Ascending Aortic Case Scenario

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Disclosures

• I have no disclosures
Case Scenario

• 48 yr. old male presented 01/06/2019 to an outside hospital with CP radiating to the back. Nothing exacerbates or relieves his pain.

• No signs of malperfusion upon exam. Palpable pedal pulses. Numbing and tingling of bilateral lower extremities with exertion.
Scenario Cont.

- CT of chest, abdomen and pelvis demonstrated an ascending aortic aneurysm extending from the aortic root to the iliacs.

- No previous medical or surgical history.

- Patient taken to the OR for emergent repair of a hyperacute DeBakey type 1 aortic dissection.
Intraoperative Finding

• Intraoperative TEE confirmed ascending aortic dissection with severe aortic insufficiency.

• Well preserved LVEF, there was no other valvular pathology.

• Inspection of the aortic root revealed asymmetric dilatation of the aortic root with significant dilatation of the non coronary sinus.

• Primary dissection tear was located in the non coronary sinus adjacent to the commissure of the right non coronary cusps.
Aortic Valve

Normal Valve

Cusps

Non-Coronary Cusps

Left Coronary

Right Coronary

Annulus

Commissures
Procedure Description

• 8 mm Dacron graft was attached end to side anastomosis to the axillary artery to create a side arm graft. The distal end was connected to the arterial aspect of the CPB machine.

• Ascending aorta was cross-clamped, cold Del Nido cardioplegia was delivered into the coronary sinus in retrograde fashion.
• Aorta transected in the mid portion and resected to the level of the sinotubular junction of the non coronary sinus.

• The aortic valve cusps were resected to the level of the annulus.
• Annulus measured 25 mm.
  • 25 mm On-X valve sizer with a 26 Valsalva composite valve conduit was selected.
  • 28 mm gel weave ascending aortic graft was also selected.

• Vascular clamps placed onto the base of the innominate and left common carotid arteries.
• Circulatory arrest with antegrade cerebral perfusion maintained via the right axillary artery.

• Valve conduit was then seated down in to the intra annular position.
• R & L coronary buttons sewn in place.

• Cross clamp removed from the ascending aorta and aorta was resected to the mid aortic arch.

• 28 mm gel weave graft was anastomosed to the distal ascending aorta.
• Once anastomosis completed the clamps were removed from the innominate and L common carotid arteries.

• Valsalva graft and the ascending aortic gel weave grafts were cut to the appropriate length and graft-to-graft anastomosis was completed.
Post Procedure Information

• No valvular or perivalvular insufficiency seen post procedure.

• Total systemic circulatory arrest with antegrade cerebral perfusion was 40 minutes.

• CPB time 246 min, x-clamp time 175 min.
Abstraction Time
# Case Scenario

## M.2. Aorta And Aortic Root Procedures

<table>
<thead>
<tr>
<th>Location</th>
<th>Previous repair location(s)</th>
<th>Repair Type</th>
<th>Repair failure (If Yes)</th>
<th>Disease progression (If Yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select all that apply</td>
<td>Select all that apply</td>
<td>Select all that apply</td>
<td>Select all that apply</td>
</tr>
<tr>
<td>Root</td>
<td>Yes</td>
<td>Open</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ascending</td>
<td>No</td>
<td>Endovascular</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Arch</td>
<td>No</td>
<td>Hybrid</td>
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<td>No</td>
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<tr>
<td>Descending</td>
<td>No</td>
<td>PriorRepairArch</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Suprarenal abdominal</td>
<td>No</td>
<td>Endovascular</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Infrarenal abdominal</td>
<td>No</td>
<td>Hybrid</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**Notes:**
- Location: Root, Ascending, Arch, Descending, Suprarenal abdominal, Infrarenal abdominal
- Repair options: Yes, No, Open, Endovascular, Hybrid
- Repair failure: Yes, No
- Disease progression: Yes, No

---

**Type equation here.**
### Endoleak

- **Endoleak (4620)**
  - **Type I:** leak at graft attachment site
    - **Yes**
    - **No**
    - **Unknown**
      - **Location:**
        - Ia-proximal
        - Ib-distal
        - Ic-iliac occluder

  - **Type II:** aneurysm sac filling via branch vessel
    - **Yes**
    - **No**
    - **Unknown**
      - **Number of vessels:**
        - IIA: single vessel
        - IIB: two vessels or more

