Interesting Cases in the Practice of IN

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Case #1

- 72 year old male with 5 year history of ESRD. HD via left brachiocephalic AVF. Discovered to have reduction in transonic flow from baseline of 1500 to 800 ml/min. Augmented pulse on physical exam.
VAMP® VASCULAR ACCESS MONITORING & SURVEILLANCE FLOW FLOW CHART

Functioning Access
- Physical Assessment q Treatment
- Kt/V (URR) q 1 month
- Recirculation Study prn for suspected problem
- Dynamic VP @ Qb 200 q Tx (or Static VP @ Qb 0 q 2 wks)
- AP q Treatment

Vascular Access
- Normal: <10% (by BUN) <5% (by Transonic)
- Normal: <125 mm dynamic or <=0.5 static
- Abnormal: Trend of > negative AP or >-280 or unable to achieve Rx Qb (first r/o needle g/ other causes)

Non-Functioning Access (Occluded/Thrombosed)
- Access Blood Flow (ml/min) q month & post-intervention
- Abnormal: AVG: < 600 or 20% in 1 mo (see footnote)
- AVF: < Rx Qb
- Abnormal >2000
- Evaluate for “steal” - hand ischemia/hypertension/heart failure failure
- Thrombolysis / Thrombectomy in Radiology (or directly to Surgery)
- Unsuccessful
- Surgery

Nephrologist to re-evaluate indicators of dysfunction

Fistulogram (or doppler US)
- Normal
- Abnormal (Preferred referral path, but if 1 PTA in prior 45 days or 2 in 6 months or new access--obtain surgical consult)

Surgeon (Revision/New Access)
- Technical Failure
- Interventional Radiologist (PTA/Thrombolysis/Stent)

Presumptive Success
- Normal
- Re-assess Surveillance Indicators per Protocol at Next Dialysis Session
- Abnormal

1 For Static Pressures, see attached protocol for measuring both venous and arterial intra-access pressure ratios.
2 If AVG access blood flow falls by 20% in 1 mo., and flow is below 1000, repeat next session and if still lower by 20%, refer for fistulogram.
Physical Exam

- **Inflow lesion:**
  - Faint thrill
  - Does not Augment

- **Outflow lesion:**
  - Pulsatile
  - Does not flatten with arm raise
Case #1 . . .continued . . .

72 year old male returns with numbing and tingling of his distal extremity on the side of the AVF and CP on HD. Radial pulse diminished on left.
Case #2

- 76 year old female with 2 year history ESRD. HD via left radiocephalic AVF. Unable to cannulate for HD.
What Is a Successful Angioplasty?

- *Procedural success* is defined as anatomic success and at least one indicator of hemodynamic or clinical success.

- *Anatomic success* of a treated stenosis is defined as less than a 30% residual diameter stenosis.

- *Clinical success* after treatment of a malfunctioning access is defined as the resumption of normal dialysis for at least one session.

- *Hemodynamic success* is defined as the restoration of hemodynamic parameters.
When Angioplasty Fails

- High (ultrahigh) pressure angioplasty
- Stent
- Laser
- Atherectomy
- Bypass
- Catheter
Case #3

- 66 year old male with 1 year history ESRD. HD via right brachiobasilic loop AVG. Decreased URR from 80 to 65.
S/P Angioplasty to 35 atm
Case #4

- 64 year old male with severe AVG aneurysms.
Case #5

- 37 year old male with 2 year history ESRD. HD via right femoral loop AVG. Heavy bleeding post HD.
Angiography is only a tool
Case #6

- 56 year old male with 4 year history ESRD. HD via right brachiocephalic AVF. Decreased transonic flow from 800 to 500. Augmented pulse on physical exam.
Case #7

- 71 year old male with 3 year history of ESRD. HD via left brachiocephalic AVF. Transonic flow decrease from 550 to 450. Referral for angiography was deferred 1 month.
Case #8

61 year old male with 3 year history ESRD. HD via left brachiobasilic loop AVG. Transonic skipped 2 months. Referred for angiogram for severe bleeding post HD.
Current Technique Development: Excimer Laser Assisted Angioplasty
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Current Technique Development: Atherectomy

How I Do It: Directional Atherectomy for In-Stent Restenosis of a PTFE Arteriovenous Graft

Alexander S. Yevzlin,* Brian Gutformsen,† Micah R. Chan,* and Giorgio Gimelli†
Current Technique Development:
Reversing Introducer
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Current Technique Development: Extra-Anatomic Percutaneous Bypass Stent-Graft
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Future Directions: AVF Placement by US Nephrologists