Concomitant Cranial and Lumbar Subdural Hematomas
—Case Report—

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Abstract

A 24-year-old woman presented with concomitant spinal and bilateral intracranial subdural hematomas (SDHs) after hitting her head and lower back in a fall while snowboarding. She developed lower back pain and posture headache. Magnetic resonance imaging revealed bilateral intracranial SDHs and spinal SDH. Her symptoms improved and all hematomas resolved gradually without treatment, and completely disappeared by 5 months after the accident. Simultaneous intracranial SDH and spinal SDH have been reported in only 18 patients, including ours, of whom 6 had suffered trauma. The mechanism of concomitant SDHs has not been clarified, but migration of the hematoma from the intracranial to spinal sites may be an important mechanism. In our patient, low cerebrospinal fluid pressure syndrome and double trauma may also have been involved.

Key words: concomitant disease, cranial subdural hematoma, head trauma, lumbar subdural hematoma

Introduction

Spinal subdural hematomas (SDHs) are comparatively rare, but may occur as a complication in patients with intracranial SDH. We treated a 24-year-old woman with concomitant spinal SDH and intracranial SDHs, and discuss the mechanism(s) underlying concomitant hematomas.

Case Report

A 24-year-old woman slipped and fell while snowboarding, hitting her lower back and occipital region. She did not lose consciousness. She felt dull afterwards and had some lower back pain, but she resumed her normal daily life. Two days after the accident, she suffered severe lower back pain and posture headache that worsened when standing or sitting, and decreased in the decubitus position. Her symptoms became severe so she left work to recuperate at home. Two weeks after the accident, her symptoms disappeared gradually. However, one month after the accident she experienced a few minutes of transient sensory disturbance of the right extremities and aphasia, and was admitted to our hospital.

On admission she was alert without neurological deficits. Brain computed tomography and magnetic resonance (MR) imaging revealed bilateral intracranial SDHs and spinal SDH (Figs. 1 and 2A, C). The spinal SDH was located posteriorly at the L4 to S2 levels and the lumbar canal was narrow. T1- and T2-weighted MR imaging showed the lumbar lesion as hyperintense. The left intracranial SDH...
Fig. 2 Brain axial computed tomography scans taken 1 month after the accident (A, C) showing bilateral subdural hematomas, and 5 months after the accident (B, D) revealing complete disappearance of both subdural hematomas.

Discussion

Concomitant (acute and chronic) intracranial SDH and spinal SDH are relatively rare, with only reported 18 cases, including ours, occurring after subarachnoid hemorrhage (SAH) surgery in 6 patients, after ventriculoperitoneal shunt placement in 3, after trauma in 6, and developed spontaneously in 3 patients (Table 1). The mechanisms underlying simultaneous SDHs are unclear, but may involve migration of the SDH from the intracranial to spinal sites.\(^4,12\) Migration is possible in patients with post-traumatic intracranial and spinal SDHs because the spinal SDH appeared a few days after the spontaneous resolution of the intracranial SDH.\(^1,2,7\)

Our patient reported that the symptoms which began 2 days after the trauma were improved 2 weeks later. We suggest that at the time of diagnosis one month after the accident, the hematomas were already in the absorption phase because her headache and severe low back pain abated approximately 2 weeks after the fall. Unlike previous patients, our patient had posture-related headache reminiscent of low cerebrospinal fluid (CSF) pressure syndrome. Low CSF pressure is observed in patients with concomitant intracranial and spinal SDHs after ventriculoperitoneal shunt placement\(^6,9,11\) and after SAH surgery.\(^4,12\) Therefore, in our patient, low CSF pressure may also have been involved in the occurrence and growth of the concomitant hematomas, although we suspect migration as a contributing factor.

At the time of diagnosis we could not rule out double trauma to the head and lumbar region, although we now attribute the concomitant hematomas to migration from the intracranial to the spinal sites. Besides our patient, 5 of the 17 previous patients presented with concomitant hematomas caused by trauma to the head and hip, indicating that trauma is also important in the development of concomitant hematomas. Interestingly, 4 of the 6 patients with concomitant SDHs had slipped on ice (2 patients\(^5,10\)) or while snowboarding (2 patients including ours).\(^1\)

Spinal SDH can be treated by surgery or conservative therapy. Of the 6 reported patients with post-traumatic concomitant hematomas, 3 underwent surgery and 3 improved during observation. The operated patients had relatively severe symptoms such as severe lower back pain and radiculopathy. Therefore, interventional and conservative treatment options should be considered carefully in patients with concomitant SDHs.

References

3) Jain V, Singh J, Sharma R: Spontaneous concomitant cranial and spinal subdural haematomas with spontaneous resolution...

Table 1 Cases of post-traumatic concomitant hematomas

<table>
<thead>
<tr>
<th>Author (Year)</th>
<th>Age (yrs)</th>
<th>Sex</th>
<th>Intracranial hematoma</th>
<th>Manifestation</th>
<th>Lumbar hematoma</th>
<th>Treatment</th>
</tr>
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<tbody>
<tr>
<td>Lee et al. (1996)(^7)</td>
<td>15</td>
<td>M</td>
<td>ASDH</td>
<td>7 days</td>
<td>L4–S2</td>
<td>observation</td>
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<tr>
<td>Leber et al. (1997)(^5)</td>
<td>54</td>
<td>M</td>
<td>CSDH</td>
<td>3 wks</td>
<td>L1–S2</td>
<td>operation</td>
</tr>
<tr>
<td>Tillich et al. (1999)(^6)</td>
<td>54</td>
<td>M</td>
<td>CSDH</td>
<td>3 wks</td>
<td>L1–S2</td>
<td>operation</td>
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<tr>
<td>Hung et al. (2002)(^3)</td>
<td>12</td>
<td>M</td>
<td>ASDH</td>
<td>0 days</td>
<td>L1–L5</td>
<td>observation</td>
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<tr>
<td>Bortolotti et al. (2004)(^1)*</td>
<td>23</td>
<td>F</td>
<td>ASDH</td>
<td>4 days</td>
<td>L4–S2</td>
<td>operation</td>
</tr>
<tr>
<td>Present case*</td>
<td>24</td>
<td>F</td>
<td>CSDH</td>
<td>2 days</td>
<td>L4–S2</td>
<td>observation</td>
</tr>
</tbody>
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*Occurred during snowboarding. ASDH: acute subdural hematoma, CSDH: chronic subdural hematoma.

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