증례로 알아보는 말초혈관 질환
- 하지혈관 질환

부산 백병원 순환기내과

진한영

INJE UNIVERSITY BUSAN PAIK HOSPITAL

Case 1. M/75

To 내과 진한영 선생님

수고하십니다. 상기환자 2018년 12월 both TKA 후 both DVT 발생하며 anticoagulation 3개월 이상 복용후 DVT improving 된 환자입니다. ASO with claudication 있어 management 의뢰드리오니 고진션처 부탁드립니다. 감, 다.

CT venography

- Moderate to severe stenosis with focal occlusion at right SFA and EIA
- Occlusion of right popliteal artery and TP trunk.

Case 1.

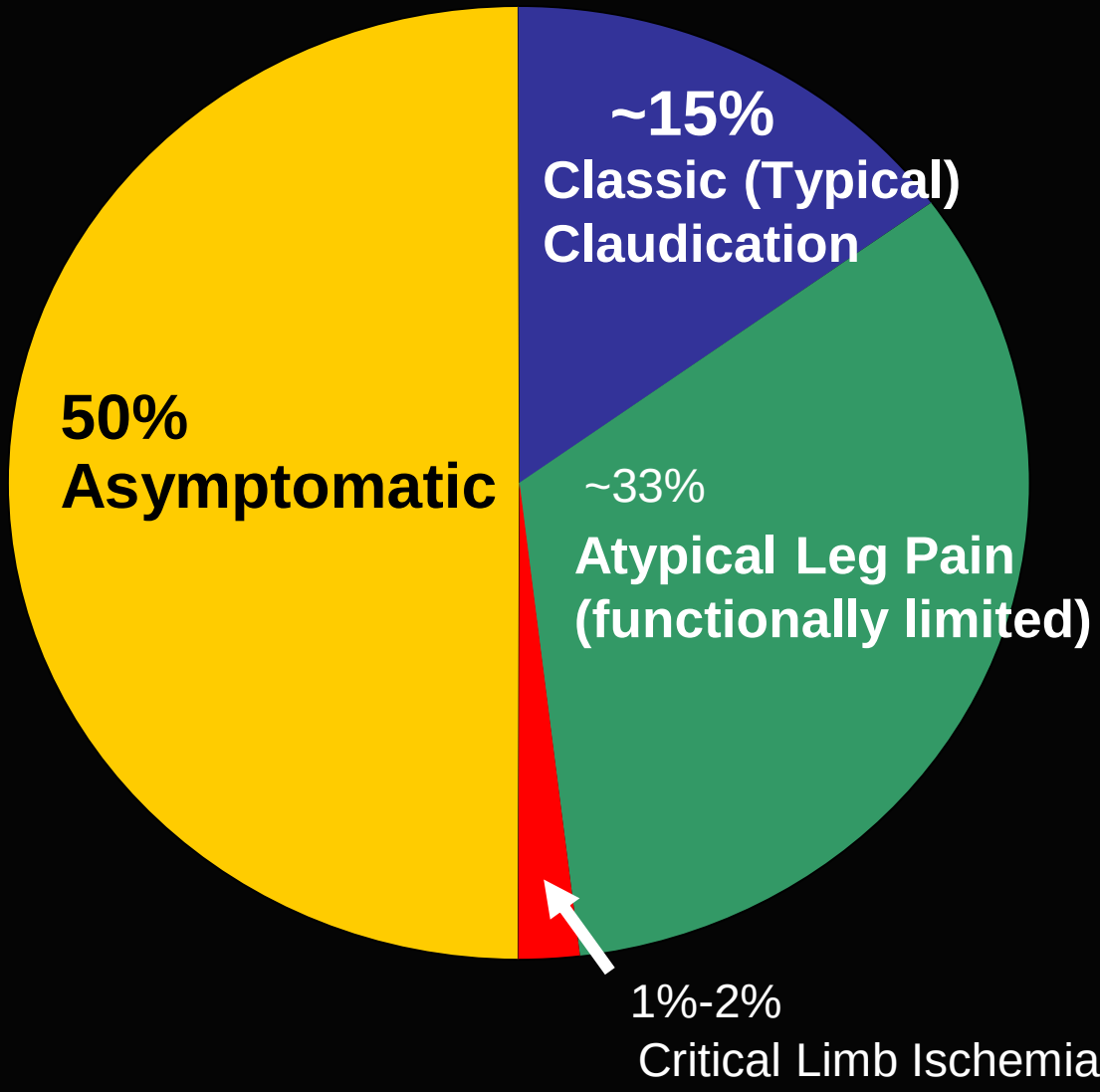
To 내과 진한영 선생님

수고하십니다. 상기환자 2018년 12월 both TKA 후 both DVT 발
improving 된 환자입니다. ASO with claudication 있어 manag
다.

1) 얼마나 걸으면 쉬어야 하나.
2) 어떤 부위에 통증이 있나요
3) 어떻게 아픈가요?
4) 서서 쉬면 좋아지나요?

Pseudoclaudication -> refer to

Clinical Presentation of PAD (LEAD)



Claudication vs. Pseudoclaudication

	Claudication	Pseudoclaudication
Characteristic of discomfort	Cramping, tightness, aching, fatigue	Same as claudication plus tingling, burning, numbness
Location of discomfort	Buttock, hip, thigh, calf, foot	Same as claudication
Exercise-induced	Yes	Variable
Distance	Consistent	Variable
Occurs with standing	No	Yes
Action for relief	Stand	Sit, change position
Time to relief	<5 minutes	≤30 minutes

Also see Table 4 of Hirsch AT, et al. J Am Coll Cardiol. 2006;47:e1-e192.

