Plantar loop technique

Boldly go where no man has gone before…

Lieven Maene

Plantar ARCH (?) technique

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Disclosure of Interest

Disclosure

Speaker name:

.....

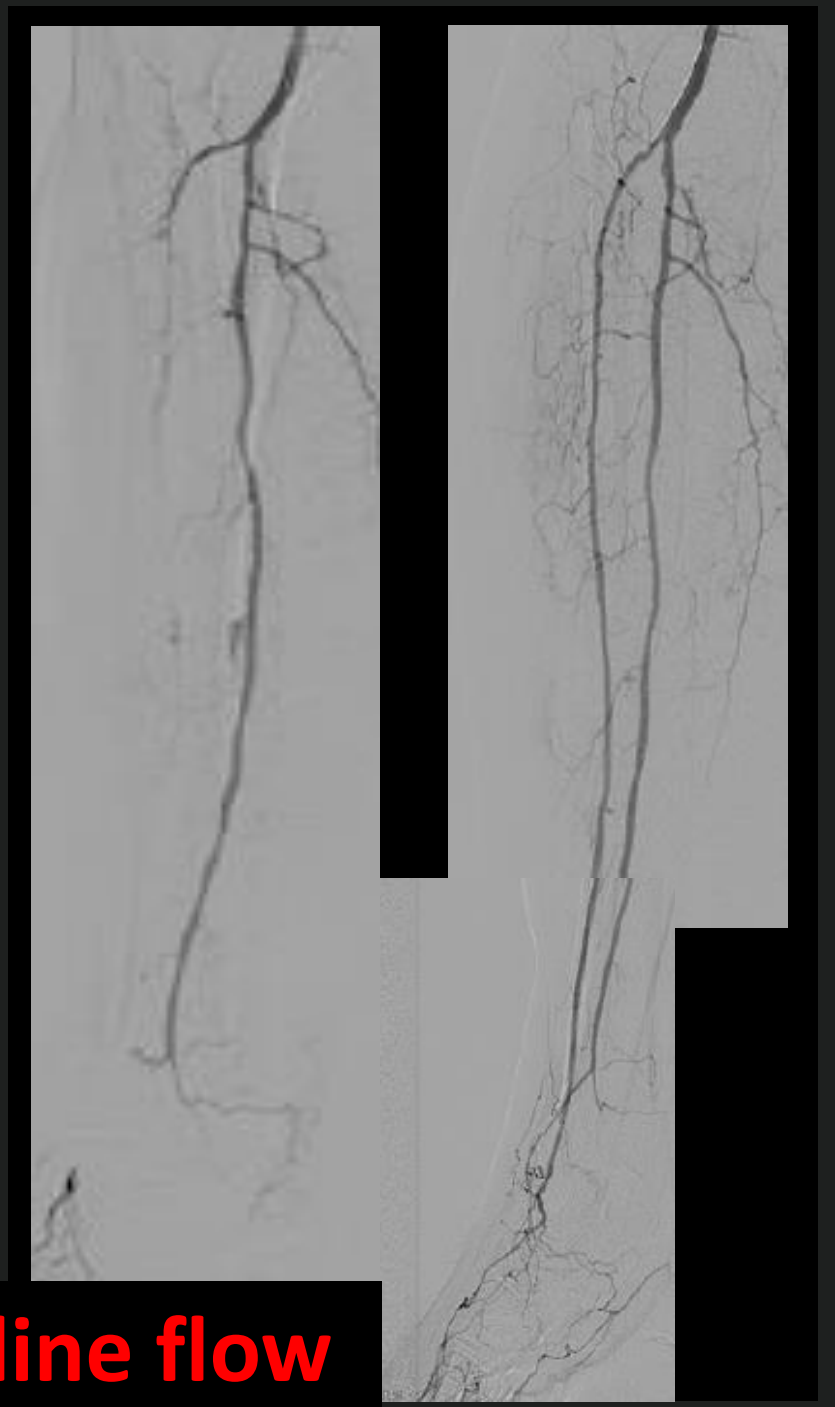
I have the following potential conflicts of interest to report:

- ☐ Consulting
- ☐ Employment in industry
- ☐ Shareholder in a healthcare company
- ☐ Owner of a healthcare company
- ☐ Other(s)
- ■ I do not have any potential conflict of interest

The pedal arch … when ?