  - **Type III:** leak through defect in graft
    - **Yes**
    - **No**
    - **Unknown**
      - **Defect type:**
        - IIIa: junctional separation of modular components
        - IIIb: endograft fractures or holes

  - **Type IV:** leak through graft fabric
    - **Yes**
    - **No**
    - **Unknown**

  - **Type V:** endotension - expansion aneurysm sac without leak
    - **Yes**
    - **No**
    - **Unknown**

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### Infection

- **Infection (4665)**
  - **Yes**
  - **No**
  - **Unknown**

### Aortic Infection Type

- **Infected**
  - **Type:**
    - I
    - II
    - III

### Trauma

- **Trauma (4675)**
  - **Yes**
  - **No**
  - **Unknown**

  - **Root:**
    - **TraumaRoot (4680)**
      - **Yes**
      - **No**
      - **Descending:**
        - **TraumaDesc (4695)**
          - **Yes**
          - **No**

  - **Ascending:**
    - **TraumaAsc (4685)**
      - **Yes**
      - **No**
      - **Thoracoabdominal:**
        - **TraumaThorac (4700)**
          - **Yes**
          - **No**

  - **Arch:**
    - **TraumaArch (4690)**
      - **Yes**
      - **No**
      - **Abdominal:**
        - **TraumaAbdom (4705)**
          - **Yes**
          - **No**
48 yr. old male presented today 12/17/2018 to an outside hospital with CP radiating to the back.

Intraoperative TEE confirmed ascending aortic dissection.
Patient taken to the OR for emergent repair of a hyperacute aortic dissection.

Surgeon Worksheet

- Timing: Hyperacute (<48 hrs)
- Dissection onset date known: Yes
- Date of onset: 01/06/2019
- 48 yr. old male presented 1/6/2019
**Primary tear location:**
- Below STJ  
- STJ-midascending  
- Midascending to distal ascending  
- Zone 1  
- Zone 2  
- Zone 3  
- Zone 4  
- Zone 5  
- Zone 6  
- Zone 7  
- Zone 8  
- Zone 9  
- Zone 10  
- Zone 11

**Secondary tear location:**
- Below STJ  
- STJ-midascending  
- Midascending to distal ascending  
- Zone 1  
- Zone 2  
- Zone 3  
- Zone 4  
- Zone 5  
- Zone 6  
- Zone 7  
- Zone 8  
- Zone 9  
- Zone 10  
- Zone 11

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**STS Aorta Surgery Worksheet V2.9**

**For Aneurysms:**
- Aneurysm Location: ____________
- Zone of largest circumference of aneurysm – most proximal zone if largest circumference spans two or more zones

**For Dissections:**
- (Select all that apply and fill in location)
- Primary Tear Location: ____________
- Secondary Tear Location: ____________
- Retrograde Extension Location: ____________
- Distal Extension Location: ____________
- Rupture Location: ____________
- Rupture Contained: ■ Yes  ■ No

**For Open Descending Thoracic Aorta or Thoracoabdominal Procedures:**
- Proximal Location: ____________  
- Distal Location: ____________

**For Endovascular Procedures:**
- Proximal Location: ____________
- Distal Location: ____________
- Unintentional Rupture of dissection septum Location: ____________

---

**For Intra OP:**
Distal extension: ☐ Yes  ☐ No  ☐ Unknown (If Yes ↓)

**DistalExt (4775)**

Distal Extension Location:

☐ Below STJ  ☐ STJ-midascending  ☐ Midascending to distal ascending
☐ Zone 1  ☐ Zone 2  ☐ Zone 3  ☐ Zone 4  ☐ Zone 5  ☐ Zone 6  ☐ Zone 7  ☐ Zone 8  ☐ Zone 9
☐ Zone 10  ☐ Zone 11

SEQ. #: 4775
Long Name: Dissection - Distal Extension
Short Name: DistalExt
Definition: Indicate whether there is distal extension

Intent/Clarification:
The intent is to identify where **distal (antegrade) dissection occurred or extended.**
How far along the aorta (away from the valve).
Poll: True or False there was no distal extension?
True or False there was no distal extension?