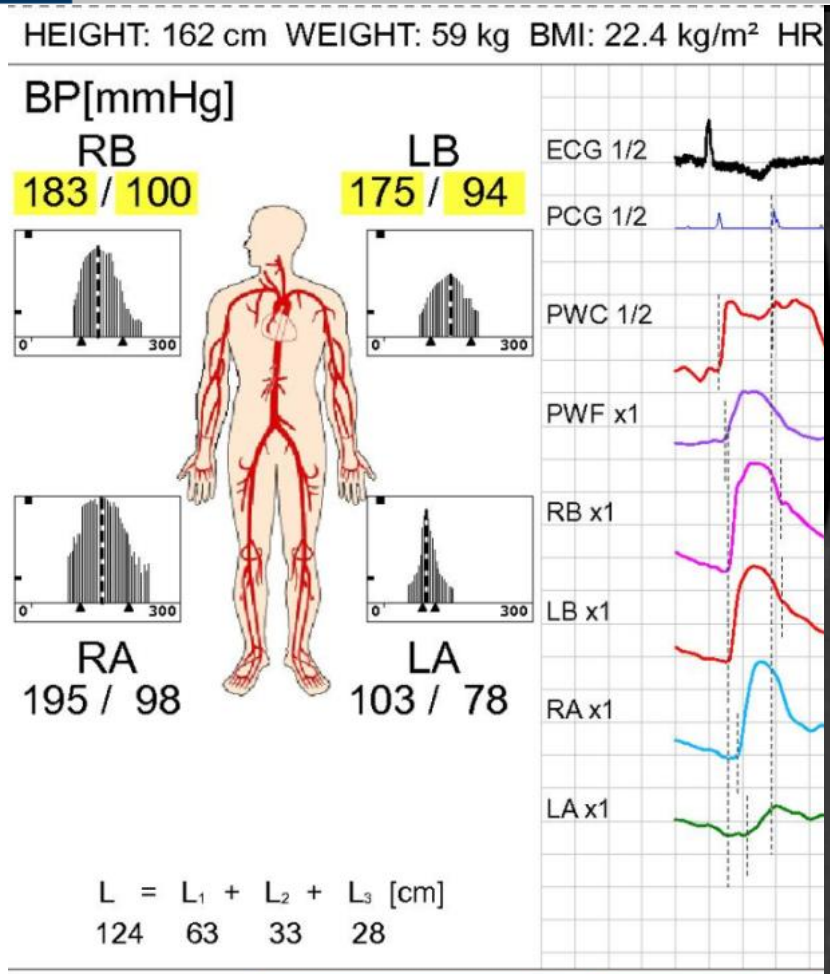
Case 2. 61/M

CC) 1년 전 부터 왼쪽 허벅지가 아파서 오르막길을 올라갈 수 가 없어요

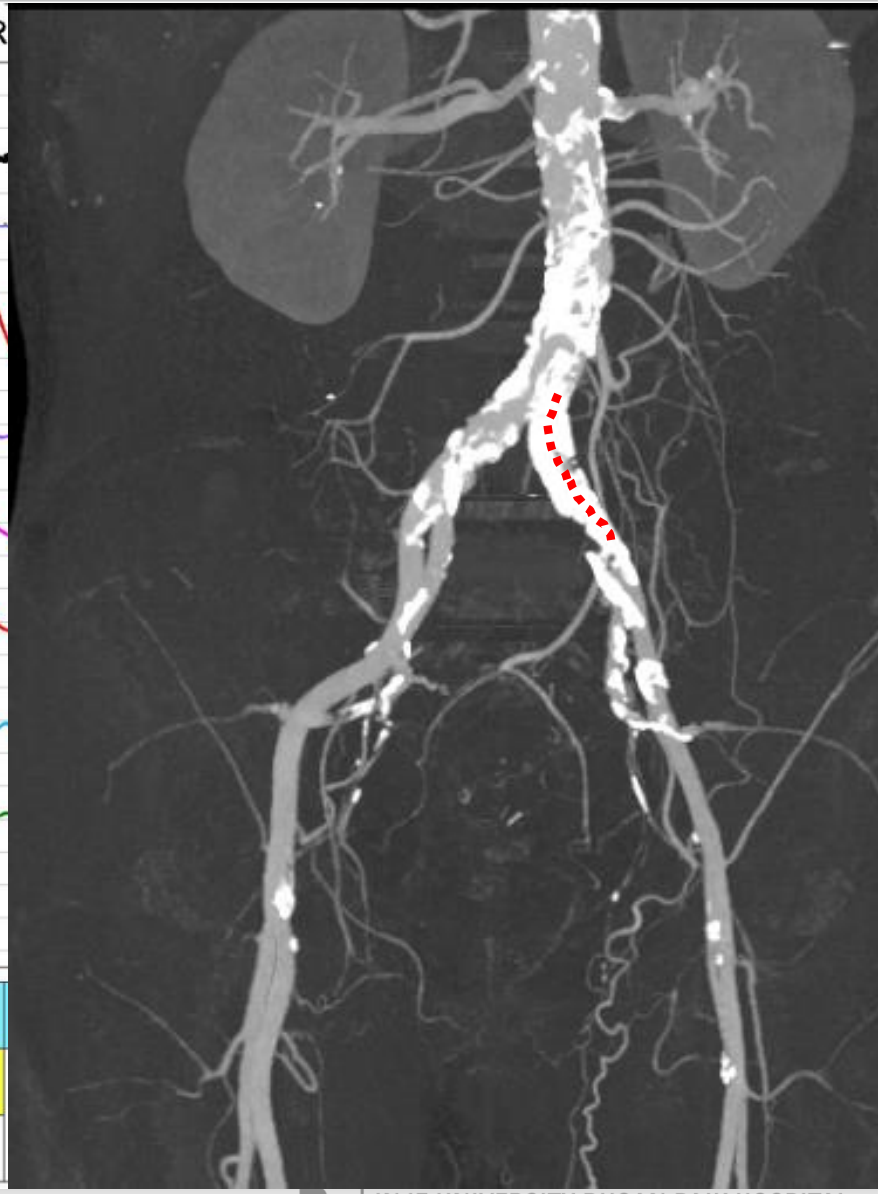
PHx) Ex-smoker, DM/HTN (-/-)

