Counterpoint:
Collateral Side Branches:
Don’t Occlude or Ligate

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2.2 Fistulae:
2.2.1 Enhanced maturation of fistulae can be accomplished by selective obliteration of major venous side branches in the absence of a downstream stenosis. (B)

(Last Level B Recommendation: At least fair scientific evidence suggests that the benefits of the clinical service outweigh the potential risks. Clinicians should discuss the service with eligible patients)

Ligation or embolization of collateral side branches

- Role of treatment (angioplasty or revision) of anastomotic or juxta-anastomotic stenosis to improve fistula maturation well documented
- Role of collateral vein occlusion is less well established
- Intuitively and hemodynamically makes sense to maximize blood flow through single outflow vein
- Parallel outflow veins with different calibers, lengths and flow patterns complicate flow dynamics
- Decisions based on opinion rather than scientific evidence

Successful Obliteration of Large Collateral With Improved Fistula Maturation

Zangan S, Falk A in Seminars in Interventional Radiology 2009
Successful Treatment of Outflow Stenosis Resulting In Decreased Collateral Flow and Improved Fistula Maturation

Successful dilatation of collateral vein for AVF access

Accessory Veins

- Accessory (normal) v collateral (pathologic) veins
- Accessory vein may be viewed as potential advantage (may represent additional sites for cannulation) or disadvantage (contribute to early fistula failure)
- Not all accessory veins need to be eliminated

Rational for selective occlusion of AV fistula collateral side branches

- No scientific evidence that routine occlusion useful
- Does not universally improve fistula maturation
- If not associated with outflow stenosis or fistula caliber change no objective evidence to support
- If associated with outflow stenosis treat stenosis
- Preserve collaterals for future access

Patent outflow vein after AVF

Occluded outflow vein with collateral vein

Successful dilatation of collateral vein for AVF access
• 96 patients with poor fistula maturation and accessory veins > 20% diameter of fistula
• Fistula diameter decrease of > 5% downstream from accessory vein in 49%
• Coexisting > 50% stenosis in fistula or outflow in 76 patients
• Outcome in 20 patients with accessory veins but no coexisting stenosis:
  – Decrease in fistula diameter (9) associated with 100% maturation with accessory vein embolization
  – No decrease in fistula diameter (11) associated with 45% maturation rate with accessory vein embolization
• Coil embolization significantly more successful if >5% drop in fistula caliber immediately downstream to accessory vein

Rational for routine occlusion of AV fistula collateral side branches

- CPT code 37204 – transcatheter embolization ($2680)
- CPT code 75894 - transcatheter embolization, radiologic supervision and interpretation ($2000)
- Reimbursement for coil embolization in outpatient center $4680 (reimbursement for AV fistula in hospital
- CPT code 37241(2014) – codes bundled
- CPT code 36821 – AV fistula ($740)

Conclusions

- Dr. Lawson not a bad guy and may be correct
- No level one evidence establishing efficacy of collateral vein ligation – do we need randomized prospective data?
- Selective treatment of collateral side branches reasonable
- If collateral veins associated with outflow stenosis treat outflow stenosis (obvious?)
- Preservation of collateral veins may provide alternative access sites if primary vein fails

My Approach

- If thrill in main cephalic vein augmented with compression of collateral vein consider ligation
- Duplex performed to evaluate presence or absence of outflow stenosis
- Duplex performed to evaluate fistula flow and effect of compression of collateral
- Ligation of collateral only if significant increase in flow with compression of collateral vein