A. True
B. False
CT of chest, abdomen and pelvis demonstrated an ascending aortic aneurysm extending from the aortic root to the iliacs.
### Distal Extension
- **Yes**
- **No**
- **Unknown** (If Yes)

**Distal Extension Location:**
- Below STJ
- STJ-midascending
- Midascending to distal ascending
- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5
- Zone 6
- Zone 7
- Zone 8
- Zone 9
- Zone 10
- Zone 11

### STS Aorta Surgery Worksheet V2.9

#### Identify Procedural Location using graph letters A-N →

**For Aneurysms**
- Aneurysm Location:
  - [area of largest circumference of aneurysm – most proximal zone if largest circumference spans two or more zones]

**For Dissections**
- [Select all that apply and fill in location]
  - Primary Tear Location:
  - Secondary Tear Location:
  - Retrograde Extension Location:
  - Distal Extension Location:
  - Rupture Location:
  - Rupture Contained:

**For Open Descending Thoracic Aorta or Thoracoabdominal Procedures**
- Proximal Location:
- Distal Location:
- Reverse Hemi
- Distal Location:

**For Endovascular Procedures**
- Proximal Location:
- Distal Location:
- Unintentional Rupture of dissection septum
- Location: Intra OP
Distal extension: □ Yes □ No □ Unknown (If Yes ↓)
DistalExt (4775)

Distal Extension Location: □ Below STJ □ STJ-midascending □ Midascending to distal ascending
□ Zone 1 □ Zone 2 □ Zone 3 □ Zone 4 □ Zone 5 □ Zone 6 □ Zone 7 □ Zone 8 □ Zone 9
□ Zone 10 □ Zone 11
DistalExtLoc (4780)

STS Aorta Surgery Worksheet V2.9

Identify procedural location using graph letters A-N →

For Aneurysms
Aneurysm Location: (area of largest circumference of aneurysm — most proximal zone #
largest circumference spans two or more zones)

For Dissections: (Select all that apply and fill in location)
□ Primary Tear Location: ______
□ Secondary Tear Location: ____________
□ Retrograde Extension Location: ____________

Distal Extension Location: 9

□ Rupture Location: ____________
Rupture Contained: □ Yes □ No

For Open Descending Thoracic Aorta or Thoracoabdominal Procedures:
Proximal Location: ____________
Distal Location: ____________

For Endovascular Procedures:
Proximal Location: ____________
Distal Location: ____________ Intra OP
Unintentional Rupture of dissection septum Location: ____________
## Malperfusion:  □ Yes  □ No  □ Unknown (If Yes ‒ select all that apply)

**DisMal (4785)**

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<tr>
<th></th>
<th>□ Yes</th>
<th>□ No</th>
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<tbody>
<tr>
<td><strong>Coronary</strong></td>
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<tr>
<td>DisMalCor (4790)</td>
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<tr>
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<td></td>
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<tr>
<td>DisMalRtSubclav (4791)</td>
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<td></td>
</tr>
<tr>
<td>Right Common Carotid</td>
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<td></td>
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<tr>
<td>DisMalRComCar (4792)</td>
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<td></td>
</tr>
<tr>
<td>Left Common Carotid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DisMalLCom (4800)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left Subclavian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DisMalSubL (4805)</td>
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</tr>
<tr>
<td>Celiac</td>
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<td>DisMalCel (4810)</td>
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<table>
<thead>
<tr>
<th>Superior Mesenteric</th>
<th>□ Yes</th>
<th>□ No</th>
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<tbody>
<tr>
<td>DisMalSup (4815)</td>
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<tr>
<td>Renal, left</td>
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<tr>
<td>DisMalRenL (4820)</td>
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<tr>
<td>Renal, right</td>
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<td></td>
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<td>DisMalRenR (4825)</td>
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<tr>
<td>Iliofemoral</td>
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<td>DisMalIlio (4830)</td>
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<td></td>
</tr>
<tr>
<td>Spinal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DisMalSpin (4835)</td>
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<td></td>
</tr>
</tbody>
</table>

---

**No signs of malperfusion upon exam**

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**Surgeon Worksheet**

Malperfusion:  □ Yes (If Yes ‒)

- □ No

- If Yes → Subclavian → □ Right □ Left
- □ Coronary
- □ Celiac

Common Carotid → □ Right □ Left
- □ Superior Mesenteric

- □ Iliofemoral
- □ Spinal
Poll: Was there pre-operative malperfusion present, if so where?
Was there pre-operative malperfusion present, if so where?