PEx) FP : (+++/+)

Case 2. ABI and AngioCT



	ABI	CAVI
RIGHT	1.07	9.7
LEFT	0.56	(6.0)



Conservative treatment

- **Exercise therapy**
  - **Supervised exercise therapy (class I, LOE :A)**

- **Pharmacologic therapy (class IIb) by ESC**
  - **Cilostazol (class I, A) by ACC/AHA**
  - **Naftidrofuryl**
  - **Pentoxifylline /Ginko (class IIb)**

ESC 2011 and ACC/AHA 2008 guideline

Case 2. Peripheral Angioplasty

Case 3. M/ 79

C.C : Rt. foot ulcer (2개월전)

P.I : 오른쪽 발등에 저린감으로 2 개월 전 인근 한의원에서 침술 받은 후 상처 있어 타 병원에서 보존적 치료 및 debridement 시행 하였으나 호전 없어 본원 내원.

Past Hx

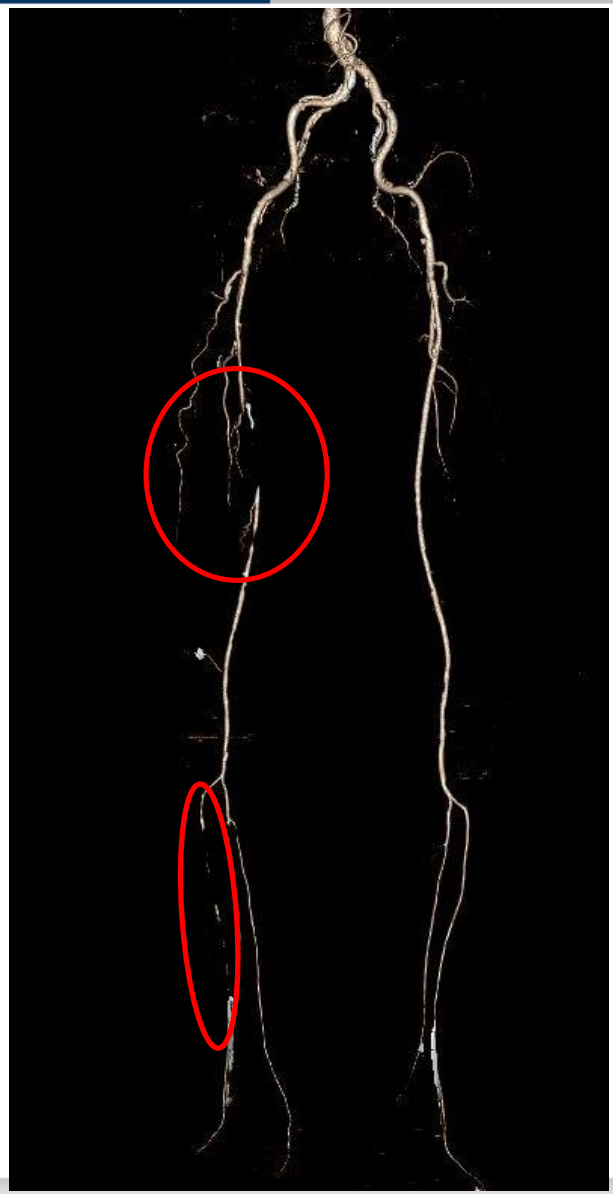
-CVA

-HTN

-DM (-)

Case 3. critical limb ischemia

Case 3. critical limb ischemia



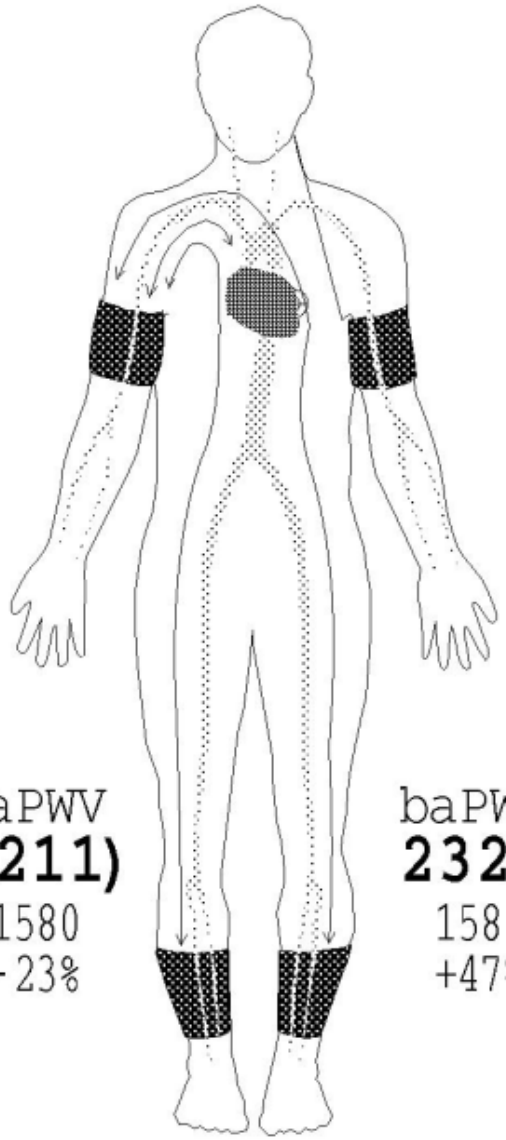
Measurement

(1st Measured Data)

