Late Renal Salvage after Complex Endovascular Aneurysm Repair (EVAR) Complicated by Renal Thrombosis

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Disclosure

WL Gore – Consultant
Bolton Medical – SAB
Cook IDE for Fenestrated and Branch Grafts – no Financial benefit
Spectranetics – SAB
Abbott Medical – Speakers Panel
Surgeons now treat peri- & supra-renal aorta with more complex endografts
- Accepting Shorter Proximal Aortic Necks
- Fenestrations, branches, snorkels, & sandwiches
- Anchor technology and Balloon Expandable stents

Increased risk for embolization & acute occlusion of visceral & renal stents
- Incidence after fenestrated/branched EVAR (0.6-5%)\(^1\)

\(^1\) Mastracci et al. Durability of branches in branched and fenestrated endografts. JVS.2013; 57 (4):926-32
• Management of acute renal ischemia not standardized
• Loss of renal function with warm ischemia time ~ 1-2 hours$^1$
• Reports of renal salvage after variable duration of renal ischemia (hours to months)$^2$
• Salvage by endovascular or open techniques

$^2$ Delayed Hepato-spleno-renal bypass for renal salvage following malposition of an infrarenal aortic stent graft. J Endovasc Ther. 2010;17:326-31
Objective

• Evaluate outcomes of six cases of renal graft/artery occlusion following complex EVAR
Methods

- 6 patients in last 48 months
- Subacute renal graft occlusion following EVAR
- Time from renal ischemic symptoms to intervention
  - 5 to 45 days
- Renal perfusion assessed by nuclear perfusion scan, renal duplex or kidney enhancement (CTA)
Patient 2: FM

- 63 yo M underwent suprarenal fenestrated aneurysm repair (10/2012) with p-branch to both renals, fenestration to SMA
Patient 2: FM

• Presents 2 weeks post-op with 5 days of left flank pain
• CT scan with evidence of acute ischemia of left renal branch stent kinking
Patient 2: FM

- Left renal Angiojet thrombectomy, thrombolysis, angioplasty, stent placement
Renal catheterization with thrombus
After TPA administration
After TPA & Angiojet
S/p Angioplasty & Stent Placement
Patient 2: FM

- Doing well with resolution of pain, normal Cr
- Patent stents on follow-up duplex
• 71 yo F s/p left nephrectomy (donor 1982) s/p EVAR (2008) for infrarenal aneurysm
• Developed type 1a endoleak, underwent aortic cuff placement (1/2014) with right renal artery coverage
• Developed acute renal failure requiring dialysis
- Presented for renal artery revascularization
  - 30 days on dialysis
- Renal artery angioplasty & stent placement, left brachial access
Patient 3: EL

- 2.5 year f/u: off dialysis, Cr 1.0, doing well
Results

• 5 of 6 patients we were able to restore renal perfusion
• 2 of 2 patients on dialysis were able to discontinue dialysis
• 1 of 6 patients had no significant decrease in renal function or increase in BP so did not undergo reintervention
• Delayed revascularization of renal ischemia after EVAR feasible even after up to 6 weeks of renal ischemia
• Consider in patients with residual renal function despite occlusion
• Further studies needed to determine long-term return of renal function in small patient population
Thank You
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