<table>
<thead>
<tr>
<th>Case Title</th>
<th>Surgical clipping of prior coil A1 aneurysm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery Date</td>
<td>6 / 14 / 2018</td>
</tr>
</tbody>
</table>

**Medical History & Medications**

**Past Medical History**

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Any comorbidities relevant to the management of this case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comorbidity</td>
<td>Other medical condition or treatment relevant to neurosurgical care</td>
<td>Prior A1 aneurysm rupture</td>
</tr>
<tr>
<td>Comorbidity Coagulopathy</td>
<td>Add another</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Any longstanding (&gt; 3 months) existing medications relevant to management of this case?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication Anticoagulants</td>
<td>Add another</td>
<td>X</td>
</tr>
<tr>
<td>Specify anticoagulant Other</td>
<td>ASA 81mg</td>
<td>Add another</td>
</tr>
<tr>
<td>Medication Anticoagulants</td>
<td>Add another</td>
<td>X</td>
</tr>
<tr>
<td>Specify anticoagulant Eliquis (apixaban)</td>
<td>Add another</td>
<td>X</td>
</tr>
</tbody>
</table>

**Neurosurgical Diagnoses**

Diagnosis Categories-Descriptive 1: Cranial and Neck

<table>
<thead>
<tr>
<th>Cranial and Neck Categories</th>
<th>Vascular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhage?</td>
<td>No</td>
</tr>
</tbody>
</table>

Diagnosis 1: Cerebral aneurysm, anterior circulation, nonruptured

Diagnosis Categories-Descriptive 2

Diagnosis Categories-Descriptive 3
Surgical Management

Procedure Category Descriptive 1: Cranial
- Cranial Procedures: Vascular/Non-traumatic hemorrhage (except vascular occlusive disease)

Procedure 1: Craniotherapy for aneurysm

Procedure Category Descriptive 2

Procedure Category Descriptive 3

Y N Were any surgical adjuncts used intraoperatively?
- Intraoperative MRI
- Image guidance
- Microscope
- Intraoperative laser
- Ultrasound
- Ultrasonic aspirator/cavitron
- Conventional fluoroscopy
- X-rays
- Endoscopy
- Catheter angiography
- Fluorescein angiography
- Fluorescein guided tumor resection
- Robotic assisted surgery
- Intraoperative CT or high resolution fluoroscopy
- Neononionting
  - EMG
  - Motor evoked potential
  - BAER
  - SSEP
  - EEG
  - Other cranial nerve monitoring
  - Other

Surgical Role: Primary Surgeon

CPT Codes (all submitted codes)

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Add another</th>
</tr>
</thead>
<tbody>
<tr>
<td>69990</td>
<td>Microsurgical techniques, requiring use of operating microscope (List separately in addition to code for primary procedure)</td>
<td>X</td>
</tr>
<tr>
<td>61700</td>
<td>Surgery of simple intracranial aneurysm, intracranial approach; carotid circulation</td>
<td>X</td>
</tr>
<tr>
<td>36224</td>
<td>Selective catheter placement, internal carotid artery, unilateral, with angiography of the ipsilateral intracranial carotid circulation and all associated radiological supervision and interpretation, includes angiography of the extracranial carotid and cervicocerebral arch, when performed</td>
<td>X</td>
</tr>
<tr>
<td>75894</td>
<td>Transcatheter therapy, embolization, any method, radiological supervision and interpretation</td>
<td>X</td>
</tr>
<tr>
<td>75898</td>
<td>Angiography through existing catheter for follow-up study for transcatheter therapy, embolization or infusion, other than for thrombolysis</td>
<td>X</td>
</tr>
<tr>
<td>UCODE</td>
<td>Unexpected Neurosurgical CPT Code. If the CPT code in the field below is correct, please append the procedure description.</td>
<td>Add another X</td>
</tr>
<tr>
<td>95958</td>
<td>EEG monitoring</td>
<td>X</td>
</tr>
<tr>
<td>36217</td>
<td>Selective catheter placement, arterial system; initial third order or more selective thoracic or brachiocephalic branch, within a vascular family</td>
<td>X</td>
</tr>
<tr>
<td>61624</td>
<td>Transcatheter permanent occlusion or embolization (eg, for tumor destruction, to achieve hemostasis, to occlude a vascular malformation, percutaneous, any method; central nervous system (intracranial, spinal cord)</td>
<td>X</td>
</tr>
</tbody>
</table>
### Clinical Summary

