Technical Tips and Tricks for Open Retroperitoneal Exposure and Repair of Complex AAA: Maneuvers to Make it Relatively Simple

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Disclosure
Nothing to disclose, Except Albany still does a reasonable amount of open Aortic Reconstructions

Why Do I Need To Know Open Aortic Surgery

20% AAA Anatomically Unsuitable for EVAR
Endovascular/Stent Failures (Ruptures, Infections, Leaks)
1.5-5% Delayed Rupture after EVAR
Visceral Reconstructions (High end Oncology, Ortho)
Spine Exposures

ANATOMY

Transabdominal Approaches
Standard Approach For Infrarenal AAA
Medial Visceral Rotation for More Cephalid Exposure
More Bowel Manipulation

Retroperitoneal Exposures
- Left
  Anterolateral
  Extended posterolateral
- Right
  Anterolateral
ANATOMIC BENEFITS OF LEFT RETROPERITONEAL AORTIC EXPOSURE

- Excellent access to the subdiaphragmatic aorta
- Permits clamping above one or both renal arteries
- With division of the left crus, allows supraceliac cross-clamping

Technique for Left Posterolateral Retroperitoneal Aortic Exposure

- RIGHT LATERAL DECUBITUS
- INCISION THROUGH 10TH INTERSPACE
- LATERAL ENTRANCE TO THE RETROPERITONEUM
- ELEVATION OF THE LEFT KIDNEY
- LIGATION OF THE LUMBAR BRANCH OF THE LEFT RENAL VEIN
- DIVISION OF THE CRUS OF THE DIAPHRAGM (if needed)

KEY TIPS
Positioning

- RIGHT LATERAL DECUBITUS
- ALLEN ARM REST
- BREAK OF TABLE AT ILIAC CREST
- FLEX/ELEVATE LEFT LEG TO RELAX PSOAS

Key Tips
Incision

- Incision from Lateral Border of Rectus to tip of 10-11 rib
- Elevate Kidney Medial and Cefalad
- Sweep Connections of kidney to diaphragm medially
- For More Cephalad Exposure carry incision posteriorly
- Larger incision for AAA (Iliac Exposure)
Key Tips
Dissection

- Sweep Kidney and Attachments Off Diaphragm
- Left Renal should be Perpendicular to aorta
- Ligate Lumbar Branch Of Left Renal Vein

Key Tips
Dissection

- Clamp Iliac Arteries separately, or balloon occlude right iliac
- Incise left Crus Longitudinally (over left index finger)
- Retract Left Kidney anteriorly and Medially (Artery Perpendicular to Aorta) thus, relaxing ureter
- Keep Dissection Dry
Key Tips
Dissection
- Locate Clamping “Landing Zone”
- Avoid Thrombus/Calcium
- Isolate SMS/Celiac (if Necessary)
- Heparin 30 units/kg
- Clamp Placed Above or between renals or Supra celiac

Key Tips
Aortic Anastomosis
- Transect Aorta Well below renals, look out for Right renal orifice
- Leave enough “Aortic Cuff”
- Start at 9 o’clock, go to 12
- Parachute technique
- Move Clamp Below renals and anastomosis
Trans Aortic Endarterectomy

There Are No Easy Cases Anymore
Where Did We Go Wrong?

Infected EVAR with Pseudoaneurysm of SMA and Left Renal artery
- Evaluation of The Aortic Neck Prior To Clamping Is Important
- Clamp Once and Cleanly
- The Retroperitoneal Approach May Especially Benefit Patients with Complex Aortic Neck Pathology

Thank You!

Rupture of Primarily Infected Aorta Repaired EVAR

Infected AAA replaced with Homograft
Anatomy Dictates Approach

Right Retroperitoneal Exposure

Paramedian Exposure