R-Bra.	
SYS	155
MAP	116
DIA	77
PP	78

R-Ank.	
SYS	87
MAP	63
DIA	53
PP	34
ABI	**0.54**

baPWV
(1211)
1580
-23%



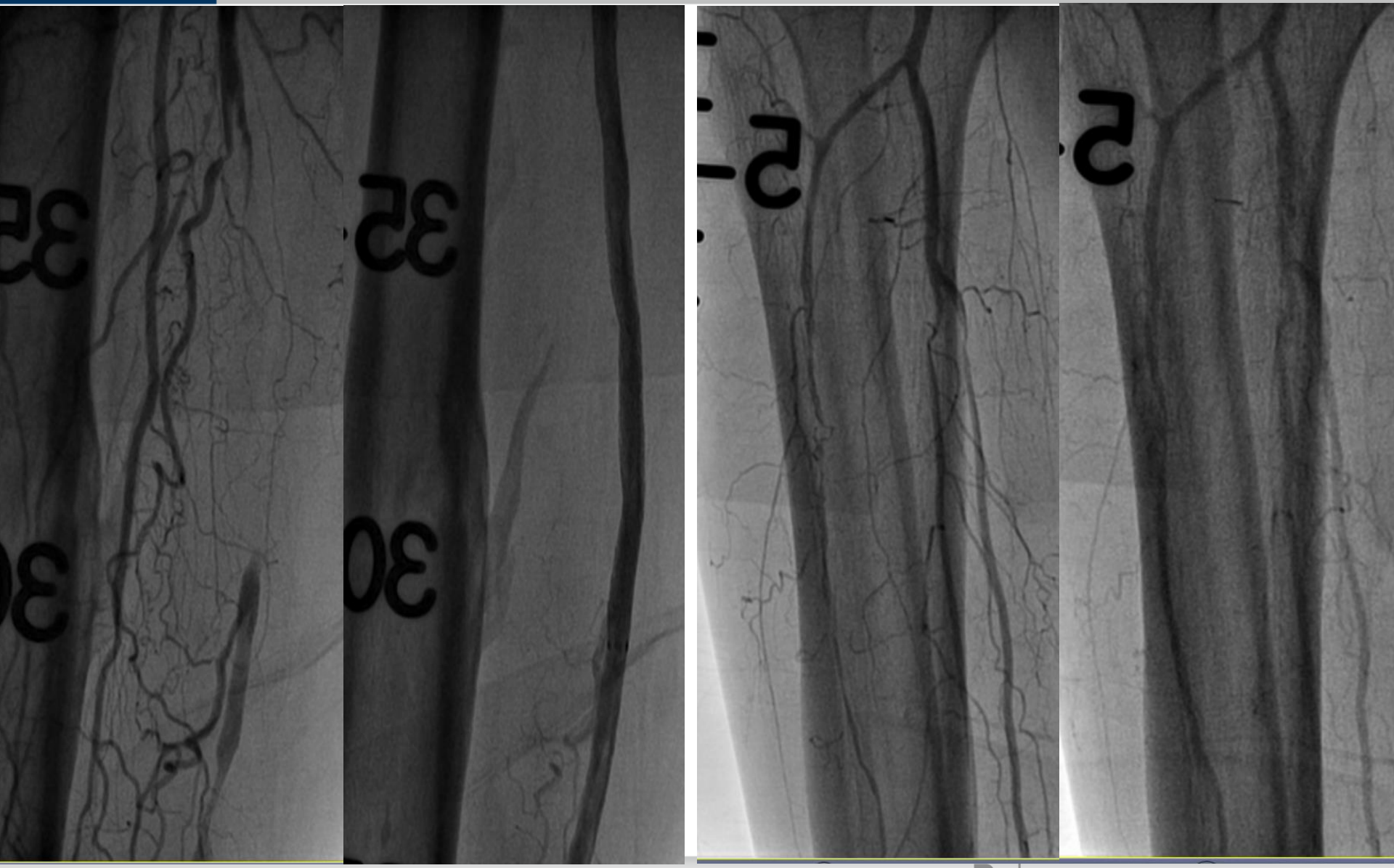
baPWV
2325
1580
+47%

L-Bra.	
SYS	161
MAP	116
DIA	94
PP	67

L-Ank.	
SYS	192
MAP	120
DIA	98
PP	94
ABI	**1.19**

Heart-Brachial	33.7
Heart-Ankle	144.8
Brachial-Ankle	111.1