**History and Presentation**

- **Y N** Did the patient have symptoms related to the primary pathology and/or clinical diagnosis? (Note: selecting "no" to this question will result in "asymptomatic" being assigned as the presenting condition for this patient)

  Describe presentation or events leading to neurosurgical intervention (including duration of symptoms, if applicable)

  57F w h/o ruptured L A1 aneurysm s/p coil embol (9/2017), on interval flu DSA recurrence of neck. Remains asymptomatic at her baseline.

- **Y N** Is there other pertinent neurological history?

  Other data pertinent to clinical evaluation

**Physical examination**

- **Y N** Are there any vital signs relevant to subsequent management?

- **Y N** Are there abnormal findings on the neurological examination?

- **Y N** Are there general exam findings relevant to subsequent neurosurgical management?

  Note: selecting "no" to all of these questions will result in "normal physical exam" being assigned as the result of the physical evaluation

### Imaging & Testing

- **Y N** Was pre-operative neuro-imaging or electrodagnostic testing relevant to subsequent neurosurgical management obtained?

  - [ ] Head CT
  - [ ] Spine CT
  - [ ] Head MRI: diagnostic
  - [ ] Head MRI: functional
  - [ ] Peripheral nerve MRI
  - [ ] Flexion/Extension X rays
  - [ ] AP/Lateral X rays
  - [ ] Spine MRI
  - [ ] Myelogram
  - [ ] EMG/NCV
  - [ ] Cerebral perfusion study
  - [ ] MRA/V
  - [ ] CTA/V

  - [ ] Catheter angiography

  - **Y N** Abnormal Results? Neck residual of previously coiled ruptured L A1 aneurysm

  - [ ] PET/PET CT
  - [ ] BAE/Angiogram
  - [ ] Other
**Non-Surgical Management**

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were non-surgical therapies relevant to the neurosurgical management of this patient applied prior to surgery?</td>
<td></td>
</tr>
</tbody>
</table>

**Surgical Outcomes**

Objectives of surgery (describe the primary technical and clinical goals for this surgical procedure)

- Surgical clip reconstruction of residual L A1 aneurysm
  - Y
  - N

Immediate post-operative (acute post-surgical period, i.e. during the hospital stay)

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the goals of the surgery met? Complete obliteration of aneurysm</td>
<td></td>
</tr>
<tr>
<td>Complete obliteration of aneurysm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexpected return to OR related to primary procedure?</td>
<td></td>
</tr>
<tr>
<td>Complications other than unexpected return to OR?</td>
<td></td>
</tr>
</tbody>
</table>

Disposition Home

Other comments regarding immediate outcomes and management: Postoperative DSA shows complete obliteration of aneurysm

Intermediate post-operative outcomes (discharge to 3 months)

Note: A minimum of 3 months follow-up is required by the ABNS. If such follow up is not available, the reasons should be stated below.

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is intermediate postoperative follow up available?</td>
<td></td>
</tr>
</tbody>
</table>

Date of intermediate follow up: 7 / 19 / 2018

Intermediate follow up encounter type: Office visit

Clinical condition (compared with pre-operative baseline): Improved

Clinical condition (compared to discharge status): Worsened

DVT, started on Eliquis, expanding asymptomatic SDH

Other neurological complication: Expanding postoperative SDH

History of DVT, started on Eliquis by PCP, returned for flu w/ expanded SDH. Underwent MMA embol and IVC filter placement on 07/20/2018

Late Outcomes (3-12 months)

Note: If follow-up information in the 3-12 month post op period is available, this too should be reported. If such follow up is not available, the reasons should be stated below.

