

Procedure:

AAA (EVAR & Open)

Indication:

Aneurysm usually with a diameter larger than 5.5cm

Description:

Patient is anesthetized and vascular access is gained (femoral arteries). The process then involves guidewires, imaging, balloons, stents, and final images. The process must be able to be converted to an open procedure emergently if required. If performed open, a midline abdominal incision is performed allowing access to the aneurysm.

Post-op Implications:**Complications:**

Endoleak: Incompetence of device, requires CT imaging.

Femoral access: Bleeding requires direct pressure. Acute thrombosis of the accessed vessel, distal embolization, dissection, pseudoaneurysm, and arteriovenous fistula.

Distal limb ischemia: Caused by embolization, thrombus, or device malfunction. Depending on location of aneurysm, blood flow can be impaired to kidneys, intestines, and distal extremities.

Contrast induced nephropathy: keep IVF until tolerating PO.

Meds:

Pain is managed with NSAIDS and opioids (Possibly PCA) as needed. Restart home meds as soon as tolerating PO. If open repair, may have an epidural.

Principles:

Lay flat for 6hrs post-op to protect graft site and femoral access sites. Frequent distal pulse checks and groin checks per protocol.

Care Plan:

Lay flat for 6hrs post-op. Frequent distal pulse and groin checks. Pulmonary toileting, wound care/assessment, foley hygiene, manage IVF, monitor and control pain, NPO for first 6hrs.

Course of Care:

POD #1 Ambulate, D/C foley, restart home Rx if tolerating PO, CL diet or regular diet if tolerating PO, possibly D/C to floor.

Room Setup:

Humidified O2, oral suction, standard IV pump setup, possibly PCA setup, SCDs.

Procedure:

AAA (Thoracic)

Indication:

Thoracic AAA, usually greater than 5.5 cm in diameter, or rapid aneurysm expansion

Description:

Open Surgical Repair – Median sternotomy for ascending and arch aneurysm repairs, left thoracotomy for descending aneurysms, and left thoracotomy incisions for thoracoabdominal aneurysms. An open surgical repair of thoracic aneurysms resembles standard abdominal aortic aneurysm repair with proximal and distal vascular control, minimal aneurysm manipulation, and prosthetic graft repair. End-organ revascularization is achieved with distal anastomosis, native arterial reimplantation with or without endarterectomy, or bypass grafting with saphenous venous or prosthetic control. Endovascular repair of the thoracic aorta (TEVAR) – minimally invasive approach that involves placing a stent-graft in thoracic or thoracoabdominal aorta.

Post-op Implications:**Complications:**

Complications: bleeding (monitor CT if applicable, if >200/hr alert provider), renal failure, respiratory failure, stroke, peripheral vascular injury, paraplegia/paraparesis, endoleaks from TEVAR requiring life-long CT scans, avulsion of the arteries, infection, paralysis from spinal hyperperfusion - lumbar drain for CSF pressures with MAP >80

Meds:

Pain managed with NSAIDs and opiates, antiemetics for n/v, restart home meds as PO tolerated,

Principles:

maintain vs per protocol, limit IVF intake to prevent fluid overload, sternal precautions if they apply, lay flat for TEVAR for 6 hours post-op, no bending more than 45 degrees for 24 hours or as ordered, distal pulses checks, MAPs >80

Care Plan:

airline care, sternal precautions as they apply, pulmonary toileting, skin care/turning, CXR, weight, labs, Assess for bleeding/infection, ICU monitoring, manage pain

Course of Care:

POD#1 ambulate, d/c foley, restart home meds, advance diet as tolerated,

Room Setup:

Humidified O2, yankaur, oral suction, standard IV pump setup, possible PCA setup, possible epidural setup, airline setup, bairhugger, 3 suction setup, possible ventilator set-up, blood tubing

Procedure:

Bowel resection (colostomy, colectomy, ex-lap, ileostomy, nissun-fundoplication).

Indication:

CA, toxic mega-colon, obstruction, trauma

Description:

Abdominal cavity is accessed either open or laparoscopically. Bowel is manipulated and removed as necessary, diversions are made (colostomy, ileostomy) if necessary, and abdomen is closed.

Post-op Implications:**Complications:**

bleeding, surgical site infection, peritonitis, ileus, mechanical bowel obstruction, uncontrolled pain, peri-stomal skin breakdown.

Meds:

If colostomy/ileostomy is performed, don't give extended release or long acting Rx. BM: supp/enema POD3 if no BM. Pain: PCA and epidural Or PCEA (bipiv/fentanyl) are most common.