A. Yes, left subclavian
B. Yes, left renal
C. None
D. Yes, celiac and left renal
CT: Partial visualization of left renal marked hydronephrosis. Consider CT abdomen and pelvis for further characterization, if warranted.

No signs of malperfusion upon exam

CT: Partial visualization of left renal marked hydronephrosis. Consider CT abdomen and pelvis for further characterization, if warranted.
Palpable pedal pulses. Numbing and tingling of bilateral lower extremities with exertion

SEQ. #: 4836
Long Name: Dissection - lower Extremity Motor Function Short Name: DisLowMotFun
Definition: Indicate status of lower extremity motor function

Intent/Clarification:
The intent is to identify if any NEW motor deficit of either lower extremity as a presenting symptom. This is preoperative status and does not include new post-operative paralysis or paraplegia.

This is intended to capture new sensory-motor deficit due to vascular malperfusion and not due to post-operative complication.
Palpable pedal pulses. Numbing and tingling of bilateral lower extremities with exertion

**Lower Extremity Sensory Deficit:** ☑ Yes ☐ No ☐ Unknown

DisLowSenDef (4837)

SEQ. #: 4837
Long Name: Dissection - Lower Extremity Sensory Deficit
Short Name: DisLowSenDef
Definition: Indicate whether lower extremity sensory deficit is present

Intent/Clarification:
The intent is to identify any NEW sensory deficit of either lower extremity is present following dissection. Report “yes” if any note comments on numbness or insensate areas that were not recorded in the past medical history. Only report “unknown” if there is no comment in the medical record regarding sensation in the lower extremities.

This is preoperative status and does not include post-operative paralysis or paraplegia.
Poll: Was there asymmetric root dilation, if so where?
Was there asymmetric root dilation, if so where?

A. None
B. Yes, Right
C. Yes, Left
D. Yes, Non-coronary sinus
<table>
<thead>
<tr>
<th>Aorto-annular ectasia:</th>
<th>Yes [x] No [ ] Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>RootAAannEctasia (4855)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Asymmetric Root Dilation:</th>
<th>Yes [x] No [ ] Unknown</th>
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<td>RootDilaAsym (4870)</td>
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<table>
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<tr>
<th>Dilation Location:</th>
<th>Right [ ] Left [x] Non-coronary</th>
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<td>RootDilaLoc (4875)</td>
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<table>
<thead>
<tr>
<th>Sinus of Valsalva aneurysm:</th>
<th>Yes [x] No [ ] Unknown</th>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>SV Aneurysm Location:</th>
<th>Right [ ] Left [ ] Non-coronary</th>
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<tbody>
<tr>
<td>RootSinusLoc (4881)</td>
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</tbody>
</table>

Inspection of the aortic root revealed **asymmetric dilatation of the aortic root** with significant dilatation of the non-coronary sinus.
No previous medical or surgical history
## 3-D reconstruction aortic diameter measurements available:

- **Yes**
- **No**

(If Yes, indicate maximal diameter for each zone in mm)

### Diameter3DMeas (4805)

<table>
<thead>
<tr>
<th></th>
<th>Zone 2</th>
<th>Zone 8</th>
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<tbody>
<tr>
<td>Annulus</td>
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<td></td>
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<tr>
<td>Diam3DAnnulus</td>
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</tr>
<tr>
<td>Sinus segment</td>
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<td></td>
</tr>
<tr>
<td>Diam3DSinus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinotubular junction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diam3DSinotubular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid-ascending</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diam3DMidAsc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distal Ascending</td>
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<td></td>
</tr>
<tr>
<td>Diam3DDistalAsc</td>
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<td></td>
</tr>
<tr>
<td>Zone 1</td>
<td></td>
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<tr>
<td>Diam3DZone1</td>
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<tr>
<td>Zone 2</td>
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<tr>
<td>Diam3DZone2</td>
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<td>Diam3DZone5</td>
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<td>Zone 6</td>
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<td>Zone 7</td>
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<tr>
<td>Diam3DZone7</td>
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</table>