To improve arterial outflow into the foot when adequate inflow is established

Background :



1 straight line flow

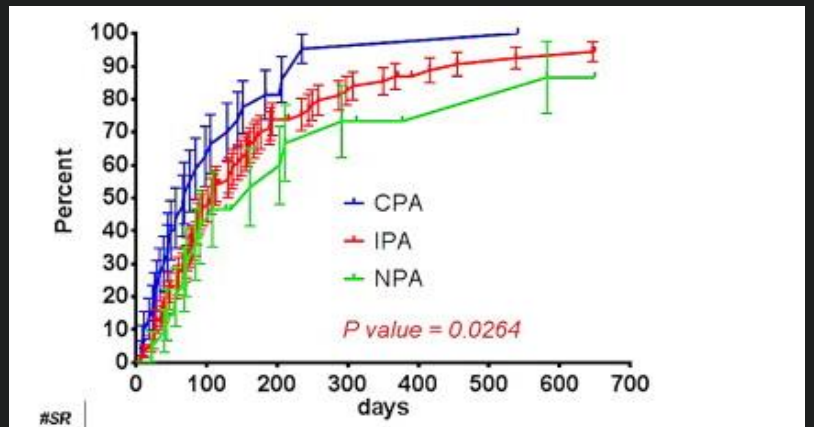
Background … surgical world

The impact of arterial pedal arch quality and angiosome revascularization on foot tissue loss healing and infrapopliteal bypass outcome

Presented at the Plenary Session, S1: William J. von Liebig Forum, at the 2012 Vascular Annual Meeting of the Society for Vascular Surgery, National Harbor, Md, June 7-9, 2012.

Hisham Rashid, FRCS, Hani Slim, MRCS, Hany Zayed, FRCS, Dean Y. Huang, FRCR, C. Jason Wilkins, FRCR, David R. Evans, FRCR, Paul S. Sidhu, FRCR, Michael Edmonds, MD

King's Health Partners Vascular Unit at King's College, Guy's and St Thomas' Hospitals, London, United Kingdom



#SR							
CPA	31	11	5	3	2	1	1
IPA	88	44	21	13	8	5	3
NPA	22	12	7	5	3	2	1

Complete arch

Incomplete arch

Significant reduction in time to woundhealing ~ pedal arch type

… endovascular world

J Vasc Surg. 2010 Oct;52(4):834-42. doi: 10.1016/j.jvs.2010.04.070.

Predictors of failure and success of tibial interventions for critical limb ischemia.

Fernandez N, McEnaney R, Marone LK, Rhee RY, Leers S, Makaroun M, Chaer RA.

Division of Vascular Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA 15213, USA.

Angiosome model theory

Abstract

OBJECTIVE: The articularly for wound healing is not fully defined. The purp l.

METHODS: All TAEI for tissue loss or rest pain (Rutherford classes 4, 5, and 6) from 2004 to 2008 were retrospectively reviewed. Clinical outcomes and patency rates ession and life table analysis.

1 vessel > 0

2-3 vessels > 1

Tibials > peroneal

RESULTS: One h ge 74) were treated. Sixty-seven percent of patients were diabetics, 55% had renal ins imbs (83%) exhibited tissue loss; all others had ischemic rest pain. All patients underwe s performed in 14% of the patients. Interventions were performed on multiple tibial ves on 50 limbs (41%), while 73 patients had concurrent ipsilateral superficial femora l tibial runoff score improved from 11.8 ± 3.6 to 6.7 ± 1.6 (P < .001), and the mean an < .001). Surgical bypass was required in seven patients (6%). The mean follow up w , and secondary patency rates were 33%, 50%, and 56% respectively. Limb salvage rate red limb salvage included renal insufficiency (hazard ratio [HR] = 5.7; P = .03) and the need for pedal intervention (HR = 13.75; P = .04). TAEI in an isolated peroneal artery (odds ratio = 7.80; P = .01) was associated with impaired wound h (HR = 3.1; P = .01) were predictors of wound healing. In patien nths), and 39% exhibited partial wound healing (mean fo cularization of > 1 tibial vessel had no impact on limb salvage or wound healing. Re-intervention rate was 50% at 1 year.