Principles:

Temporary ileus is an expected physiologic response from bowel manipulation. At risk for acute dehydration due to lack of h2O absorption in colon. Replace fluid lost through NG/OG with IVF to achieve normovolemia. Altered absorption can affect electrolytes.

Care Plan:

Aggressive and frequent pulmonary hygiene. Ambulate and OOB POD#1. Skin care, wound care, foley hygiene, stoma care (if applicable) and pain control. Keep spare ostomy appliances at bedside.

Course of Care:

POD# 1: OOB, clear liquid diet, foley out after ambulating, and NG/OG tube out after tolerating PO (if applicable). Educate pt on ostomy care.

Room Setup:

Humidified O2, oral suction, standard IV-pump, possible PCA, possible epidural, SCDs, and possible suction for NG/OG tube.

Procedure:

Aorto-femoral bypass/stent. Fem-pop

bypass/stent/endarterectomy, femofemoral bypass.

Indication:

Claudication, limb ischemia, non-healing ulcers,

Description:

(Fem-pop): Femoral access is gained. Saphenous vein is harvested or a prosthetic is used and the occluded portion of artery is bypassed. Bypass can occur above the knee, below, or through the joint area as well. Femoral access is then closed. Stent and endarterectomy procedures are generally the same except instead of bypass, a stent is placed or endarterectomy is performed at the location of the occlusion.

Post-op Implications:**Complications:**

Bleeding: Usually seen at femoral access sites, apply firm downward pressure on femoral artery for 15minutes. Check ptt lab values.

Graft thrombosis/distal emboli: Keep legs straight and monitor pulses per protocol.

Graft infection: Usually necessitates removal of graft.

Compartment syndrome: swelling around fascial compartments the of leg, seen as intense pain and tense swollen leg.

Meds:

PCA for pain, oxycodone once tolerating PO. ASA and/or warfarin therapy to reduce thrombosis.

Principles:

lay flat for 6hrs post-op to decrease disturbance of surgical sites and graft. Keep lower extremities warm to promote blood flow. Avoid bending of legs even after 6hrs initial post-op time period is up, no crossing of legs.

Care Plan:

Lay flat for 6hrs post-op. Frequent distal pulse and groin checks(Q15,Q30,QH). Pulmonary toileting, wound care/assessment, foley hygiene, manage IVF, monitor and control pain, NPO for first 6hrs.

Course of Care:

Extubated in OR. Lay flat for first 6hrs, avoid bending of legs and hips for several days. OOB after 6hrs. Resume diet after 6hrs. D/C foley after ambulating. Post-op ABI's.

Room Setup:

Humidified O2, oral suction, standard IV pump setup, possibly PCA setup, SCDs.

Procedure:

CABG/valve

Indication:

CAD, valvular disease

Description:

CABG: Sternotomy, placed on cardiopulmonary bypass, and saphenous vein is used to bypass occluded vessels. Chest tubes and pacer wires are put in place. Valve: Sternotomy, placed on cardiopulmonary bypass, diseased valve is either repaired or replaced with a mechanical or bioprosthetic valve, and chest tubes/pacer wires are put in place.

Post-op Implications:

Complications:

Bleeding: Observe chest tube output frequently; if >200ml/hr, Immediately alert surgeon. Have extra blood admin and product tubing at bedside. Have bear hugger on patient: cold blood doesn't clot.

Cardiac Tamponade: Narrowing pulse pressures and decreased CO/CI, decreased UOP. Triad: muffled heart sounds, hypotension, and JVD. Give fluids and inotropes until intervention.

Decreased CO/CI: Analyze PA numbers/BP, pacer, intrinsic rhythm, CVP, UOP, chest tube output, fluids/albumin/blood, pressors, inotropes, etc. Make a determination to increase CO/CI.

Pulmonary HTN: Flolan (protect from light)

Systolic Anterior Motion of the mitral valve (SAM) after MVR: Avoid inotropes, aggressive diuresis, and tachycardia. Give Beta blockers, and maintain MAP 80-90.

Hyperglycemia: Insulin drip algorithm for 48hrs per protocol

RHF: echo is main diagnostic tool. Inotropes and reduced SVR. Inhaled pulmonary vasodilators
MI- troponins usually slightly elevated after heart surgery. Requires TEE and possibly IABP until intervention.