### Largest (pre-operative) diameter of treated segment(s)

<table>
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<tr>
<th></th>
<th>Zone 2</th>
<th>Zone 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annulus</td>
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<tr>
<td>DiamLgstAnnulus</td>
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<td>Sinus segment</td>
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<tr>
<td>DiamLgstSinus</td>
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<tr>
<td>Sinotubular junction</td>
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<td></td>
</tr>
<tr>
<td>DiamLgstSinotubular</td>
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<tr>
<td>Mid-ascending</td>
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<td>Distal Ascending</td>
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<td>DiamLgstDistalAsc</td>
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<tr>
<td>Zone 1</td>
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<td></td>
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<tr>
<td>DiamLgstZone1</td>
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</tr>
</tbody>
</table>

**Legend:**
- Diam: Diameter
- Lgst: Largest
**Intervention**

Planned Staged Hybrid: ☐ Yes ☑ No
PlanStagHybrid (4970)

Open Arch Procedure: ☑ Yes ☐ No (If Yes ↓) surgical
ArchProc (4975)

Distal Technique: ☑ Open ☐ Clamped
ArchDisTech (4980)

---

**SEQ. #: 4980**

**Long Name:** Open Arch Procedure - Distal Technique

**Short Name:** ArchDisTech

**Definition:** Indicate the distal technique for the arch procedure

**Intent/Clarification:**
The intent is to define that the distal anastomosis was done with or without a clamp. Many arch procedures are done with the clamp removed, sewing to the aorta looking down the barrel of the vessel. This of course requires circulatory arrest. The clamp means that the aorta is clamped with an instrument and the anastomosis is completed proximal (close to the heart) to that part of the aorta.

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**Surgeon Worksheet**

**Intervention:**
- ☑ Planned stage hybrid
- ☑ Open Arch Procedure (If Yes ↓) surgical
- ☑ Distal Technique
- ☑ Open
- ☐ Clamped
Patient cooled to 26 degrees, placed in Trendelenburg, vascular clamps placed onto the base of the innominate and left common carotid arteries.
Poll: How would you code for distal site and extension?
How would you code for distal site and extension?

A. Ascending Aorta, No
B. Hemiarch, Frozen elephant trunk
C. Hemiarch, No
D. Zone 1, No
Patient cooled to 26 degrees, placed in Trendelenburg, vascular clamps placed onto the base of the innominate and left common carotid arteries.
**Open Descending Thoracic Aorta or Thoracoabdominal Procedure: □ Yes □ No (If Yes ↓)**

**DescAortaProc (5015)**

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<th>Proximal Location:</th>
<th>Reverse Hemiarch</th>
<th>Zone 0</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
<th>Zone 5</th>
<th>Zone 6</th>
<th>Zone 7</th>
<th>Zone 8</th>
<th>Zone 9</th>
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</thead>
<tbody>
<tr>
<td>DescAortaLoc (5020)</td>
<td>□</td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Intercostal Reimplantation:</th>
<th>□ Yes □ No</th>
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<tr>
<td>AortaInferReimp (5030)</td>
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<table>
<thead>
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<th>Distal Location:</th>
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<th>Zone 4</th>
<th>Zone 5</th>
<th>Zone 6</th>
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<tr>
<td>AortaDistZone (5035)</td>
<td>□</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Visceral vessel intervention:</th>
<th>□ Yes □ No (If Yes ↓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AortaVisceral (5045)</td>
<td></td>
</tr>
</tbody>
</table>

- Celiac: □ Reimplantation □ Branch Graft □ None
  - AortaViscCel (5050)
- Superior mesenteric: □ Reimplantation □ Branch Graft □ None
  - AortaViscSup (5055)
- Right Renal: □ Reimplantation □ Branch Graft □ None
  - AortaViscRenR (5060)
- Left Renal: □ Reimplantation □ Branch Graft □ None
  - AortaViscRenL (5065)
Endovascular Procedure(s): ☐ Yes ☑ No (If Yes ↓)

EndovasProc (5066)

Access: ☐ Femoral ☐ Iliac ☐ Abdominal Aorta ☐ Lt. Subclavian ☐ Rt. Subclavian ☐ Ascending Aorta ☐ LV Apex
EndovasAccess (5067)
Percutaneous Access: ☐ Yes ☐ No
EndovasPercAcc (5068)

Proximal landing zone: ☐ Below STJ ☐ STJ-midascending ☐ Midascending to distal ascending
EndoProxZone (5070)
☐ Zone 1 ☐ Zone 2 ☐ Zone 3 ☐ Zone 4 ☐ Zone 5 ☐ Zone 6 ☐ Zone 7 ☐ Zone 8 ☐ Zone 9
☐ Zone 10 ☐ Zone 11