Impact of pedal disease

CONCLUSIONS: TAEI is an effective treatment for CLI with acceptable limb salvage and wound healing rates, but requires a high rate of reintervention. Patients with renal failure, pedal disease, or isolated peroneal runoff have poor outcomes with TAEI and should be considered for surgical bypass.

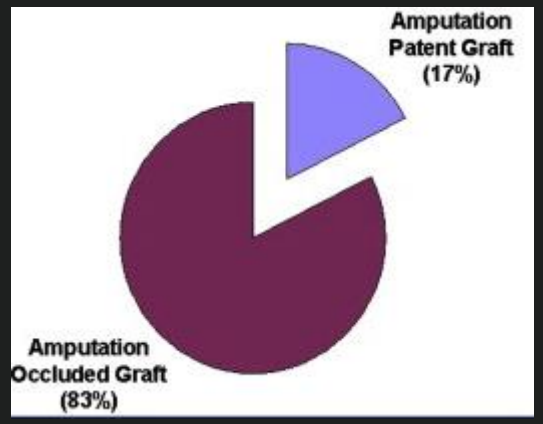
The pedal arch … when ?

To improve arterial outflow when adequate inflow is established

- ✓ After successful inflow treatment without woundhealing
  - Post BTK endovascular interventions (Critical Wound Ischemia +)
  - Post BTK bypass surgery
- ✓ Primary pedal arch lesions
- ? To improve longterm results of successful BTK revascularisation ?

1. After succesful inflow treatment w/o woundhealing

- Surgical literature : > 15% major amputations post successful bypass surgery



- Endovascular literature : CLI → Critical wound ischemia when the wound related artery is not fully revascularised

Case :

- Male 64y
- DM

- Diabetic foot :
  - Infected gangrene

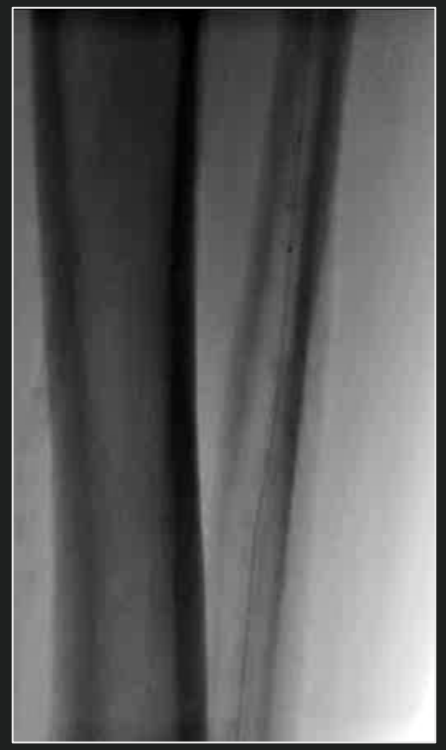
  - Revascularisation : ATA & PTA
  - debridement
  - amputation of 4-5 th toe