Afib: Amiodarone load during operation, then 24hr drip (1mg/min for 6hrs followed by 0.5mg/min for 18hrs). Rate control, cardioversion and anticoagulation.

Sternal wound infection and dehiscence: sternal precautions, mupirocin, and chlorehex baths.

Thoracic Aortic surgery (AAA only): lumbar drain to augment CSF pressures, also keep MAP >80, these are to prevent paralysis from spinal hypoperfusion.

Meds:

Comes out of the OR sedated on propofol. Insulin drip for 48hrs. Amiodarone load during operation, then 24hr drip (1mg/min for 6hrs followed by 0.5mg/min for 18hrs). Inotropes and vasoactive possibly for 24-36hrs. IV AbX post-op. 4mg magnesium immediately post-op. Other electrolytes per BMP (Mg >2, K>4, Po4>4, Ion Ca >2.2). MIVF/driver typically 100ml/hr. Keep all pressors and inotropes on central line through OR manifold. 3 albumin 250ml vials if needed (standing order). Heparin SQ. Mechanical valves require life-long anticoagulation.

Principles:

Maintain MAP 60-90 (too high can cause bleeding). Strict sternal precautions. Have 2 RNs at bedside for first couple hours. "Fast-track" is to extubate within 2-4hrs of arrival to SICU.

Care Plan:

PA cath care (if applicable). A-line care. Sternal Precautions. Aggressive pulm hygiene (IS, OOB, C&DB). Frequent skin care, turning. VAP prevention after initial 24hrs. Pacer assessment/care. Daily CXR/weights/labs/EKG.

Course of Care:

"Fast-track": extubate within 2-4hrs, wean propofol, wean pressers as tolerated. Perform 6hrs post-op CBC and BMP. POD#1 OOB to chair, consider home Rx and lasix. Evaluate need for A-line, CVC, PA cath, and chest tubes. Daily EKG, weight, labs, and CXR.

Room Setup:

Extra blood tubing, albumin bottle and tubing primed, blood product tubing and filters. SCD, bear hugger and full body blanket, 4 suction set-up: yankaur/oral, NG/OG, 2X chest tubes w/ extensions. IV fluid manifold and 4 primed pumps/tubing. A-line set-up. Possible CVP or PA cath set-up. Vent set-up (RT). O2 supplies for post-extubation.

Anticipated Guidelines for Routine CT surgery Patients/Post-op Pathway

POD#	Goals	Pearls/Caveats
POD#0	Extubation & consider weaning pressors and inotropes as tolerated. Post-op labs/EKG/CXR/electrolyte replacement. 4gm Mg, IV AbX.	Goal to extubate within 2 hours.
POD#1	Check platelet count If plt count <50K or has dropped by >50% from baseline. Baseline is highest post-op count, consider HIT antibody	Median 3 days from baseline=highest post op count. If suspect HIT, continue to follow pt count. May need anticoagulation
	Check labs	Current trigger Hct <21 (patient dependent), please discuss transfusions w/ CT surgery team prior to ordering Check Cr If >1.4, avoid ACEI or ARBs
	Consider weaning pressors & inotropes as tolerated if not done	Start afterload reduction before weaning off milrinone
	Consider D/C swan if off inotropes & pressors and hemodynamically stable	Can ambulate once PA cath is D/C'd
	Assess for starting beta blockade if off pressors and HR/BP permit, Metoprolol 6.25-25mg PO BID	Criteria: no evidence of bradycardia, did not require pacing overnight, intrinsic HR >70 & SABP >100mm Hg, off pressors.
	Consider switching IV amiodarone to 400mg PO BID for 7 additional days	Criteria: no evidence of bradycardia, did not require pacing overnight; IV + PO amiodarone should be for a total of 8 days.
	If CAD, consider resuming pre-op statin	No more than 20mg daily if also on amiodarone
	Per order set; Aspirin 325mg PO Qday begins	If on Coumadin, start Aspirin 81mg PO Qday instead
	DVT prophylaxis (SC heparin) for patients who are at risk for DVT (immobile, morbidly obese, critically ill, ARF, etc.)	Verify that they did not have a fall in plt count post operatively or + HIT antibody. Monitor plt counts on these patients
	Consider diuresis 20mg IV furosemide BID	Furosemide is not appropriate for increased Cr. And decreased UOP due to pre-renal causes
	Assess for restarting outpatient	BB? ACE-I? Statins? ASA?

