Spontaneous Symptomatic Spinal Subdural Hematoma following SAH: Does this represent usual pathway for absorption?

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Introduction

Route of absorption of blood in the cerebrospinal fluid spaces following subarachnoid hemorrhage (SAH) is not clearly known. There are reports of intraventricular blood being absorbed through the spinal subdural space following endoscopic third ventriculostomy (Cartmill and Vloeberghs, 2000). We present a case report of a patient who had a spontaneous SAH who needed surgery for symptomatic subdural hematoma in the lumbar region.

Methods

A 54 year old man presented to our facility with a sudden onset of severe headache, diplopia, and drowsiness (Hunt and Hess grade 3). CT scan showed perimesencephalic subarachnoid hemorrhage and intraventricular hemorrhage. CTA and diagnostic cerebral angiogram were both negative for any etiology such as an aneurysm or AVM. Four days later he started developing increasing weakness of the lower extremities and quickly became paraplegic. MRI scan of the entire spine was done. There was a small subdural hematoma in the cervical and thoracic spine but the lumbar spine showed a large subdural hematoma which was emergently surgically evacuated. Over the next few weeks, the patient's motor strength improved to almost his baseline prior to discharge.

Results

We present a case of spontaneous angio-negative perimesencephalic SAH with subsequent symptomatic subdural hematoma in the lumbar region within a few days following ictus.

Discussion

There are several case reports that have been reported documenting spinal subdural hematoma following subarachnoid hemorrhage. There is one published report of thoracolumbar subdural hemorrhage following endoscopic third ventriculostomy. With the exception of the ventriculostomy case, most of the reported spinal SDH patients became symptomatic within the first week of ictus. Anatomical juxtaposition of the arachnoid layer with the inner dural layer allows absorption of the blood from the subarachnoid space through the subdural space.

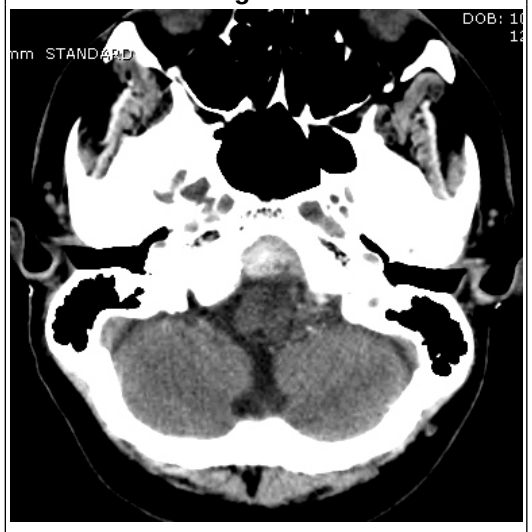
Some other mechanisms of spinal subdural hematoma after intracranial subarachnoid hemorrhage have been proposed. A previous case report by Mashiko et al. speculated that intracranial subarachnoid blood may actually dissect through the arachnoid membrane, causing blood to accumulate in the subdural space. Gilad et al. proposed that in rare instances, aneurysmal rupture may cause an arachnoid tear if the aneurysm itself is adherent to surrounding arachnoid granulations. Another proposition by this same group is that subarachnoid blood under high pressure may cause arachnoid rupture and subsequent extravasation of blood into the subdural space.

The symptomatic subdural hematomas represent a high volume transport of subarachnoid blood through this pathway to the subdural space. It is tempting to speculate whether this pathway plays a role in the absorption of blood and other products in the CSF.

Figure 1.

Lumbar spine subdural hematoma

Figure 2.



SAH

References

1) Lumbar Subdural Hematoma From Intracranial
Subarachnoid Hemorrhage Presenting With Bilateral Foot Drop: Case Report; James S. Waldron, MD
Michael C. Oh, MD, PhD
Dean Chou, MD. 2011.

2) Spinal Subdural Hematoma:
A Sequela of a Ruptured
Intracranial Aneurysm?;Satoshi Yamaguchi,* Kazutoshi Hida,* Minoru Akino,† Shunsuke Yano,† and Yoshinobu Iwasaki. 2002.

3) The fate of the cerebrospinal fluid after neuroendoscopic third ventriculostomy; Maria Cartmill Michael Vloeberghs. 2000.

4) Simultaneous cranial subarachnoid hemorrhage and spinal subdural hematoma; Mete, Ahmet et al. 2010.

5) Migrating subdural hematoma without subarachnoid hemorrhage in the case of a patient with a ruptured aneurysm in the intrasellar anterior communicating artery; Gilad, R, et al. 2007.

6) Lumbosacral subdural hematoma. Case report; Mahiko et al. 2006.