Case 3. critical limb ischemia



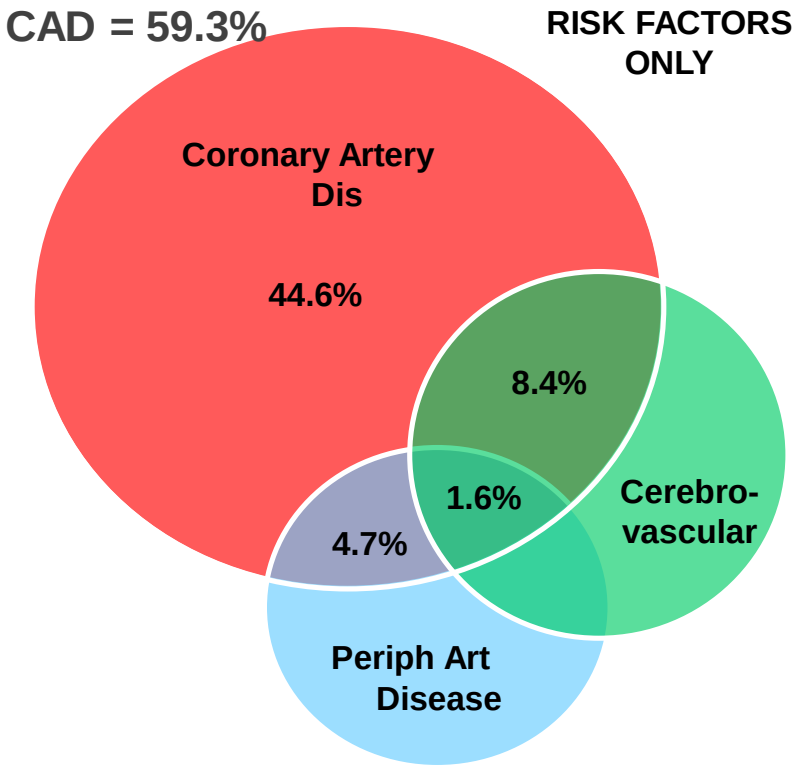
Case 3. critical limb ischemia

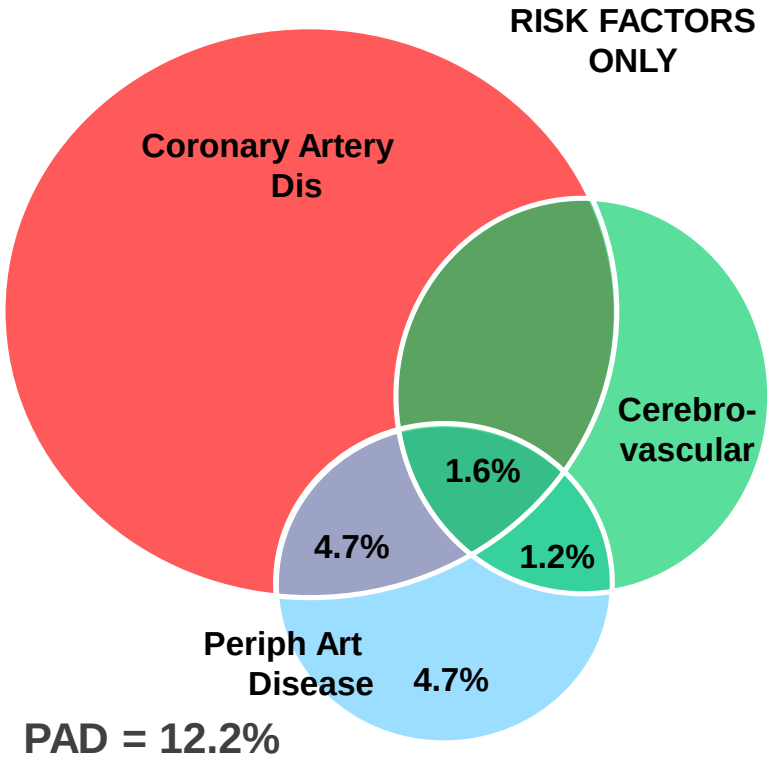
pre **post**

Case 2. How to follow up ?

1/4 of Patients with CAD have Polyvascular Disease

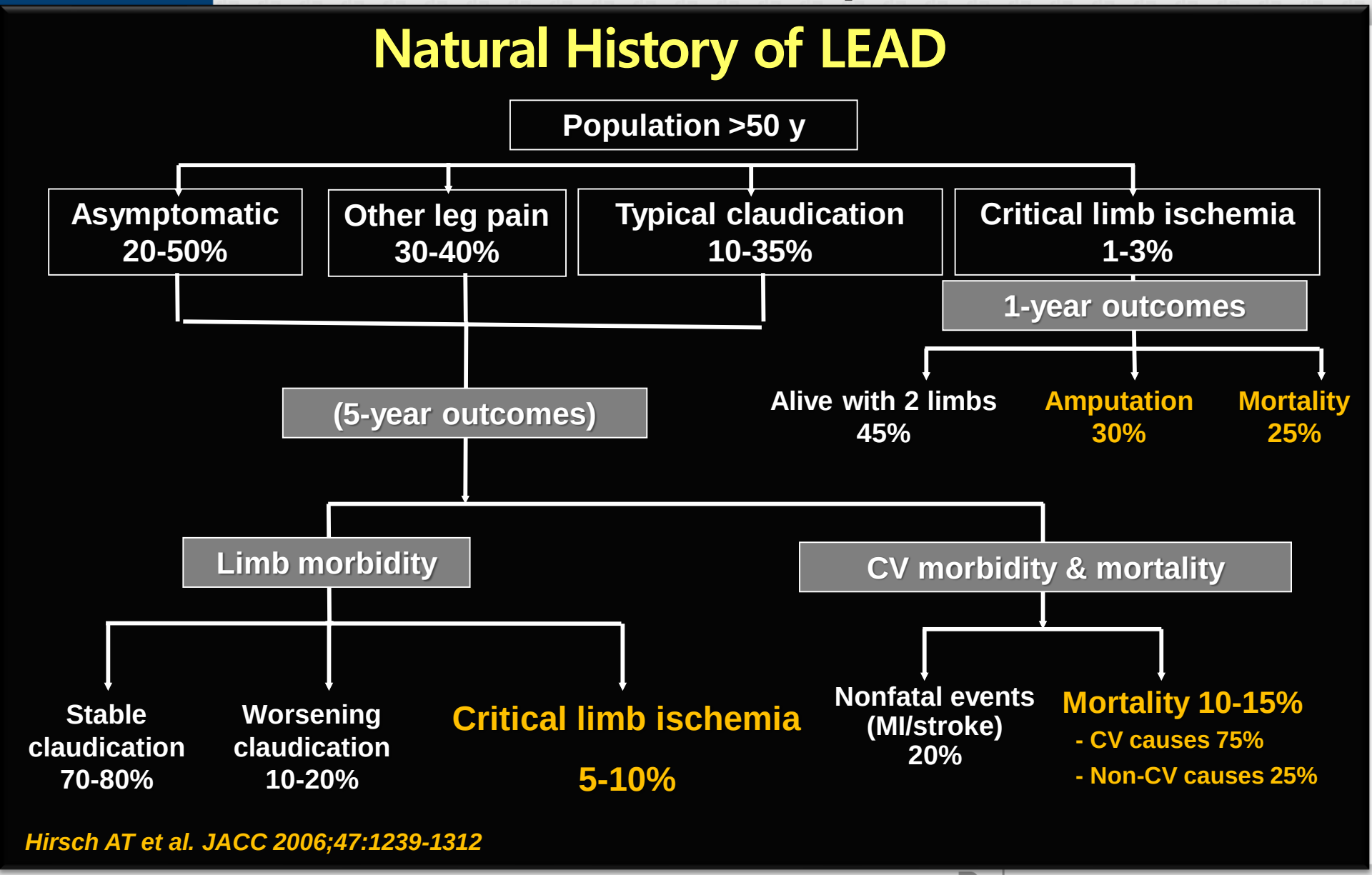
3/5 of Patients with PAD have Polyvascular Disease