Distal landing zone: ☐ Below STJ ☐ STJ-midascending ☐ Midascending to distal ascending
EndoDistalZone (5080)
☐ Zone 1 ☐ Zone 2 ☐ Zone 3 ☐ Zone 4 ☐ Zone 5 ☐ Zone 6 ☐ Zone 7 ☐ Zone 8 ☐ Zone 9
☐ Zone 10 ☐ Zone 11

TAVR (for combination procedures): ☐ Yes ☐ No
EndovasTAVR (5090)
Ascending TEVAR: ☐ Dedicated IDE ☐ Off Label Stent ☐ No
EndovasTEVAR (5095)

Arch Vessel management:

<table>
<thead>
<tr>
<th>Innominate: Native Flow</th>
<th>Endovascular Branch Graft</th>
<th>Endovascular Parallel Graft</th>
<th>Extra-anatomic Bypass</th>
<th>Fenestrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Innominate (5100)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(If Extra-anatomic bypass →)</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Left Carotid: Native Flow</th>
<th>Endovascular Branch Graft</th>
<th>Endovascular Parallel Graft</th>
<th>Extra-anatomic Bypass</th>
<th>Fenestrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>LeftCarotid (5140)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(If Extra-anatomic bypass →)</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Left Subclavian: Native Flow</th>
<th>Endovascular Branch Graft</th>
<th>Endovascular Parallel Graft</th>
<th>Extra-anatomic Bypass</th>
<th>Fenestrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>LeftSubclavian (5180)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(If Extra-anatomic bypass →)</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
<td>☐ Yes ☐ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Arch Vessel(s) Extra-anatomic bypass: Native Flow</th>
<th>Endovascular Branch Graft</th>
<th>Endovascular Parallel Graft</th>
<th>Extra-anatomic Bypass</th>
<th>Fenestrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>OtherArchVes (5214)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Yes ☐ No (If Yes ↓)</td>
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<td></td>
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</table>

---

ADVANCES IN QUALITY & OUTCOMES: A Data Managers Meeting
**Visceral Vessel management**

<table>
<thead>
<tr>
<th>Celiac:</th>
<th>Native Flow</th>
<th>Endovascular Branch Graft</th>
<th>Endovascular Parallel Graft</th>
<th>Extra-anatomic Bypass</th>
<th>Fenestrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celiac (5220)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Superior mesenteric:</th>
<th>Native Flow</th>
<th>Endovascular Branch Graft</th>
<th>Endovascular Parallel Graft</th>
<th>Extra-anatomic Bypass</th>
<th>Fenestrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SupMesenteric (5207)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Right renal:</th>
<th>Native Flow</th>
<th>Endovascular Branch Graft</th>
<th>Endovascular Parallel Graft</th>
<th>Extra-anatomic Bypass</th>
<th>Fenestrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>RightRenal (5320)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Left renal:</th>
<th>Native Flow</th>
<th>Endovascular Branch Graft</th>
<th>Endovascular Parallel Graft</th>
<th>Extra-anatomic Bypass</th>
<th>Fenestrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>LeftRenal (5370)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Right Iliac:</th>
<th>Native Flow</th>
<th>Bifurcated Graft</th>
<th>Extra-anatomic Bypass</th>
</tr>
</thead>
<tbody>
<tr>
<td>RightIliac (5390)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Left Iliac:</th>
<th>Native Flow</th>
<th>Bifurcated Graft</th>
<th>Extra-anatomic Bypass</th>
</tr>
</thead>
<tbody>
<tr>
<td>LeftIliac (5393)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Internal Iliac Preserved:</th>
<th>Right Iliac only</th>
<th>Left Iliac only</th>
<th>Both</th>
<th>No</th>
</tr>
</thead>
</table>

**Other Visceral Vessel(s) Extra-anatomic Bypass: | Yes | No | (If Yes 1) |
| OthVessels (5397) | Yes | No | No |
| Aorta-other | Yes | No | No |
| Iliac-other | Yes | No | No |

**Dissection proximal entry tear covered: | Yes | No | Endoleak at end of procedure: | Yes | No |
| DisProxTearCover (5401) | Yes | No | EndoEndProc (5402) | Yes | No |