3 months later …

- Baseline angiography

Case

- Distal posterior tibial artery occlusion



PTA 2,5 / 40
Armada - AV®

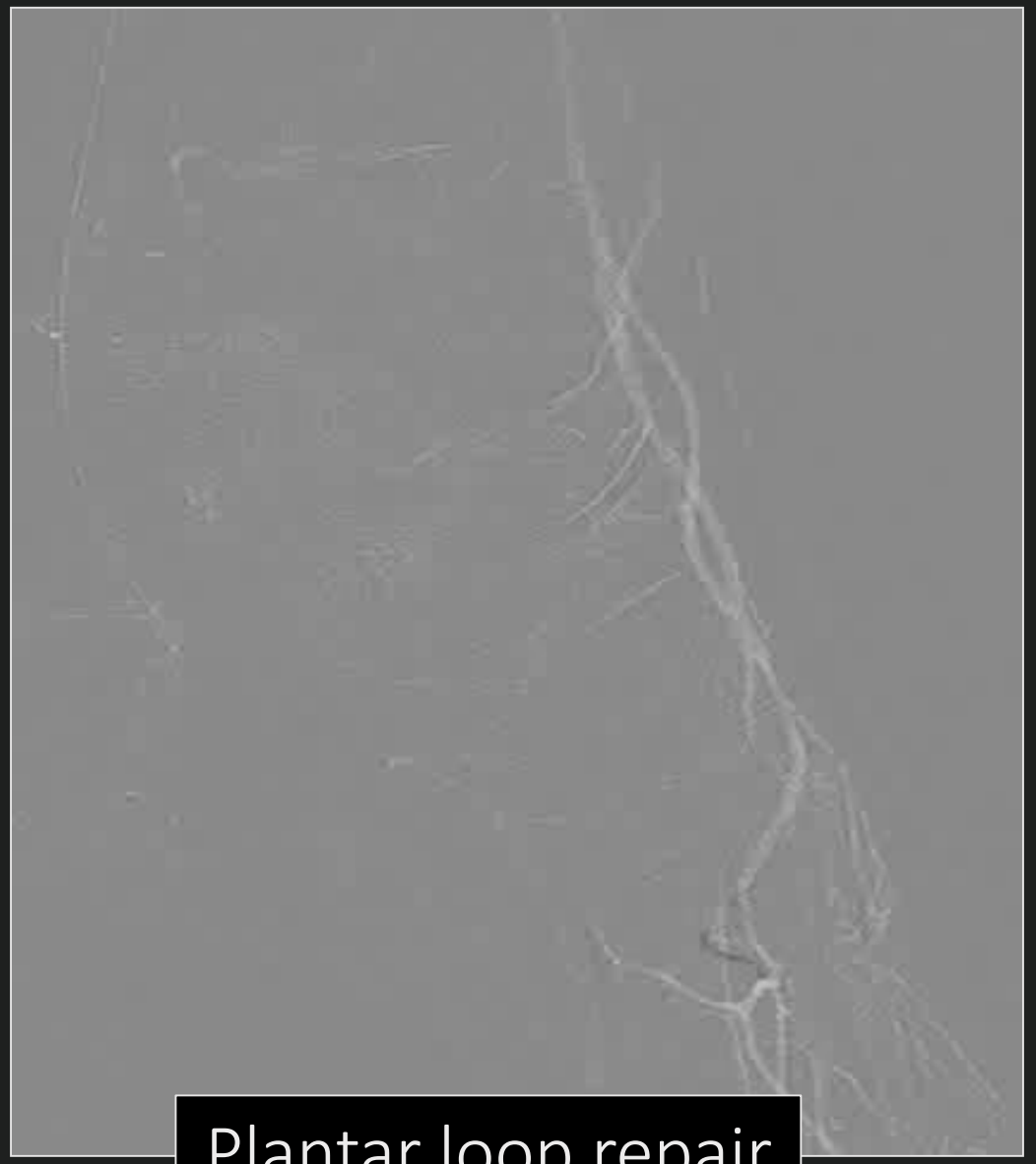
HT Command 0,014 Wire - AV®

Case

Inflow correction

Intraluminal recanalisation of the plantar arch

HT Command 0,014 Wire - AV®