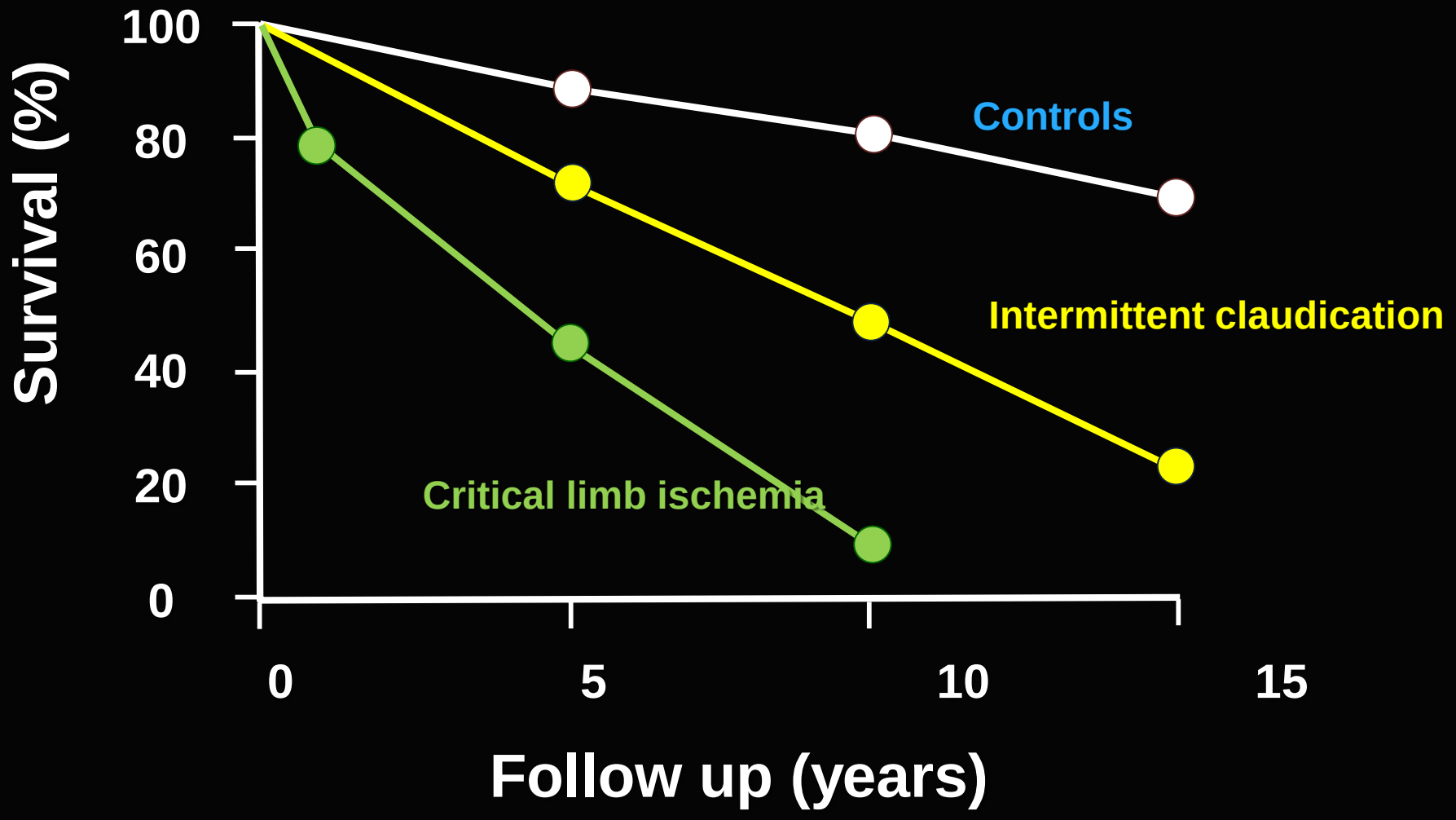
Bhatt DL et al, on behalf of the REACH Registry Investigators. JAMA 2006; 295(2): 180-189.

Case 2. How to follow up ?



Hirsch AT et al. JACC 2006;47:1239-1312

Survival rate of PAD Patients



TASC 2. J Vasc Surg 2007;45 (Suppl)

Treatment Strategy

- **Two major goals**
  - **Limb outcomes**
    ; walking ability↑, CLI progression & amputation↓
  - **Cardiovascular outcomes** ↓ (antiplatelet, statin)

- **Treatment modalities**
  - **Asymptomatic**
  - **Non-lifestyle-disabling claudication**

Conservative

  - **Lifestyle-disabling claudication**
  - **Rest pain**
  - **Ischemic ulcers**
  - **Gangrene**

Critical limb ischemia

Revascularization

Case 4. CLI (2)

CC) Multiple ulcer with oozing on left foot
(1 month ago)

내원 전 부터 좌측 발등 및 외측 부위 궤양 및 삼출물 있어 타병원 입원하여 항생제 치료 중 호전없어 본원 내원함.