	medications & for starting new outpatient medications:	
POD#2	Patient should be eating and ambulating	
	Assess for D/C cordis, A-line, foley	Patients generally don't need central access after POD#2
	Consider removal of pleural & mediastinal chest tubes provided <10cc/hour each for 3 consecutive hours AND patient has recently stood & "œdumped" AND CXR w/o significant effusion (CXR s/p removal if history of air leak; check breath sounds in 1 hour after removal of any chest tube)	Leave chest tube purse string suture tied but open to air-leave a tail for later. Remove from suction, clamp tube, twist slightly and pull gently. Remove 1 at a time. Ask RN to pre-medicate the patient-reportedly the most painful part of cardiac surgery for patients.
	Warfarin, consider starting on patients with mechanical and prosthetic valves per guidelines (warfarin once at 1700), order daily INR/PT.	For patients on amiodarone, start warfarin at 50% of normal dose
	Change insulin drip to sliding scale SQ insulin aspart	Post-op CABG patients should be controlled using only an insulin drip for 48 hours post-operatively
	Pt. may be ready to transfer to telemetry. Tele orders MUST include: Daily weights, CBC, Chem 10, PT/INR X days. QAC & HS CS, guidelines re: activity, and external pacer if needed.	Tele orders should not include any ICU specific drugs or orders (e.g. the pacer set or pressors, etc.) Restart any outpatient medications as appropriate. Electrolytes need to be ordered daily by MD on floors per lab results.
POD#3	Ideally moving to telemetry	
	Ambulating. BM today	
	Clopidogrel " before starting for previous coronary stents, check with attending.	
	Evaluate for home medications	BB? ACE-I? Statins? ASA?
POD#4	Ideally moving to the floor	Report to CT surgery
	Continue to evaluate for home medications	BB? ACE-I? Statins? ASA?
	Remove pacer wires if appropriate before 0900 if discharging	Ensure INR is <4.0 Call team for "stuck wires", do not clip without discussion

	Consider PA & Lateral CXR this morning	Pt needs a baseline post operative PA & lateral prior to D/C
	Aggressive bowel regimen if no BM	
POD#5	Floor status	
	Continue to evaluate for home medications, D/C IV Rx if able	BB? ACE-I?Â Statins?Â ASA?
	Remove occlusive dressings for SVG sites	Chest tube purse string suture removed at post op visit
	This is not a "TO DO" checklist and each patient's condition and medical history ultimately guide the daily plan or care. Management should be collaborative between the SICU team and the CT surgery team. Revised 11/2010. Cynthia Natiello	

Procedure:

Carotid Endarterectomy (CEA)

Indication:

Carotid atherosclerotic disease (asymptomatic or symptomatic), carotid stenosis.

Description:

Can be general anesthesia or local. Incision is made in neck to access the Internal Carotid Artery (ICA), the ICA is dissected and plaque is removed from the internal lumen. The artery may have a primary repair or a patch. The skin is most often closed with derma-bond.

Post-op Implications:**Complications:**

HTN: labetalol, esmolol, nitro, or nitroprusside.

Hypotension: phenylephrine.

Headache: needs CT scan, possible hyperperfusion syndrome.

Hematoma: Can cause loss of airway, possibly go back to OR.

Neuro: Frequent neuro checks due to risk of neurological insult or nerve injury.

Meds:

Start home meds as soon as possible. Pain is usually not severe.

Principles:

Disturbed baroreceptor in CA can cause labile BP and HR, SBP goal 100-150mmHg. Disrupted cerebral blood flow can cause stroke.

Care Plan:

Pulmonary toilet, skin care, pain management, manage IVF, and wound care. NPO ->home diet POD#1. Possible foley overnight. AM labs. BP control (A-line care if applicable).

Course of Care:

Usually discharge or transfer the next day if stable overnight.

Room Setup:

Possible A-line set-up. Standard IV pump, suction, O2 mask ->NC. SCDs.

Procedure:

Cystectomy with ileal conduit

Indication:

CA

Description:

Partial cystectomy may be performed transurethrally, laparoscopic, or open. The CA is resected and removed via the surgical approach. Radical (total) cystectomy can be performed laparoscopically or open. The entire bladder is removed and a urinary diversion is created.

Post-op Implications:**Complications:**

Intraabdominal bleeding, bright red urine can indicate this. Nerve injury can cause impotence or paralysis of BLE adductor muscles.

Meds:

Restart home Rx as soon as able.

Principles:

UOP should still be >30ml/hr. Pink urine is OK for first couple of days, bright red urine indicates hemorrhage.

