Hybrid arterialization of the venous system of the foot in no-option CLI patients

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“The miracle of the salvaged foot”
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Disclosure

In the last 2 years I have the following potential conflicts of interest to report:


Virtual shareholder: Limflow

1. Who is a no-option CLI pt?
2. How to create and master the FVA circuit
3. Foot surgery principles in FVA
4. Why does FVA function?

- 58 yy old male
- T2DM
- ESRD-HD
Who is a no-option CLI pt?

- A no-option CLI patient is a patient without a target foot vessel.
- Today SAD is the most common cause of no-option CLI (old/DM/ESRD).
- In the vast majority of the cases SAD is associated with medial artery calcification (MAC).
- At least 25% of CLI pts (maybe more...) present some degree of SAD-MAC.

1. Who is a no-option CLI pt?
2. How to create and master the HFVA circuit.
3. Foot surgery principles in FVA.
4. Why does FVA function?
2) Deep dorsal system & ATVs

3) Deep plantar system & PTVs

4) Superficial plantar system: Lejars' sole

Collaterals & perforators
1. Who is a no-option CLI pt?
2. How to create and master the HFVA circuit
3. Foot surgery principles in FVA
4. Why does FVA function?

Principle of foot surgery
1. Wait for swelling
2. Wait for arterialized network expansion
3. Respect the arterialized circuit, respect the forefoot cross!
4. After FVA the foot is still ischemic! The arterialized circulation has not the same function of the standard circulation → use a “tension free” surgery to avoid focal ischemia

1° “Mechanical hypothesis”
Arterial & hydraulic pressure force with valves leading to progressive valve incompetence, distal veins recruitment and, finally, direct tissue nutrition by reverse blood flow

These two experiments demonstrate that:
(a) the valves prevent, at first, the reversion of the circulation in the veins.
(b) After a short time, the valves gradually give way and the red blood flows through the veins as far as the capillaries.
(c) Finally, it passes through the capillaries, and the arteries are filled with dark blood. Probably dark blood also returns from the capillaries towards the heart through some veins.
(d) Practically complete reversal of the circulation is established about three hours after the operation.
Vein wall shear stress promotes a global remodeling and/or reorganization of the vascular system of the foot, creating a new distribution system.

- 74 year old male
- Chronic Myeloid Leukemia, responsive to current treatment
- Rest pain and 1-2° toe suffering
- Tuffillo's lesion

2° Biological hypothesis

Typical vein geometry
mean follow-up of 10.8 ± 2 months

In highly selected no-option CLI pts PFA can be the only solution to avoid major amputation