Plantar loop repair

2. Case : Primary pedal arch lesions

- Male 72 y
- DM

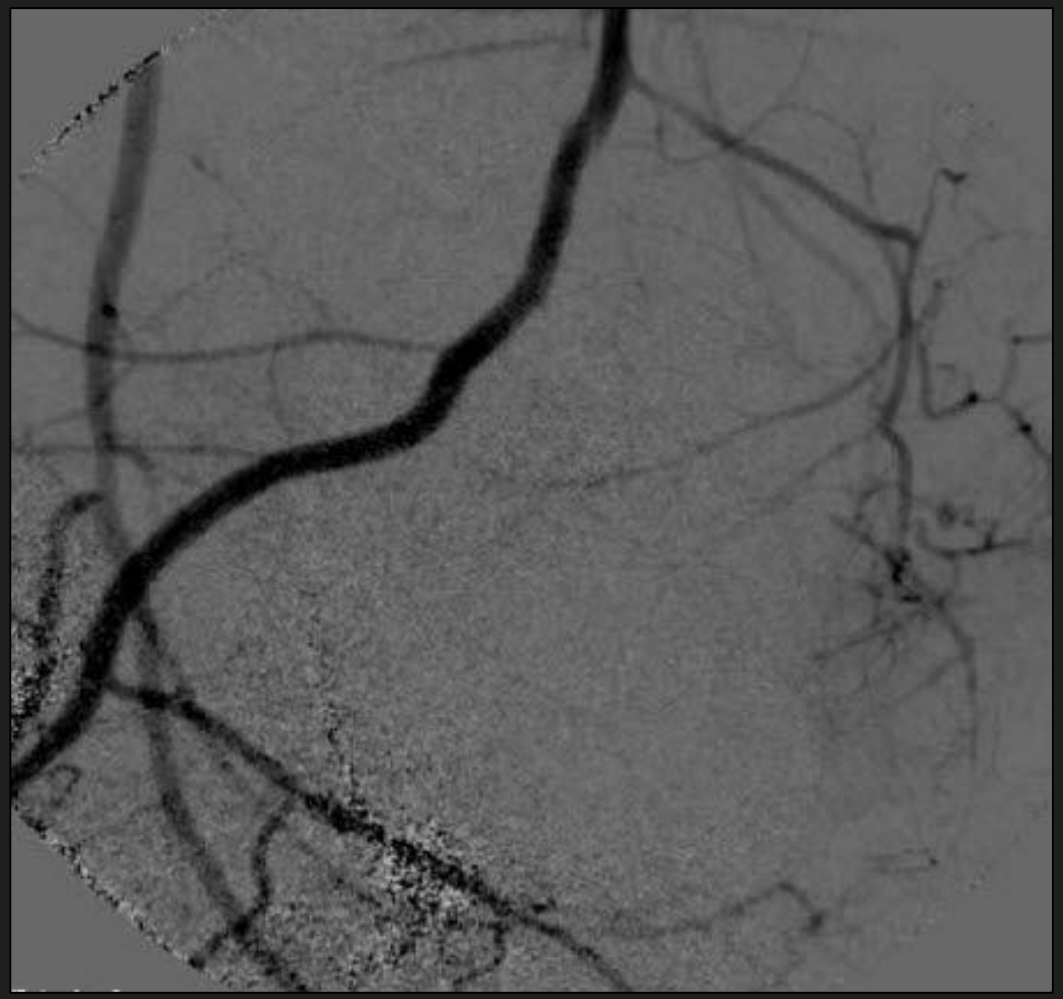
- Distal arteriopathy
- Previous amputations

- Recurrent ulcers

Case : Pedal artery stenosis

PTA 2,5 / 20

Case



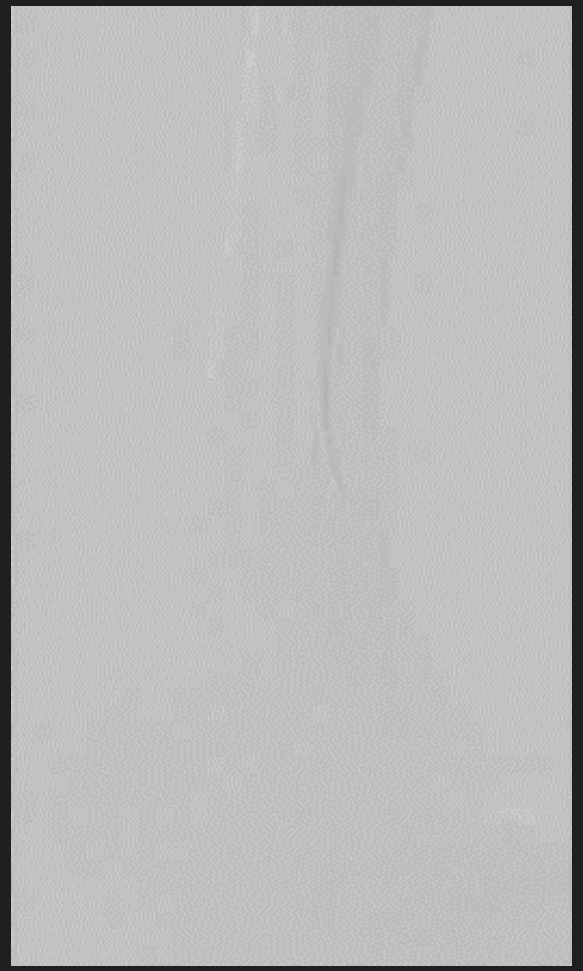
Good clinical outcome :