Care Plan:

Ileal conduit care (stoma, skin, and urine assessment), always have extra ostomy supplies at bedside, Wound care, strict I&O monitoring, manage IVF, Skin care, pain control, early ambulation.

Course of Care:

POD#1: OOB, CL post-op and advance diet as tolerated, possibly D/C to floor first day, educate pt on ostomy care.

Room Setup:

Humidified O2, oral suction, standard IV-pump, possible PCA, and, SCDs.

Procedure:

ERCP

(Endoscopic retrograde cholangiopancreatography)

Indication:

Bile duct blockage, Bile duct stone removal, CA tissue sampling, Stent placement.

Description:

Pt is intubated and under GA. Endoscope is passed down esophagus and used to inject dye and inspect pancreatic/gall ducts in conjunction with X-rays. Endoscope is then used to perform desired interventions such as stent, stone removal, or biopsy.

Post-op Implications:**Complications:**

Pancreatitis & Bacteremia: prophylactic antibiotics.

Bleeding: first priority is repeat endoscopic intervention, then angiographic embolization, then surgery.

Proximal esophageal perforations: usually can be managed with antibiotics, NPO status, and cervical drainage as needed. Duodenal perforations secondary to the endoscope may result in a large rent of the lateral wall and may require more aggressive therapy including surgical drainage, or in more serious situations, duodenal diversion techniques Biliary tree or duodenal perforation: management can range from NPO and AbX to stents/drains or surgery.

Gas insufflation of duodenum can cause post-op discomfort.

Meds:

Prophylactic AbX. Pt may be NPO for extended period of time depending on complications. N/V managed with antiemetic IV.

Care Plan:

Wound care, strict I&O monitoring, manage IVF, Skin care, percutaneous drain care (if applicable), foley care (if applicable), pain control, early ambulation.

Course of Care:

POD#1: OOB, advance diet as tolerated unless NPO, restart home Rx as able.

Room Setup:

Humidified O2, oral suction, standard IV-pump, possible PCA, and, SCDs.

Procedure:

Esophagectomy

Indication:

CA

Description:

Thoracic approach involves a thoracotomy and removal of esophagus and surrounding lymph nodes. General surgery performs from a transhiatal approach and creates a mid-abdominal incision and a cervical (neck) incision. The esophagus and surrounding lymph nodes are removed. Either approach uses what is left, either stomach or intestine, to create a tube and attach to the cervical esophagus to retain gastric continuity.

Post-op Implications:**Complications:**

Pain: Epidural may be in place. IV opioids and opioid adjuncts will be used, no PO meds for 5-7 days.

Pulm: ARDS can develop due to inflammation and reduction of lymph clearance in thoracic cavity. The patient may have a chest tube. Aggressive pulmonary toileting is required due to frequency of pulmonary complications.

Hemo: Large fluid shifts can cause hypotension and edema. Anastomosis leak: swallow study can confirm a leak. CT scan can visualize extraluminal collections; these must be drained. Give systemic AbX for suspected leak. Usually ruled out by day 5-7.

A-fib: can occur in 20% of cases.

Conduit ischemia: Can present as a rapid deterioration with s/s of septic shock. May need gastrostomy.

Laryngeal nerve injury: May present as hoarseness, aspiration pneumonia, and/or dyspnea. Consult OTO.

Chylothorax: Chyle leak into thoracic cavity from thoracic duct. Can be seen as fats in chest tube output. May require surgical intervention.

Meds:

NPO, nothing per NGT.

Principles:

Decreased lymph clearance from thoracic cavity can cause pulmonary edema with too much IVF, however, hemodynamic instability may warrant fluid boluses. MIV most likely at a rate of 100-200 overnight, UOP 30ml/hr is accurate indicator of sufficient fluid resuscitation. NG tube will be in place, no manipulation or replacement of tube if it becomes dislodged; tube passes through the esophageal anastomosis. NPO for 5-7 days until anastomotic leak is R/O. May have J-tube for enteral feeding as well. If unable to resume enteral feedings, TPN may be started.

Care Plan:

Aggressive pulmonary toileting, hemodynamic monitoring and support, pain control, frequent turning, wound care, foley hygiene, NPO, manage IVF, don't manipulate NGT or replace if dislodged. Chest tube, A-line, J-tube, and epidural care if applicable.

