# Liver Resection Pathway (Open or Lap)

## Prior to DOS
- Discuss care map with patients and set expectations
- Send Lovenox presc. to UWMC OP Pharmacy
- Schedule follow-up appt
- No blood thinners or aspirin 5 days prior
- IMPACT Advanced Recovery drink 5 days prior
- Patient drinks 8 oz of apple juice before midnight, 1 day prior
- No food after midnight; Clear liquids as instructed

## Day 0: Pre-Op
- 8 oz of apple juice 2 hours prior to surgery
- Place IV in forearm, NOT on the wrist (place largest IV possible)
- Fluids: In Pre-op, If IV in, LRS at 50 ml/hr
- Heparin
- Get Baseline Glucose
- Place portable Sequential Compression Devices (SCD) in Pre-Op Area

## Intra-Op
- Arterial Line and Second IV Line** Placement after induction
- Fluid: 2 ml/kg/hr of LRS . Give 500 mL LRS bolus extra during first 30 min after induction
- Check Glucose
- **in case of blood loss or hypotension, see guidelines below
- IV Abx in OR
- Heating mattress or blanket placed under patients & Bair huggers
- Foley

## Intra-Op
- Open Only: Prior to closing abdominal wall, initiate TAP Block placement***
- Open Only: Initial TAP bolus with bupivacaine 0.25% 20-30 mL (not to exceed 2 mg/kg total dose)
- Extubate, if possible
- Check Glucose

## PACU
- Open Only: Initiate TAP block catheter infusion of ropivicaine 0.2% at 5 ml per catheter for 2 catheters. (Rarely: if 1 catheter, infuse at 10 ml per). @
- Open Only: Consider ketamine infusion at 8 – 10 mg/hr for uncontrolled pain
- Start hydromorphone PCA at 0.2/6/0
- Fluid: D5LR at 1.0 ml/kg/hr
- Target urine output of 0.3-0.5 ml/kg/hr
- Draw Labs in PACU (HCT, PT/INR), Q8 hrs

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* TAP = Transversus Abdominis Plane Block
  Please use the YK5 Pain pump catheters (item # 304706)

**The size of the venous lines should be:
- 2 #14G peripheral lines are optimal
- 1 #14G peripheral line and 1 #16 G line (inform surgeon)
- 1 #14G peripheral line and double lumen central line (2 x 14G lumens)
- 1 #9.5 Fr central line (Cordis) and triple lumen catheter through

***One of the goals of perioperative management is keeping the patient hemodynamically stable with restricted fluids and CVP not exceeding 5 cm H2O.

**Blood Loss:** Replace blood loss ml for ml with 5% Albumin up to 1500 ml. If blood loss exceeds 1500 ml notify Attending Anesthesiologist, and send the blood gas and Emergency Hemostasis Panel to the Satellite lab.

**Hypotension Intra-Op:** Hypotension to be treated with phenylephrine up to 0.8 mcg/kg/min. Mannitol drip 50mL/h should be used to stimulate urinary output. Avoid Vasopressin boluses and infusion by all means.

*** There are no exclusions for the TAP Block. Re-operative patients will also be included in the pathway.

@ In the case of catheter leakage, please contact APS for assessment.