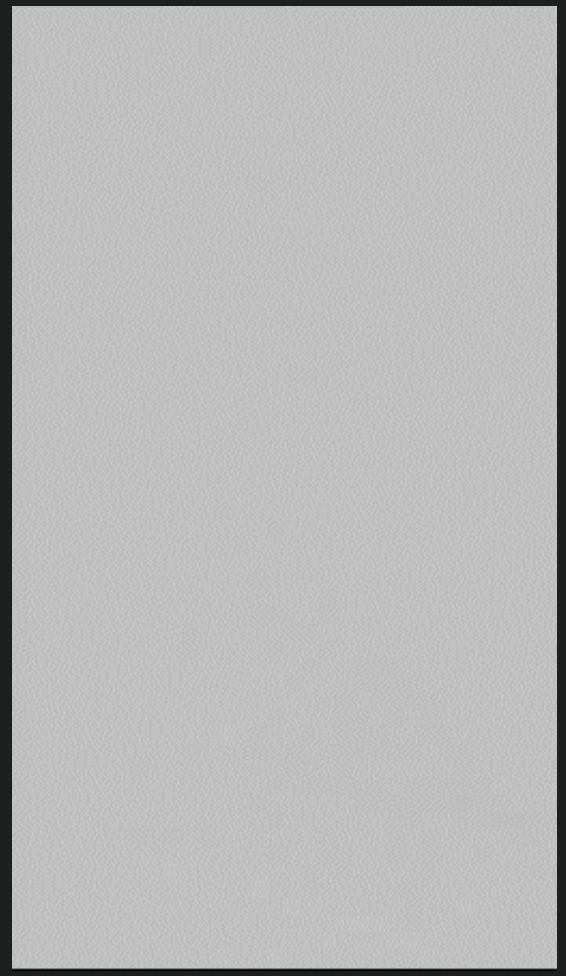
- Wound debridement
- toe amputations

3. Case : “no” pedal arch

- Male 57y
- DM
- Dialysis
- Multiple PTA’s of BTK vessels
- Infected diabetic foot

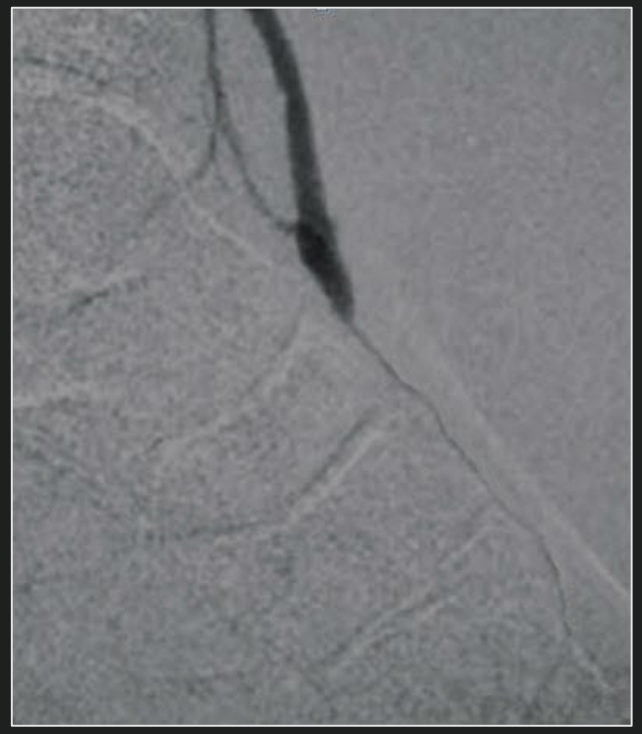
Case : “no” pedal arch





3. Case : post BTK Bypass surgery

- Pedal arch revascularisation post BTK bypass surgery due to insufficient woundhealing



PTA 2,0 / 80

3. Patency post bypass surgery

Surgery. 1981 Jun;89(6):743-52.

Correlation of foot arterial anatomy with early tibial bypass patency.

O'Mara CS, Flinn WR, Neiman HL, Bergan JJ, Yao JS.