Course of Care:

May come to SICU extubated or intubated. NPO 5-7 days. OOB as soon as able. NGT stays in place with no manipulation for 5-7 days. Foley stays in until mobilizing. Restart home Rx as soon as able. Stay in SICU until stable.

Room Setup:

Possible vent setup. Possible for A-line, epidural, chest tube, and J-tube. Have Extra IV pumps available. Suction for oral, NGT, and chest tube. SCDs. Possible PCA.

Procedure:

Gastrectomy (total & partial)

Indication:

CA & ulcers

Description:

Procedure can be performed laparoscopically or open. Access to stomach is obtained, stomach is dissected from surrounding tissues and anastomosis is created between esophagus and duodenum or jejunum. A partial gastrectomy involves dissecting a portion of the stomach and using the remaining tissue to preserve intestinal continuity. With a total, most often a J-tube is placed.

Post-op Implications:**Complications:**

Anastomotic leak: swallow study can confirm a leak. CT scan can visualize extraluminal collections; these must be drained. Give systemic AbX for suspected leak. Usually ruled out by day 5-7. Small leaks can be managed with AbX, gastric decompression (NG/OG tube passed below anastomosis), and fluid drainage.

Postgastrectomy syndromes: dumping syndrome, weight loss, and diarrhea; usually improve after 12 months, require symptomatic treatment: supplements, antidiarrheal, and diet modification(avoid simple carbs).

Anastomotic stricture: Usually presents as dysphagia, may require upper GI endoscopy with dilation.

Meds:

IV Abx prophylaxis. All meds will be IV for first few days unless an OG/NG tube is approved for med use by surgeon. SubQ heparin. May require long-term electrolyte replacement due to decreased absorption. May require high calorie/high protein supplements.

Principles:

Temporary ileus is an expected physiologic response from bowel manipulation. If NG/OB tube is in place, do not manipulate or replace if dislodged (can disrupt anastomosis). Decreased absorption leads to weight loss, dumping syndrome, and electrolyte imbalances.

Care Plan:

Aggressive pulmonary toileting, skin care, wound care, foley care, pain control. Possible PCA, epidural, And J-tube care. Manage IVF. NPO until barium swallow study (may allow sips and chips). Possible NG/OG tube care.

Course of Care:

POD #1 Early ambulation, NPO until POD# 2 or 3 after swallow study. Foley out after ambulating and diuresis (if no epidural). Early J-tube feedings may be initiated. After swallow study advance to CL, then soft solids. Restart home Rx as able.

Room Setup:

Humidified O2, oral suction, standard IV-pump, possible PCA, possible epidural, SCDs, and possible suction for NG/OG tube.

Procedure:

Paraesophageal hernia repair (nissen fundoplication, gastropexy).

Indication:

Hiatal hernia with GERD that is unrelieved by medical management. A paraesophageal hernia is a true herniated sack of gastric fundus within the thoracic cavity.

Description:

Performed either laparoscopically or via open abdomen. The hernia is dissected and the hiatal defect is closed. A nissen fundoplication is then most often performed (wrapping of stomach around esophagus to retain competency of the lower esophageal sphincter (to reduce GERD)). A gastropexy is also most often performed (fixation of the stomach to the anterior abdominal wall (to prevent reoccurrence of herniation)).

Post-op Implications:**Complications:**

Herniation: Barium esophogram can detect, also CXR.

Bleeding: Dissection of gastric blood vessels can cause excessive bleeding, usually controlled intra-op.

N/V: retching from emesis can disrupt closures, needs barium esophagogram asap.

Gastric/esophageal perforation: Sepsis if undetected.

Pneumothorax: Caused by a tear in the pleura during mediastinal dissection.

Gas-bloat syndrome: inability to vent air from stomach and delayed gastric emptying causes discomfort.

Dysphagia: Most patients experience this to some degree during first 2-6weeks due to inflammation and edema slowing bolus transit of solid foods.

Meds:

Antiemetics: scheduled for first 24hrs, emesis can result in disruption of the hernia repair. Pain control: Most likely PCA, if open procedure then most likely will have epidural.

Principles:

Temporary ileus is an expected physiologic response from bowel manipulation. Normal bowel function may take 5 days to return.

Care Plan:

Aggressive pulmonary toileting, skin care, wound care, foley care, pain control. Possible PCA, epidural, And G-tube care. Manage IVF. NPO until barium swallow study on POD 1.

Course of Care:

Most likely extubated in OR. POD #1OOB, if ambulating, D/C foley. Barium swallow study, if no leak, advance diet from NPO to CL, then to soft solids, then low residue diet for several weeks.