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is late follow up available?</td>
<td></td>
</tr>
</tbody>
</table>

Date of late follow up: 11 / 16 / 2018

Late follow up encounter type: Office visit

Clinical condition (compared with pre-operative baseline): Improved

Clinical condition (compared to date of intermediate evaluation): Improved

Resolution of SDH

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexpected return to OR related to the primary procedure at any point after the intermediate follow up?</td>
<td></td>
</tr>
<tr>
<td>Other Complication(s) related to the primary procedure at any point after the intermediate follow up?</td>
<td></td>
</tr>
</tbody>
</table>

Other comments regarding late outcomes and management: Multiple flu shots, however this is the most recent. Resolution of SDH. Flu in 6 months with cold head

Other general case comments

Please provide any other comments you would like to make regarding the clinical decision making, surgical management or outcomes of this case.
### Medical History & Medications

#### Past Medical History

- **Y** Any comorbidities relevant to the management of this case
- **N**

  - **Other medical condition or treatment relevant to neurosurgical con...**
  - **Laryngeal CA s/p resection, HTN, HLD**

- **Y** Any longstanding (> 3 months) existing medications relevant to management of this case?
- **N**

  - **Other**
  - **Amldipine, ASA®, Zetia, Valsartan**

### Neurosurgical Diagnoses

#### Diagnosis Categories-Descriptive 1 Cranial and Neck

- **Cranial and Neck Categories**
  - **Vascular**
    - **Hemorrhage?**
      - **No**
    - **Diagnosis:** Extracranial atherosclerosis, nonhemorrhagic

- **Diagnosis Categories-Descriptive 2**

- **Diagnosis Categories-Descriptive 3**

### Surgical Management

- **Procedure Category Descriptive 1**
  - **Endovascular procedure**
  - **Right carotid stent**

#### CPT Codes (all submitted codes)

- **CPT Code**
  - **UCODE**
    - **99153** - sedation
  - **75898** - Angiography through existing catheter for follow-up study for transcatheter therapy, embolization or infusion, other than for thrombolysis
  - **37215** - Transcatheter placement of intravascular stent(s), cervical carotid artery, open or percutaneous, including angioplasty, when performed, and radiological supervision and interpretation; with distal embolic protection
### Clinical Summary

#### History and Presentation

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the patient have symptoms related to the primary pathology and/or clinical diagnosis? (Note: selecting &quot;no&quot; to this question will result in &quot;asymptomatic&quot; being assigned as the presenting condition for this patient.)</td>
<td></td>
</tr>
</tbody>
</table>

**Primary presenting symptoms** (check all that apply)

- Seizure
- LOC
- Altered mental status
- Cognitive difficulties
- Language difficulties
- Psychiatric symptoms
- Visual difficulties
- Hearing difficulties
- Balance problems
- Dizziness
- Headache
- Limb weakness
- Limb numbness
- Limb pain
- Paresthesias
- Sphincter disturbance
- Other symptom(s)

Describe presentation or events leading to neurosurgical intervention (including duration of symptoms, if applicable)

1. 2OTw transient LUE paresis/paresthesias that resolved after 10 minutes. NIHSS 0 in ED. CTSS showing increased TTP R MCA distribution.