Abstract

The detailed arterial anatomy of the foot in severe limb ischemia is not well known. This study was undertaken to define foot arterial anatomy and correlate these findings with the early results (6 months) of femoral-distal bypass. After completion of the bypass, operative arteriography was performed by direct injection of contrast media into the graft. A lateral view of the distal limb and foot was obtained. Foot vessel anatomy was classified into primary and secondary pedal arches, analogous to the superficial and deep volar arches of the hand. For peroneal bypass, special attention was paid to perforating branches and their communications with these two pedal arches. A total of 56 distal bypass operations was analyzed. Femoral--anterior tibial bypass was performed in 26 cases. When either a primary or a secondary pedal arch was intact, early graft patency (6 months) was

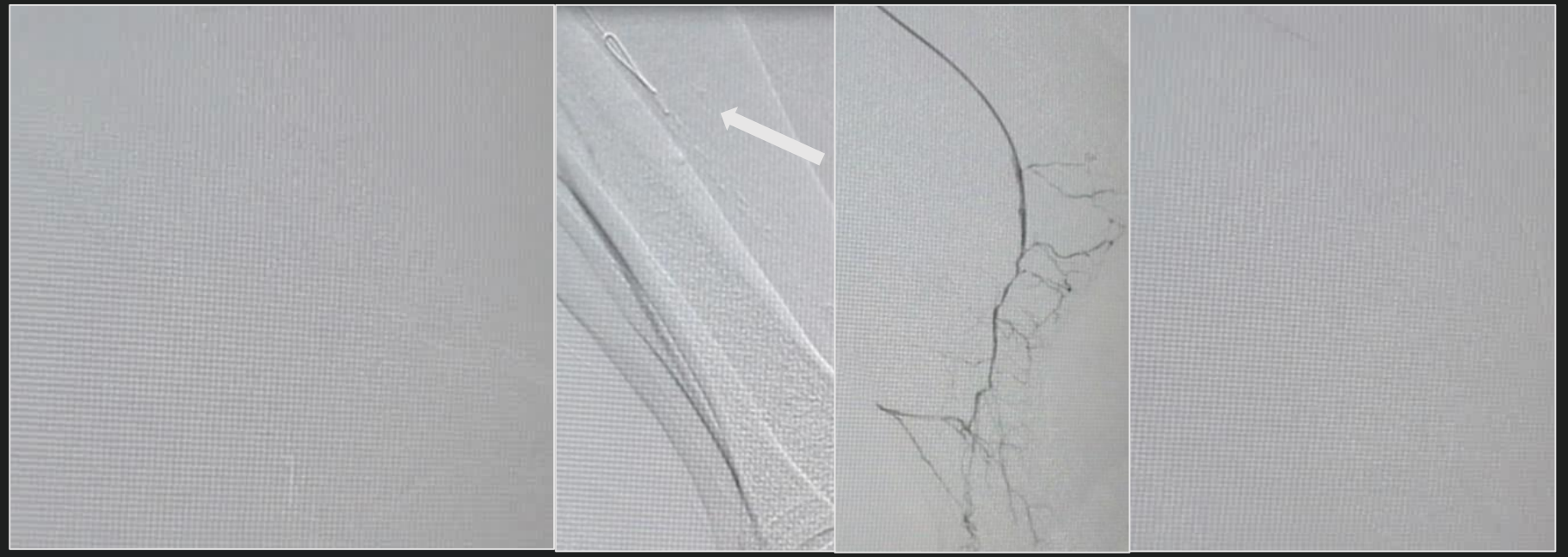
… Operative angiography can define runoff in the foot and this information has prognostic significance …

were successfully reconstructed (P less than 0.001). Analysis of the results of femoral-distal bypass based on a single plantar arch as the sole determining anatomic factor in graft patency is not adequate. The secondary pedal arch and communicating branches of the peroneal artery are also of surgical significance. Operative arteriography can define runoff in the foot, and this information has prognostic significance. It may allow rational judgment regarding reintervention in patients with failed grafts.

Materials & technique …

Subintimal recanalisation with … 0.035 system

- Failed 0.014 - 0.018 approach
- “desert” foot , extreme calcifications,…



Conclusion

- Revascularization of the pedal arch can improve the bloodflow into areas of critical ischemia of the foot despite established adequate tibial inflow.

- Intraluminal meticulous crossing with appropriate devices and 0.014 wires is indicated

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