Adult Implanted/Tunneled Port and Catheter Removal

This practice algorithm has been specifically developed for MD Anderson using a multidisciplinary approach and taking into consideration circumstances particular to MD Anderson, including the following: MD Anderson’s specific patient population; MD Anderson’s services and structure; and MD Anderson’s clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other health care providers.

Note: This algorithm is intended to be used by the Acute Care Procedures Team.

Coagulopathy Threshold

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Minimum platelet threshold</th>
<th>Threshold to infuse platelets during procedure</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port catheter removal</td>
<td>20 K/microliter</td>
<td>10-20 K/microliter</td>
<td>2</td>
</tr>
<tr>
<td>Tunneled catheter removal</td>
<td>20 K/microliter</td>
<td>10-20 K/microliter</td>
<td>2</td>
</tr>
</tbody>
</table>

1 Heart rate greater than 110 bpm or less than 60 bpm, oxygen saturation less than 92% and systolic blood pressure less than 95 mmHg or greater than 170 mmHg
2 Refer to Peri-Procedure Management of Anticoagulants algorithm prior to procedure

See Page 2 for Port and Catheter Removal Process

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Defer to vascular surgery for guidance to safely remove port

Yes

Remove port or catheter, send tip for culture, leave wound pocket open, and pack with iodoform or gauze

Consult wound care, if needed

Ensure wound care appointment in place prior to discharge from infusion therapy clinic or inpatient area

No

Proceed with closing site

See Page 3 for Bleeding During Removal and/or Post-Port Removal Assessment

There are several pathways:

1. **Infection**
   - Ensure patient has been placed on antibiotics. If not, contact primary team.
   - Proceed with closing site

2. **Thrombosis**
   - Ensure anticoagulation medication ordered if presence of thrombosis. If not, contact primary team.
   - Communicate with vascular surgery provider on-call regarding location/position of clot to safely remove port
   - Yes
   - Remove port or catheter, send tip for culture, leave wound pocket open, and pack with iodoform or gauze
   - Consult wound care, if needed
   - Ensure wound care appointment in place prior to discharge from infusion therapy clinic or inpatient area
   - No
   - Proceed with closing site

3. **Indication of infection or thrombosis?**
   - Yes
   - Inspect site of port hub or catheter for significant signs of erythema, fluctuance or drainage
   - Yes
   - Remove port or catheter, send tip for culture, leave wound pocket open, and pack with iodoform or gauze
   - Consult wound care, if needed
   - Ensure wound care appointment in place prior to discharge from infusion therapy clinic or inpatient area
   - No
   - Proceed with closing site
   - No
   - Proceed with closing site

4. **Is catheter safe to remove?**
   - Yes
   - Remove port or catheter, send tip for culture, leave wound pocket open, and pack with iodoform or gauze
   - Consult wound care, if needed
   - Ensure wound care appointment in place prior to discharge from infusion therapy clinic or inpatient area
   - No
   - Proceed with closing site

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Patient pending tunneled catheter removal (subclavian, femoral, intraperitoneal, or internal jugular [IJ])

Provider to assess:
- Vital signs\(^1\) for fever or any signs of sepsis, erythema, fluctuance or drainage
- History of anticoagulation\(^2\), chest x-ray, CT chest/abdomen/pelvis, upper extremity doppler ultrasound, and KUB
- Timing and location of device placement
- Patient history

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Department of Clinical Effectiveness V1
Approved by the Executive Committee of the Medical Staff on 07/25/2017

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Port and catheter removal process

Port-a-cath removal\(^1, 2\)

Subclavian

Port older than 3 years?

Yes

- If outpatient, refer to outpatient port clinic for removal by surgeon
- If inpatient, consult vascular surgery for removal
- APP may consider to attempt removal if patient prefers. Refer to box A if unable to remove port

No

A

- Remove port
- If unable to pull catheter, place hub back in port pocket and suture close. Consult vascular surgery for removal in the operating room.

Tunneled

- Attempt removal regardless of age of port
- If unable to pull out port catheter, place port hub back in port pocket and resuture. Consult vascular surgery for removal in the operating room.

Non-tunneled

- Prior to attempt, contact surgical fellow on-call to ensure availability to troubleshoot if needed
- Experienced Advanced Practice Provider (APP)\(^3\) to perform or assist in removal

See Page 3 for Bleeding During Removal and/or Post-Port Removal Assessment

Intraperitoneal

- Confirm with patient and imaging history
- Inspect for presence of second counter incision on abdomen or feel for cuff

Refer to interventional radiology

Internal jugular/femoral

- Attempt removal
- If unable to free tissue from cuff, utilize experienced APP\(^3\)
- If unsuccessful, consult surgery fellow

Tunneled central line catheter removal\(^2\)

\(^1\) Do not perform a catheter exchange utilizing a port-a-cath
\(^2\) Patient must be supine for procedure
\(^3\) APP with greater than 1 year experience in port removal

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Bleeding during port removal

- Hold pressure and immediately clamp bleeding tissue area with kelly or kocher clamp
- Place figure of eight stitch until hemostasis achieved
- Call surgery fellow if unable to control bleeding
  Note: Please pay attention to other end of vein and ensure hemostasis achieved at both ends.

See Post Port Removal below

Post port removal

Review vital signs and assess wound for induration, erythema, fluctuance or drainage

Signs of infection?

- Yes
  - Consult surgical fellow for bedside evaluation
  - Notify primary team

- No
  - Discuss with primary team to coordinate follow-up

Is patient unstable?

- Yes
  - Consider referral to EC for admission and further work-up

- No
  - Discharge patient with oral antibiotics and have patient follow up with primary team

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This practice consensus statement is based on majority opinion of the Acute Care Services Department at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

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