Last updated: 12/8/15
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<table>
<thead>
<tr>
<th>Day 0</th>
<th>If not extubated, admit to ICU (off pathway). Otherwise, admit to 4SE (or 4NE back-up)</th>
<th>Urine Output + Vital Signs Q1 x 2; Q2 x 2. Monitor for bleeding.</th>
<th>Incentive Spirometer 10x/hr while awake*</th>
<th>Sequential Compression Device</th>
<th>PT &amp; OT Eval on Day 0, if possible</th>
<th>Mobility: Edge of bed after last set of post-op VS (usually 6 hours) with orthostatic VS.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clear Liquid Diet on Day 0</td>
<td>Hct and INR Q8 til stable; Daily CMP + Mg + Phos</td>
<td>If concern for ongoing hemorrhage and INR &gt; 1.9, give FFP</td>
<td>Continue hydromorphene PCA; adjust dosing parameters as needed</td>
<td>Open Only: Continue TAP block infusion ropivicaine 0.2% at 5 ml per catheter if 2 catheters OR 10 ml per hour if 1 catheter</td>
<td></td>
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<tr>
<td></td>
<td>Day 1</td>
<td>PT and OT Evals on Day 1 at latest</td>
<td>Advance to General Diet on Day 1 in the morning</td>
<td>Docusate 200mg PO BID</td>
<td>If tolerating diet: Saline Loc IV</td>
<td>Open Only: Stop TAP block infusion at 0600 if tolerating general diet</td>
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<tr>
<td></td>
<td>Mobility: – OOB for all meals. Walk 3-4 times in the hall –Goal 9 laps. OOB 6hr/day</td>
<td></td>
<td></td>
<td>Heparin SQ if INR&lt;1.5</td>
<td>LAP only: If foley, remove on Day 1, 6am***</td>
<td>LAP only: Transition PCA to PO pain meds when appropriate</td>
</tr>
<tr>
<td>OPEN Day 2</td>
<td>Open Only: Continue TAP block infusion ropivicaine 0.2% at 5 ml per catheter if 2 catheters OR 10 ml per hour if 1 catheter</td>
<td>Open only: Transition PCA to PO pain meds when appropriate. Remove TAP block cath by mid-afternoon.</td>
<td>Open only: If foley, remove on Day 2, 6am***</td>
<td>Continue acetaminophen. Discontinue ketoralac, and start ibuprofen 600 mg q6 hours if coags are normal. If CrCl&lt;60, avoid use</td>
<td>Consider D/C Labs if stable</td>
<td>Pharmacy consult for Lovenox education</td>
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<tr>
<td>OPEN: Days 3-5</td>
<td>Mobility: OOB for all meals. Walk 3-4 times in the hall –Goal 18 laps. OOB 6hrs/day until discharge</td>
<td>Suppository if no BM</td>
<td>OT: Shower on Day 3, if catheters are out</td>
<td>Social Work visit Day 3, as needed</td>
<td>Order DME supplies if needed OT, PT, wound care, etc</td>
<td>Med Rec on Day before Discharge</td>
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<tr>
<td>LAP Days 2-4</td>
<td>Mobility: OOB for all meals. Walk 3-4 times in the hall –Goal 18 laps. OOB 6hrs/day until discharge</td>
<td>Continue acetaminophen. Discontinue ketoralac, and start ibuprofen 600 mg q6 hours if coags are normal. If CrCl&lt;60, avoid use</td>
<td>Consider D/C Labs if stable</td>
<td>Pharmacy consult for Lovenox education</td>
<td>Suppository if no BM</td>
<td>OT: Shower on Day 2</td>
</tr>
<tr>
<td>Discharge Day (OPEN &amp; LAP)</td>
<td>Goals for discharge: 1) Tolerate diet, 2) Pain under control, 3) Return of bowel function; 4) Ambulate independently</td>
<td>Shower and dress in own clothes ~9 am</td>
<td>Confirm patient education complete</td>
<td>Patient has post-op appointment</td>
<td>Goal: Discharge Patient by 11 am</td>
<td>Lovenox for 28 days post discharge</td>
</tr>
</tbody>
</table>

*If patient is febrile, wake patient up and use IS more frequently.

** [Ketorolac / Toradol U.S. Boxed Warning]: Dosage adjustment is required for patients ≥65 years of age. Contraindicated in patients with advanced renal impairment. Patients ≥65 years of age and/or patients with moderately-elevated serum creatinine should use half the dose with a max of 60 mg/day

*** No Fill and Pull unless failed from day before and discharging that day. Fill and Pull would be completed no later than 11am.

Last updated: 12/8/15