend alterations to the protocol?

   **Opinion**
   Actually our protocol for head injury management has not yet been changed, because this is an unexpected case. After this case, we couldn’t experience the similar case. So if when head trauma patient comes to the hospital as the initial state in this case [comatose mentality & focal neurological signs (unilateral pupil dilatation & hemiparesis) with ASDH], we still perform emergent operation. However, if the patient was transferred from the other hospital and demonstrated apparent improvement in neurological examination as in our case, we think that the decision of emergent operation should be postponed until the follow-up CT scan.

2. Do you have ideas for pathophysiology - i.e. venous SDH vs arterial SDH, thereby necessitating surgery vs. conservative obs?
Opinion

According to the previously published papers, arterial SDH is presented as a result of direct bleeding into the subdural space or as an extension from an intracerebral hemorrhage (ruptured intracranial aneurysms, ruptured cortical artery, hypertensive intracerebral hematoma, neoplasms, hematologic disorders, anticoagulant / thrombolytic therapy, cerebral amyloid angiopathy, dural AV fistulas, and AIDS). In minor head injury, small twigs connecting to the dura mater branched perpendicularly form the cortical arteries and were torn by shearing force to form acute SDH. Arterial SDH may show contrast media extravasation from cortical artery on angiogram and be related with poor outcome. The choice of neuroradiological evaluation and treatment in suspicious arterial SDH should be based on the neurological status of the patient. We think that our case may not be strictly related with the different pathophysiology between venous and arterial SDH.

3. What do you consider are age-related issues in these situations?

Corrections

Discussion: Page 8, 5-8 lines, we added sentences.

Answers for the 3rd reviewer’s comments

1. This is an interesting case, really an example of a redistribution of SH, and no necessarily a resolution. Is like energy, only changed.

Opinion

We think that marked hematoma reduction with condensed density and increased subarachnoid hemorrhage, as shown in Fig 1B & 1C, can be explained by the dilution mechanism. And the thickened tentorial and interhemispheric hematoma on follow-up imaging studies (Fig 1C & 1D) also support redistribution of hematoma.

2. Why this patient dont performed surgery with acute criteria? The conservative management in this case should be a confusion in young to Residents

Opinion

The patient was transferred to our hospital for emergent operation.
However, neurological examination and follow-up CT scan revealed definitive improvement. So we decided to monitor the neurological status and check the follow-up CT scan, with conservative medical treatment.

Actually our protocol for head injury management has not yet been changed, because this is an unexpected case. After this case, we couldn't experience the similar case. So if when head trauma patient comes to the hospital as the initial state in this case [comatose mentality & focal neurological signs (unilateral pupil dilatation & hemiparesis) with ASDH], we still perform emergent operation. However, if the patient was transferred from the other hospital and demonstrated apparent improvement in neurological examination as in our case, we think that the decision of emergent operation should be postponed until the follow-up CT scan.

**Corrections**

Case presentation: Page 6, 14-16 lines, we added a sentence.

**Answers for the 4th reviewer’s comments**

1. Please find my comment on the margin of the manuscript (as attached file).

   **Corrections**

   1. Introduction
      1) for page 5, 6-11 lines, we added ref., and changed and added sentences .
      2) for page 6, 1-3 lines, we added refs. and changed sentence.

2. The authors should clarify what was the Glasgow Coma Score (GCS) when the patient arrived at the emergency department. They have stated that it was '7T'. I presume this implies that the GCS was 7 but because the patient had been intubated (T) the verbal score it was not possible to ascribe a verbal score. In that event the GCS is still reduced.

   **Corrections**

   Case presentation : Page 6, 11-12 lines, were changed, as suggested.

3. In children and young adults even small haematoma can cause neurological deficits and reduced consciousness because of normally the brain fills the cranial cavity in
patients in this age group (i.e. no brain atrophy and excessive subarachnoid space to compensate for haematoma). So, the authors would need to explain why they did not operate on 7-year-old girl when she had presented with an ASDH with reduced level of consciousness.

**Opinion**

The patient was transferred to our hospital for emergent operation. However, neurological examination and follow-up CT scan on admission revealed definitive improvement. So we decided to monitor the neurological status and check the follow-up CT scan, with conservative medical treatment.

Actually our protocol for head injury management has not yet been changed, because this is an unexpected case. After this case, we couldn't experience the similar case. So if when head trauma patient comes to the hospital as the initial state in this case [comatose mentality & focal neurological signs (unilateral pupil dilatation & hemiparesis) with ASDH], we still perform emergent operation. However, if the patient was transferred from the other hospital and demonstrated apparent improvement in neurological examination as in our case, we think that the decision of emergent operation should be postponed until the follow-up CT scan.

And as you pointed out, we think that the unique feature of child brain (no atrophy or excessive subarachnoid space) may explain the more rare development of spontaneous resolution of ASDH than aged-person.

**Corrections**

Case presentation: Page 6, 14-16 lines, we added a sentence.
Discussion: Page 8, 5-8 lines, we added sentences.

**Answers for the editorial team comment.**

1. Please include patient's ethnicity rather than nationality in the abstract and in the case presentation. (Eg. Caucasian)

**Corrections**

we changed the "Korean female patient" into "Asian girl".
I hope the revised manuscript will better meet the requirements of the ‘JMCR’ for publication. I’d like to thank you again for the constructive comments by reviewers.

Sincerely yours,

Kyung-Sub Moon, M.D.