Aortoiliac Disease and Kidney Transplantation: The role of the Vascular Surgeon

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Conflicts of Interest

- I have no Conflicts of Interest to Disclose
- IRB approved investigation
Introduction

• Currently in US there are 468,000 people on dialysis\(^1\)

• Renal transplant offers best survival with
  – 5 year patient survival of 85\(^2\)
  – 5 year survival of 35\% on Hemodialysis\(^2\)

• In Florida, there are 4,812 people on the kidney waiting list with
  ~1200 kidney transplants performed annually\(^3\)
Vascular Disease and Renal Transplantation

- PVD present in up to 46% of ESRD patients
- Diminished patient and allograft survival with both
- ESRD and PVD still achieve significant survival benefit from Renal Transplantation
- Technically, significant aortoiliac disease may prohibit or lead to inferior survival of renal transplant
Kidney Transplantation
Why is this an issue?

• AIOD causing clinical sequelae estimated to occur up to 1.5% of renal allografts\(^6\)
• Complications of aortoiliac disease in renal transplant include\(^6\):
  – Loss of organ intraop
  – Renal Artery Stenosis
  – Risk of Limb Loss
  – Renovascular HTN
• Much of this is preventable with preop detection and intervention
UM Protocol

Ultrasound Iliac Vessels

- Evidence of Vascular Disease
  - On Dialysis, CTA
    - If Abnormal, Angiogram
  - NYOD, CT non con
    - If Abnormal, Angiogram

- Normal
  - Cleared For Transplantation

EARLY VASCULAR REFERRAL
Screening

• No National Protocol exists-only institutional guidelines
• Screening protocol varies widely between centers
• Physical exam notoriously insensitive\(^7\)
• Ultrasound is excellent initial screening test with 91% sensitivity and 86% specificity\(^8\)
• CT Angiogram 96% sensitivity and 97% specificity for hemodynamically significant aortoiliac lesions\(^7\)
Options

- Endarterectomy
- Aortoiliac Bypass
- Endovascular PTA/Stenting
- Results are best when Renal Anastomosis can be made to a native vessel\textsuperscript{10}
- No study demonstrating superiority of staged or simultaneous intervention\textsuperscript{9,10}
Case #1

- 55 y/o female with esrd s/p lrktxp in 2002 that subsequently failed who underwent work up for retransplant
- Screening Ultrasound revealed elevated velocities in iliacs bilaterally
- Referred to Vascular Surgery for evaluation
Stenotic Left CIA
Stenotic Right CIA
Kissing Stents
Case #2

• 54 year old female with T1DM s/p KP txp in 2002 and retransplant in 2004 due to chronic rejection of pancreas. In 2016 plan was to undergo above Pancreas Transplant.

• No preoperative U/S or vascular referral
Preop MRA (3 years old)
Intraop

- Could not clamp Right EIA and artery ruptured due to calcifications
- Interposition graft using donor carotid to perfuse RLE
- Aortic endarterectomy and pancreas reperfused with donor Conduit
- 2 days later patient developed cold pulseless RLE
Intraop Angiogram
Conclusion

• With appropriate detection and intervention, Aortoiliac disease is not a contraindication to Renal/Pancreatic transplantation

• Creation of protocol insuring early vascular referral
Bibliography

1. www.kidney.org
2. www.lkdn.org