**Conversion to open: | Yes | No | (If Yes 1) Conversion reason: | Deployment failure | Endoleak | Retreat |
| ConvToOpen (5404) | Yes | No | ConvToOpenReasons (5405) | EndoLeak | Retreat |

**Intraop Dissection Extension: | None | Antegrade | Retrograde | Both |
| IntraOpExt (5406) | None | Antegrade | Retrograde | Both |

**Unintentional rupture of dissection septum: | Yes | No | Below STJ | STJ-midascending |
| UnintRuptLoc (5408) | Zone 1 | Zone 2 | Zone 3 | Zone 4 |

**Zone 5 | Zone 6 | Zone 7 | Zone 8 | Zone 9 |
<table>
<thead>
<tr>
<th>Event</th>
<th>Choice 1</th>
<th>Choice 2</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal Drain Placement</td>
<td>□</td>
<td>☑️</td>
<td>None</td>
</tr>
<tr>
<td>IntraOp Motor Evoked Potential</td>
<td>□</td>
<td>☑️</td>
<td>(If Yes →) Documented MEP abnormality □ Yes □ No □ Unknown</td>
</tr>
<tr>
<td>MotorEvoke (5425)</td>
<td></td>
<td></td>
<td>MotorEvokeAb (5426)</td>
</tr>
<tr>
<td>IntraOp Somatosensory Evoked Potential</td>
<td>□</td>
<td>☑️</td>
<td>(If Yes →) Documented SEP abnormality □ Yes □ No □ Unknown</td>
</tr>
<tr>
<td>SomatEvoke (5430)</td>
<td></td>
<td></td>
<td>SomatEvokeAb (5431)</td>
</tr>
<tr>
<td>IntraOp EEG</td>
<td>□</td>
<td>☑️</td>
<td>(If Yes →) Documented EEG abnormality □ Yes □ No □ Unknown</td>
</tr>
<tr>
<td>IntraOpEEG (5432)</td>
<td></td>
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<td>IntraOpEEGAb (5433)</td>
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<tr>
<td>IntraOp Intravascular Ultrasound (IVUS)</td>
<td>□</td>
<td>☑️</td>
<td>IntraOp Transcutaneous Doppler □ Yes □ No</td>
</tr>
<tr>
<td>IntraOpIVUS (5434)</td>
<td></td>
<td></td>
<td>TransDoppler (5435)</td>
</tr>
<tr>
<td>Intraoperative Angiogram</td>
<td>□</td>
<td>☑️</td>
<td>Volume of contrast: ____ ml</td>
</tr>
<tr>
<td>IntraOpAng (5436)</td>
<td></td>
<td></td>
<td>IntraOpAngVol (5437)</td>
</tr>
<tr>
<td></td>
<td>□</td>
<td>☑️</td>
<td>Fluoroscopy time: ____ min</td>
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<tr>
<td></td>
<td></td>
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<td>IntraOpAngFITm (5438)</td>
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</tbody>
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## Implants:

<table>
<thead>
<tr>
<th>Implant Name</th>
<th>Type</th>
<th>Inv. Item</th>
<th>Serial No.</th>
<th>Manufacturer</th>
<th>Lot No.</th>
<th>LRB</th>
<th>No. Used</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAFT CV 30CM 28MM</td>
<td>GRAFT CV 30CM 28MM</td>
<td>2002373348</td>
<td>16159964-9935</td>
<td>N/A</td>
<td>1</td>
<td>Implanted</td>
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<tr>
<td>ABD THRX SUT - S2002373348</td>
<td>ABD THRX SUT</td>
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</table>

### On-X® Valves

- **REF**: ONXAAP
- **SN**: 6438203
- **SZmm**: 25
- **USE BY**: 2021-07-01

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**ADVANCES IN QUALITY & OUTCOMES:**

**A Data Managers Meeting**
- Sutures placed around the aortic annulus and passed through the sewing ring of the valve conduit. Valve conduit was then seated down in to the intra annular position.
Remember to Complete

- Aortic valve section
- Root procedure
- Bentall
- Aortic implant (ONXAP## Ascending Aortic Prothesis)
- Circulatory Arrest (with cerebral perfusion)
  - Cerebral perfusion time (40 minutes)
  - Cerebral perfusion type (antegrade)
Questions