Room Setup:

Humidified O₂, oral suction, standard IV-pump, possible PCA, possible epidural, SCDs, and possible suction for NG/OG tube.

Procedure:

Lobectomy

 (Open Vs. VATS), wedge resection, biopsy.**Indication:**

CA, mass, retrieve diagnostic samples,

Description:

GA and intubated. Incisions are made to pass laparoscopic tools into thorax, operative lung is collapsed with CO₂ in pleural space. Chest tubes are placed at end of procedure to drain air/fluid from pleural space.

Post-op Implications:**Complications:**

Pulmonary edema: pulmonary tissue becomes susceptible to leakage after surgery, limit IVF to maintain adequate UOP >30ml/hr and MAP >60mmHg. "keep 'em dry". Hypotension: Minimal fluid resuscitation can create hypotension, consult physician for either fluid or possibly Phenylephrine drip. Persistent airleak: Always keep chest tubes to suction immediately post-op. Air leak that does not go away can Develop, patient may be discharged with a one way valve. Nerve Injury: Surgical procedure can damage nerves, pain control acute and chronic will be a challenge.

Meds:

Pain: PCA and epidural are most common. Or PCEA (bipiv/fentanyl). Restart home pain meds ASAP. Pulm: restart home inhalers/nebs ASAP. Prophylactic IV ABX 8hrs post-op.

Principles:

MAP goal >60mmHg. Limit IVF (prevent pulmonary edema). UOP goal >30ml/hr. Daily CXR. A-line for BP monitoring and blood gases.

Care Plan:

Aggressive and frequent pulmonary hygiene. Skin care, wound care, chest tube care, foley hygiene and pain control. A-line and epidural care (if applicable).

Course of Care:

Usually extubated in OR. POD #1: OOB, diet advanced as tolerated. Chest tubes out after minimal output and no air leak. D/C to floor when condition permits.

Room Setup:

Possible A-line setup, epidural set-up. Standard IV pump. Possible PCA set-up. Oral suction + CT suction. Humidified O₂, and SCDs.

Procedure:

Lumbar drain

Indication:

Trauma (head & neck), monitoring of ICP.

Description:

Drain catheter is placed into lumbar spine, Accudrain system will come out of OR with patient attached, but RN must be prepared to set-up and operate system.

Post-op Implications:**Complications:**

hemorrhage, infection, herniation, catheter fracture, intracranial hypotension, and spinal headache.

Meds:

Prophylactic anti-seizure meds can be used as seizures raise ICP. Sedation can lower metabolic demand and reduce agitation that causes increased ICP. Pressors have been shown to be safe for most patients with elevated ICP.

Principles:

Lumbar drains most often not placed in setting of elevated ICP due to risk of herniation. Keep patients euvolemic. HTN should only be treated when CPP >120 and ICP >20. Hypotension and hypoxemia can cause intracranial vasodilation resulting in increased ICP. CSF fluid should be removed 1-2ml/min for 2-3min at a time, with breaks of 2-3min until desired ICP is achieved. ICP - 5-15mmHg goal of treatment should usually be <20mmHg. $CPP = MAP - ICP$. CPP=50-120

Care Plan:

HOB can be raised as long as CPP remains WNL. If ICP elevated, keep HOB >30 and head midline.

Room Setup: see Accudrain manual for setup of lumbar drain.

Procedure:

Neck dissection/flap. & Thyroidectomy

Indication:

CA, Grave's disease, goiter.

Description:

Removal of lymph nodes and or thyroid and other tissues from compartment of neck, either lateral or central. Most often involves a pec flap for neck reconstruction. A radical neck dissection includes the removal of all nodal and fibrofatty tissue from levels I to V, including sacrificing the sternocleidomastoid muscle, the spinal accessory nerve, and the internal jugular vein.

Post-op Implications:**Complications:**

Vascular injury: hematoma can compromise airway. Keep drains patent.

Chyle leak: injury to thoracic duct can cause a leak of lymphatic fluid into drains. Observe drains for character of contents.

Nerve injury: spinal accessory nerve (shoulder shrug).

Meds:

Thyroidectomy: Prophylactic Abx, Thyroid hormone replacement therapy. IV Rx, will be NPO post-op.

Principles:

Closely monitor electrolytes (thyroidectomy can cause hypocalcemia). Will have multiple percutaneous drains. Sometimes will have continuous Doppler to monitor perfusion of neck flap. Neck flap usually has a pectoral donor, percutaneous drains at donor site as well.