PHx)DM / HTN (+/+)

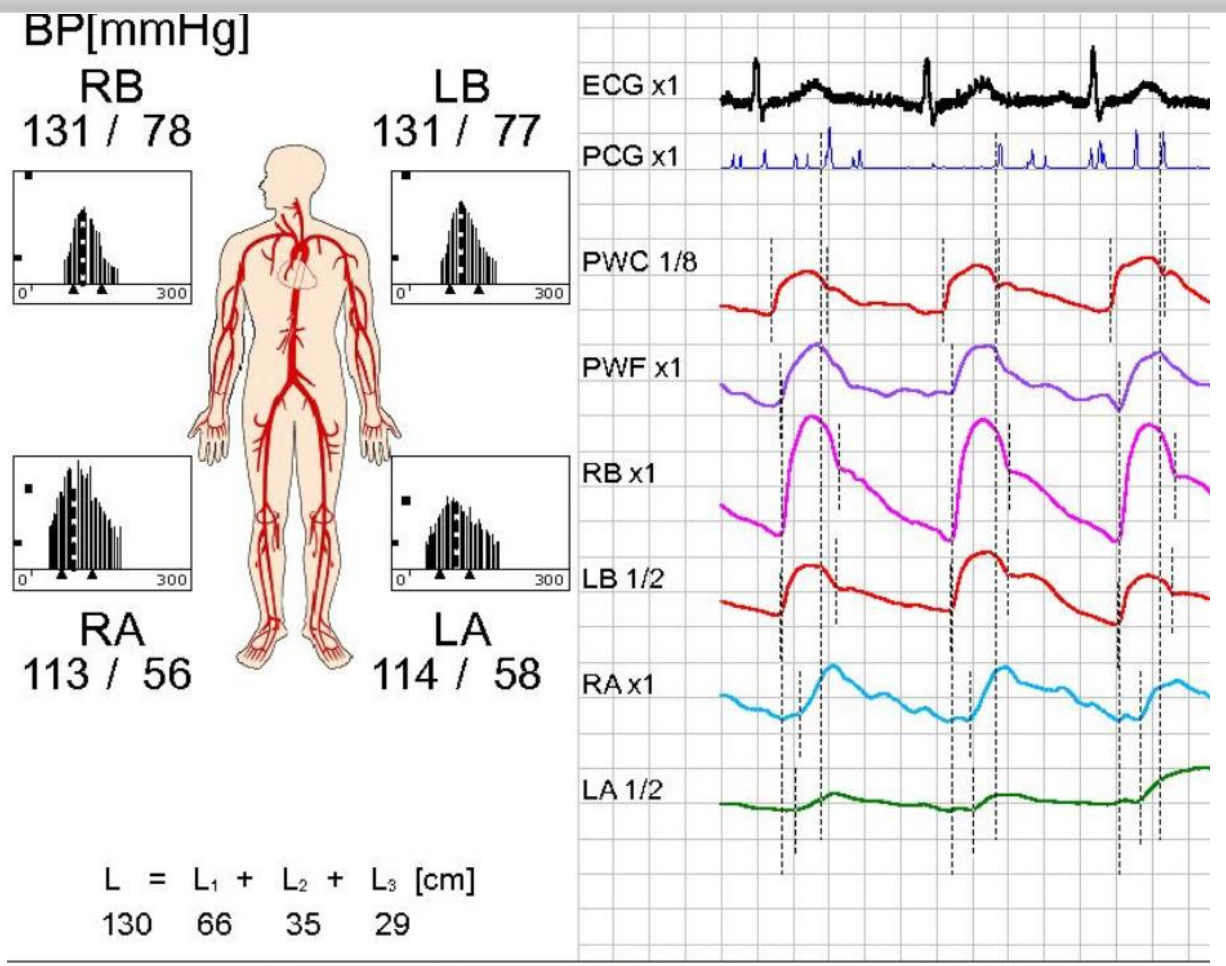
CVA Dx : carotid stent (타병원)

2VS CAOD Dx -> stent 시술. (타병원)

Necrosis/infection on Lt. 3rd toe -> phalangectomy

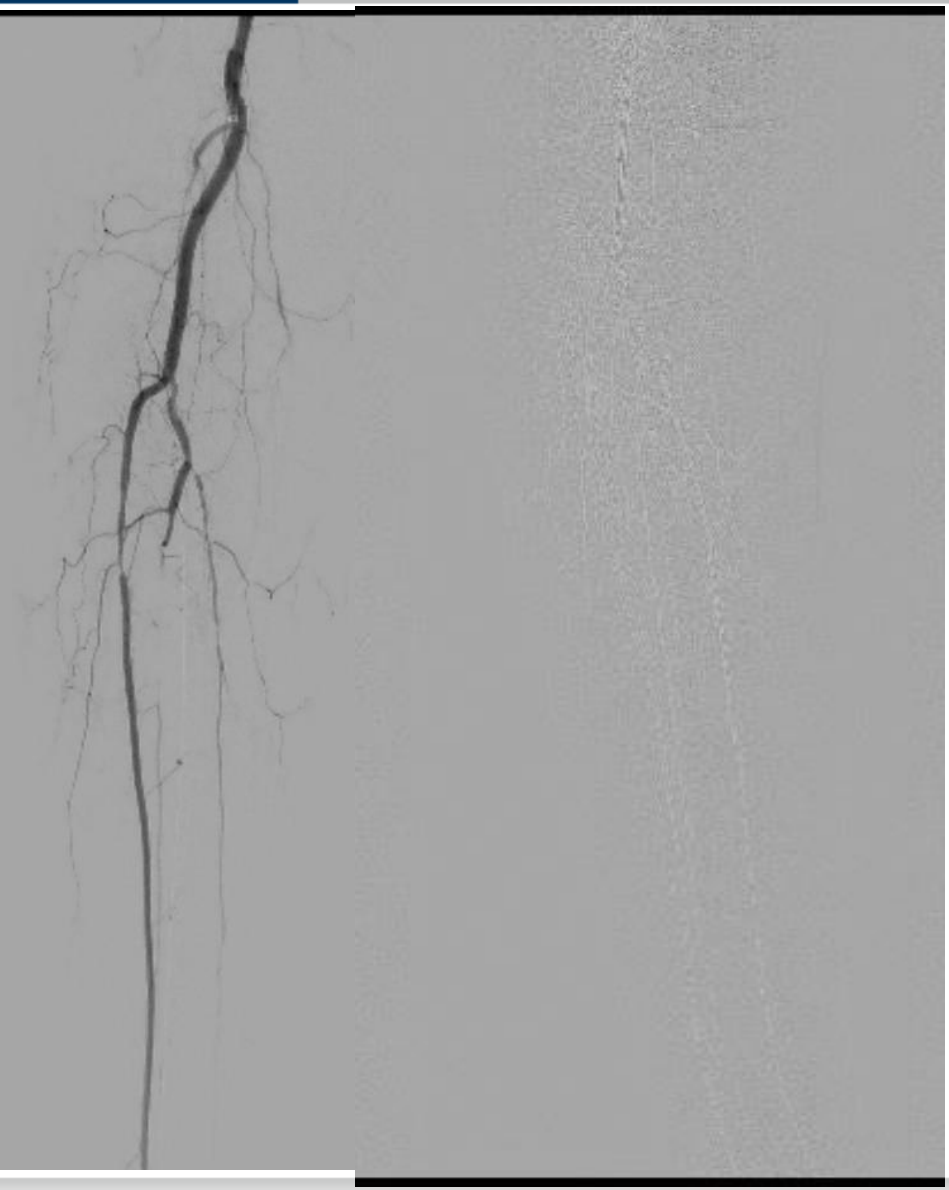
Extended necrosis to 2nd, 4th toe -> Amputation

