Aneurysm Rupture During Coiling: Utility of Neurophysiologic Monitoring and Early Ventriculostomy Placement

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Case Report

- 42 year old man with SAH
- Hunt and Hess I
- Fisher I
- 6 mm Acomm. aneurysm
Relevant Data

- Patient intubated
- SBP maintained 90-100 mm Hg
- Baseline images showed 0.34 second transit time from ICA to A2 opacification
- Heparinized 3000 units
- T10 5 mm x 10 cm coil deposited
- Aneurysm fundus breached by coil
Relevant Data

- 100 mg Proteamine administered
- Coil drawn into aneurysm and deposited
- Arteriogram shows extravasation with 1.67s transit time
- SBP rises 33 mm Hg
- EEG flattens within 5s of rupture
- Median and posterior tibial SSEP begin to flatten within 30s of rupture and are lost within 2.5 minutes of rupture
Relevant Data

- 23 minutes after documented rupture and loss of all EEG and SSEP activity a ventriculostomy was inserted in the angiogram suite
- OP 700 mm water
- Repeat ICA angiogram shows transit time <0.05s
- The patient awoke with a normal examination and was discharged 14 days later
Ruptures

- UPMC and UTSW: 274 consecutive patients reviewed
- 6 intra-procedural ruptures (2%)
- 5/6 presented with SAH
- Literature rate is 2-4%

<table>
<thead>
<tr>
<th>Patient No.</th>
<th>Coiling (Postbleed Day)</th>
<th>Rupture Etiology</th>
<th>Management</th>
<th>Hunt-Hess Grade</th>
<th>GOS at Discharge</th>
<th>GOS at Last Follow-up</th>
<th>Follow-up (mo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Catheter before detachment of last coil</td>
<td>Detach last coil, supportive care</td>
<td>II</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Last coil</td>
<td>Reposition, detach last coil</td>
<td>IV</td>
<td>3</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Unruptured</td>
<td>First coil</td>
<td>Reverse heparin, clipping 10 d later</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Last coil</td>
<td>Reposition, detach last coil</td>
<td>V</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>Last coil</td>
<td>Right vertebral artery sacrifice</td>
<td>IV</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>3rd of 4 coils</td>
<td>Insert 1 more coil</td>
<td>III</td>
<td>3</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

*GOS, Glasgow Outcome Scale score.*