Care Plan:

Monitor airway, wound, drains, neuro exam, continuous pulse monitoring of flap (if applicable), serum electrolytes, monitor neck flap for hypoperfusion, control of nausea and pain, foley care, manage IVF, and skin care.

Course of Care:

POD#1: Depending on severity, may be intubated overnight. OOB if able, advance diet as tolerated unless NPO, restart home Rx as able. Drains will be removed after <30ml output/day.

Room Setup:

Possible vent. Humidified O2, oral suction + extra suction canister, standard IV-pump, possible PCA, SCDs, continuous pulse Doppler machine (if applicable).

Procedure:

Nephrectomy

Indication:

Donor nephrectomy, CA

Description:

Can be performed laparoscopically, robotically, or open. A flank incision, or retroperitoneal approach gains access to the kidney. The kidney is then either resected (partial nephrectomy), or completely removed, then incisions are closed.

Post-op Implications:**Complications:**

bleeding: observe for hgb/hct drop, flank/back pain, and hematoma around surgical area/back/flank of operative side.

Pneumothorax: (flank incisions have this potential regardless of procedure.).

Urine leak: requires drainage and sometimes ureteral stent.

UTI: diagnose and treat ASAP, imperative to retain function of remaining kidney.

Peritonitis: can be caused by perforation of duodenum or colon.

Acute Adrenal insufficiency (acute addisonian crisis): when all adrenal tissue is removed, hypoglycemia, hyponatremia, hyperkalemia, hypotension, hyperpigmentation, fatigue and weakness, nausea and vomiting, and abdominal pain, needs corticosteroids to treat.

Meds:**Principles:**

Respond quickly to decreased urine output, keep well hydrated, decreased urine output can put remaining kidney tissue at risk. Treat UTI ASAP as this can put remaining kidney tissue at risk. Maintain drainage tube patency (if applicable), backup can cause hydronephrosis.

Care Plan:

Wound care, strict I&O monitoring, manage IVF, Skin care, ureteral stent care (if applicable), foley care (if applicable), pain control, early ambulation.

Course of Care:

POD#1: OOB, advance diet as tolerated, restart home Rx as able.

Room Setup:

Humidified O2, oral suction, standard IV-pump, possible PCA, and, SCDs.

Procedure:

Tracheostomy

Indication:

Prolonged mechanical ventilation, decrease sedative requirements and increase comfort for prolonged vent stay. Upper airway obstruction.

Description:

Can be performed at ICU bedside or in OR. Landmark is midway between cricoid cartilage and sternal notch. Incision is made, trachea is exposed, incision is made in trachea and the tube is passed into the airway and placement is verified visually and with return of CO₂. Percutaneous dilatational tracheostomy is performed at bedside.

Post-op Implications:

Complications:

Tube dislodgement: see "principles" section below. Always have spare inner and outer cannulas at bedside.

:Inner cannula plugging (mucous, blood, tissue, etc.); always have a spare inner cannula at bedside to replace if patient's becomes occluded.

Trachea-innominate fistula: innominate artery becomes exposed due to erosion, protect airway first, then control bleeding with direct pressure; either over inflating cuff or by digital pressure. Will need to go to the OR for hemostasis.

Meds:

D/C all PO Rx. Unless NG/OG tube is ok to give meds.

Principles:

Tract requires 7 days to mature, if tube becomes dislodged prior to 7 days old, do not attempt to re-insert tube, this can cause a fistula, if patient is in distress, may need to be endotracheally intubated and place an occlusive dressing over the stoma. Tube can be replaced in OR or in a more controlled setting. If laryngectomy was performed, than tube can be replaced emergently at bedside because there will no longer be an option to place an ET tube. First planned trach tube change is most often scheduled 7 days post-op by surgeon. Cuff pressure should be between 20-25mmHg.

Care Plan:

VAP prevention, skin care, foley hygiene, oral care, pain control, wound care, manage IVF, possible NG/OG tube care. NPO. Change trach dressing when soiled. Sterile technique when suctioning trach.

Course of Care:

Depends on status of patient and reason for trach. Some will be long-term vents. Some are for CA and will be encouraged to get OOB early. NPO.

Room Setup:

Possible vent setup or trach collar humidified O₂ setup, suction X2 (oral and trach), spare trach dressings and inner/outer cannulas, standard IV-pump (unless on vent), SCD machine, and possible PCA if not vented.

