PTFE Bypasses to Infrapopliteal Targets Can Be Worthwhile For Limb Salvage In Patients with End Stage CLTI: When Is This So and Technical Tips To Make Them Work.

Matthew T. Menard, M.D
Brigham & Women’s Hospital

Disclosures:

- Novo Nordisk Foundation
  - Grant Recipient
- Janssen, Inc
  - Advisory Board
- Anges, Inc
  - DSMB

You have to be a believer...
...ignore the nihilists (and there are plenty)

Three Decades of Bypass Grafts @ BWH for CTLI

|                  | 1980 - 1989 | 2000 - 2015 | P-value |
|------------------|-------------|-------------|---------|
| Smoking          | 64 (36.8%)  | 155 (26.3%) | 0.001   |
| Diabetes         | 69 (39.8%)  | 74 (39.8%)  | 0.001   |
| Hypertension     | 71 (42.2%)  | 64 (36.6%)  | 0.001   |
| Coronary artery disease | 66 (31.2%) | 62 (33.3%)  | 0.047   |
| Congestive heart failure | 117 (63.6%) | 220 (38.4%) | 0.001   |
| Atrial fibrillation/Arrhythmia | 103 (58.7%) | 207 (34.3%) | 0.001   |
| Stroke           | 14 (7.7%)   | 153 (24.4%) | 0.001   |
| Chronic renal insufficiency | 152 (13.7%) | 227 (37.0%) | 0.001   |
| Dialysis         | 210 (8.5%)  | 134 (11.8%) | 0.007   |
Results – Indications and Conduit

| Indication          | 1995 - 1999 | 2000 - 2015 | P-value |
|---------------------|-------------|-------------|---------|
| Foot pain           | 530 (12.7%) | 499 (11.3%) | 0.102   |

More tissue loss, more prosthetic

- Single-segment GSV: 69%
- Prosthetic with a vein cuff: 69% (p=0.51)
- Arm vein: 60%
- Composite: 55% (p=0.14)

Impact of Tibial Bypass Conduit on Long-Term Amputation-Free Survival and Primary Patency in the Vascular Quality Initiative

JVS, November, 2021: Dalmia et al (Montefiore)

1 Year Primary Patency, first-time elective tibial bypass, n=4192

- Single-segment GSV: 69%
- Prosthetic with a vein cuff: 69% (p=0.51)
- Arm vein: 60%
- Composite: 55% (p=0.14)
Tibial Bypasses for CLI

BWH Unpublished Experience: 2007-2017, n=62

|                  | Distaflo (35) | Propaten (27) |
|------------------|--------------|---------------|
| • 3-year Primary Patency: | 48%          | 76% [0.04]    |
| • 3-year Limb Salvage:    | 73%          | 75% [0.43]    |

When to use

- Inadequate GSV
  - Weigh against composite or arm vein options in a given patient
- Old, frail, want to minimize dissection time and impact (“sneak in, sneak out.”)

Typical CLI patient

- 86 y.o. F with debilitating BL rest pain
- Post-op 1 week from urgent CABG
- ABIs: .31/.35
- TBIs: 0/0
Extensive CFA/PFA endarterectomy

- Cancel case if any groin rash or infection
- Generous antibiotics
  - Vancomycin and 3rd gen cephalosporin
  - Prevena
  - Vancomycin powder
  - Drains (15 Blake) to all incisions
- Graft: 5 vs 6 mm ringed Propaten
- Tunneling:
  - Gore tunneler
  - Typically superficial
  - No skip incisions
  - Beware migrating subfascial
  - Distal anastomotic fasciotomy
- If BK popliteal tunnel superficially and then anatomically through popliteal fossa
- Vein patch to distal target
  - Miller patch, Linton patch
  - Gorex suture - minimize bleeding, post op hemorrhage
  - BV175 – excellent for heavy calcium

CV5 or CVS for proximal CFA
CV6 for popliteal
CV7 for tibial
Fibular resection for mid, distal peroneal exposure

- Incision directly over fibula
- Dental burr, or rib-cutter – take generous segment (? 6 cm)
- Lift off – peroneal sitting right there

Case Presentation

- 70 yo M, DM, advanced heart failure
- Failed BL femoral – distal vein bypass
- R ilio – profunda bypass
- Recurrent severe claudication and rest pain, with minor tissue loss

Post revascularization duplex surveillance

- Widely patent 4 years later
- Exact same surveillance as vein graft – critically important:
  - 1, 3, 6, 9, 12, 18, 24, 36, ... months
VOYAGER Trial

Thank you very much!