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there other pertinent neurological history?</td>
<td></td>
</tr>
</tbody>
</table>

Other data pertinent to clinical evaluation

### Physical examination

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are there any vital signs relevant to subsequent management?</td>
<td></td>
</tr>
<tr>
<td>Are there abnormal findings on the neurological examination?</td>
<td></td>
</tr>
<tr>
<td>Are there general exam findings relevant to subsequent neurosurgical management?</td>
<td></td>
</tr>
</tbody>
</table>

Note: selecting "no" to all of these questions will result in "normal physical exam" being assigned as the result of the physical evaluation

### Imaging & Testing

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was pre-operative neuro-imaging or electrodagnostic testing relevant to subsequent neurosurgical management obtained?</td>
<td></td>
</tr>
</tbody>
</table>

- Head CT
- Abnormal Results?
- Spine CT
- Head MRI: diagnostic
  - Abnormal Results?
    - Small punctate foci of +DVI restriction in the R MCA distribution
  - Head MRI: functional
  - Peripheral nerve MRI
  - Flexion/Extension X-rays
  - AP/Lateral X-rays
  - Spine MRI
  - Myelogram
  - EMG/NCV
  - Cerebral perfusion study
    - Abnormal Results?
      - Increased TTP R MCA distribution
  - MRA/V
  - CTA/V
    - Abnormal Results?
      - Severe R ICA stenosis
  - Catheter angiography
  - PET/PET CT
  - BAER/Audiogram
  - Other
Non-Surgical Management

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were non-surgical therapies relevant to the neurosurgical management of this patient applied prior to surgery?</td>
<td></td>
</tr>
</tbody>
</table>

- Y
  - Medical or Pharmacological Therapies
    - Anti-platelets
    - Other
  - Add another

- N
  - Results of non-surgical, pre-operative therapies?
    - ASA/Brilinta loading for stent placement
    - Stroke management

Surgical Outcomes

Objectives of surgery (describe the primary technical and clinical goals for this surgical procedure)

- Right carotid stenting for revascularization

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the goals of the surgery met?</td>
<td></td>
</tr>
</tbody>
</table>

- Y
  - Right carotid stent placed

Immediate post-operative (acute post-surgical period, i.e. during the hospital stay)

- Clinical condition compared with pre-operative baseline: Improved
  - No further TIA, improved doppler velocities R ICA

- Y
  - Unexpected return to OR related to primary procedure?
  - Y
    - N
    - Complications other than unexpected return to OR?
    - Disposition: Home

Other comments regarding immediate outcomes and management

Intermediate post-operative outcomes (discharge to 3 months)

Note: A minimum of 3 months follow-up is required by the ABNS. If such follow up is not available, the reasons should be stated below.

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is intermediate postoperative follow-up available?</td>
<td></td>
</tr>
</tbody>
</table>

- Y
  - Intermediate follow-up encounter type: Office visit
  - Date of intermediate follow up: 7 / 23 / 2018

- N
  - Clinical condition compared with pre-operative baseline: Improved
    - No further TIA, improved doppler velocities R ICA
  - Clinical condition compared to discharge status: Improved
    - No further TIA, improved doppler velocities R ICA

- Y
  - Unexpected return to OR related to the primary procedure at any point after discharge from the hospital?
  - Y
    - N
    - Other Complications(s) related to the primary procedure at any point after discharge from the hospital?

Other comments regarding intermediate outcomes and management

Late Outcomes (3-12 months)

Note: If follow-up information in the 3-12 month post op period is available, this too should be reported. If such follow up is not available, the reasons should be stated below.

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is late follow up available?</td>
<td></td>
</tr>
</tbody>
</table>

- Y
  - Date of late follow up: 12 / 11 / 2018
  - Late follow up encounter type: Office visit

- N
  - Clinical condition compared with pre-operative baseline: Improved
    - No further TIA, improved doppler velocities R ICA
  - Clinical condition compared to date of intermediate evaluation: Unchanged
    - No further TIA, stable doppler velocities R ICA

- Y
  - Unexpected return to OR related to the primary procedure at any point after the intermediate follow up?
  - Y
    - N
    - Other Complications(s) related to the primary procedure at any point after the intermediate follow up?

Other comments regarding late outcomes and management

Other general case comments

Please provide any other comments you would like to make regarding the clinical decision making, surgical management or outcomes of this case.