Case 4. CLI (2)



	ABI	CAVI	PWV [m/s]	
RIGHT	0.86	(6.2)	PWV* 9.8	1
LEFT	0.87	(6.6)	PWV 9.6	2

Case 4. CLI (2)



Case 4. CLI (2)

The World Health Organization and the International Diabetes Federation have stated that up to **85 %** of diabetic foots **amputations are preventable.**

But **every 20 seconds** a lower limb is **amputated** due to complication of diabetes

“the management should be done immediately with a **multidisciplinary team** as **diabetes is a multi-organ systemic disease**, and all co-morbidities must be managed”

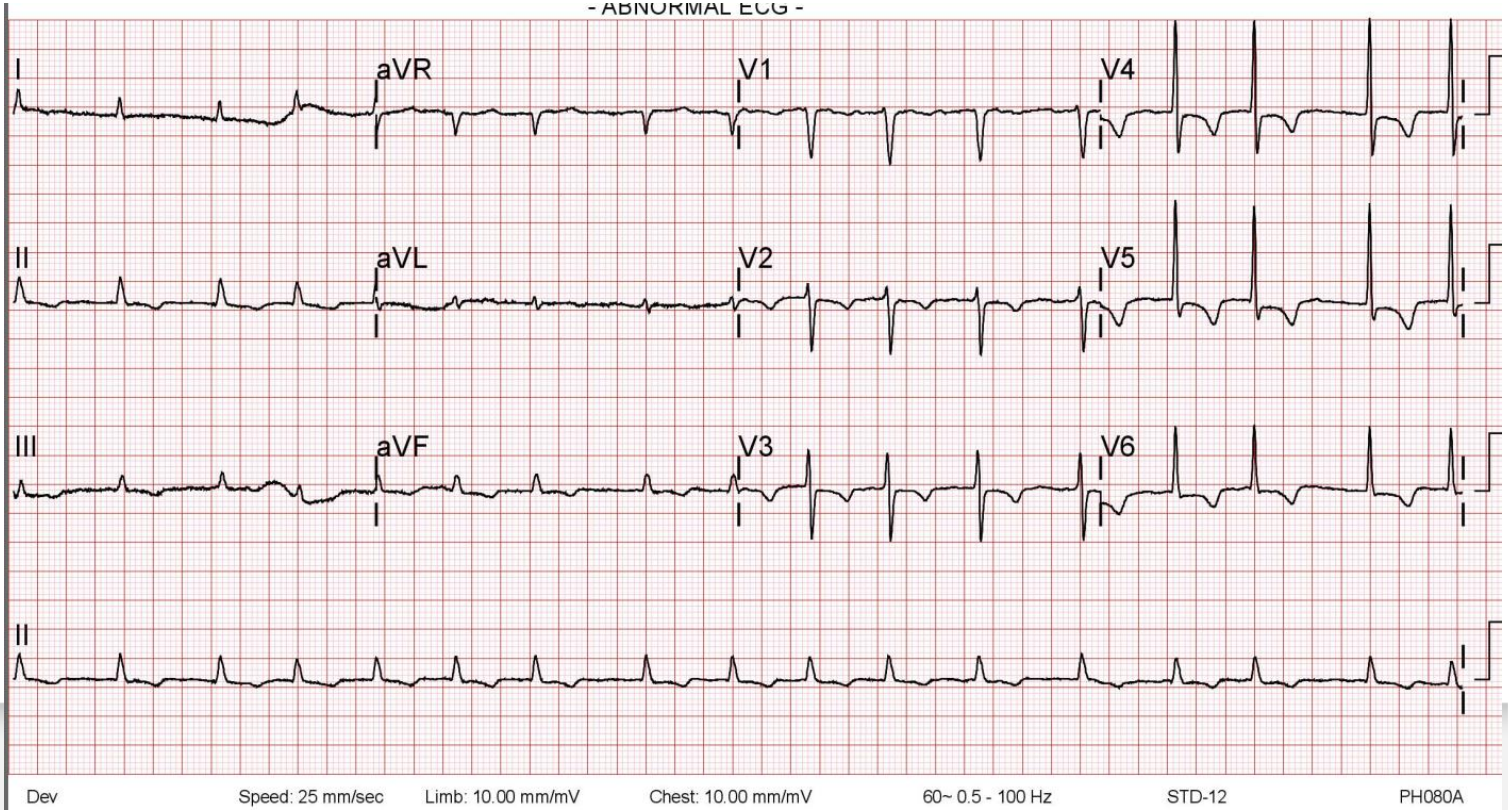
Case 4. F/72

CC : Color change in both lower leg (10 일전)

PI : 요양병원에서 지내시던 분으로 내원 10일전 부터 하지 색깔이 변하고 일주일전 부터 우측 다리 괴사 소견 보여 본원 응급실 방문하여 입원함

PHx: CKD

EKG :

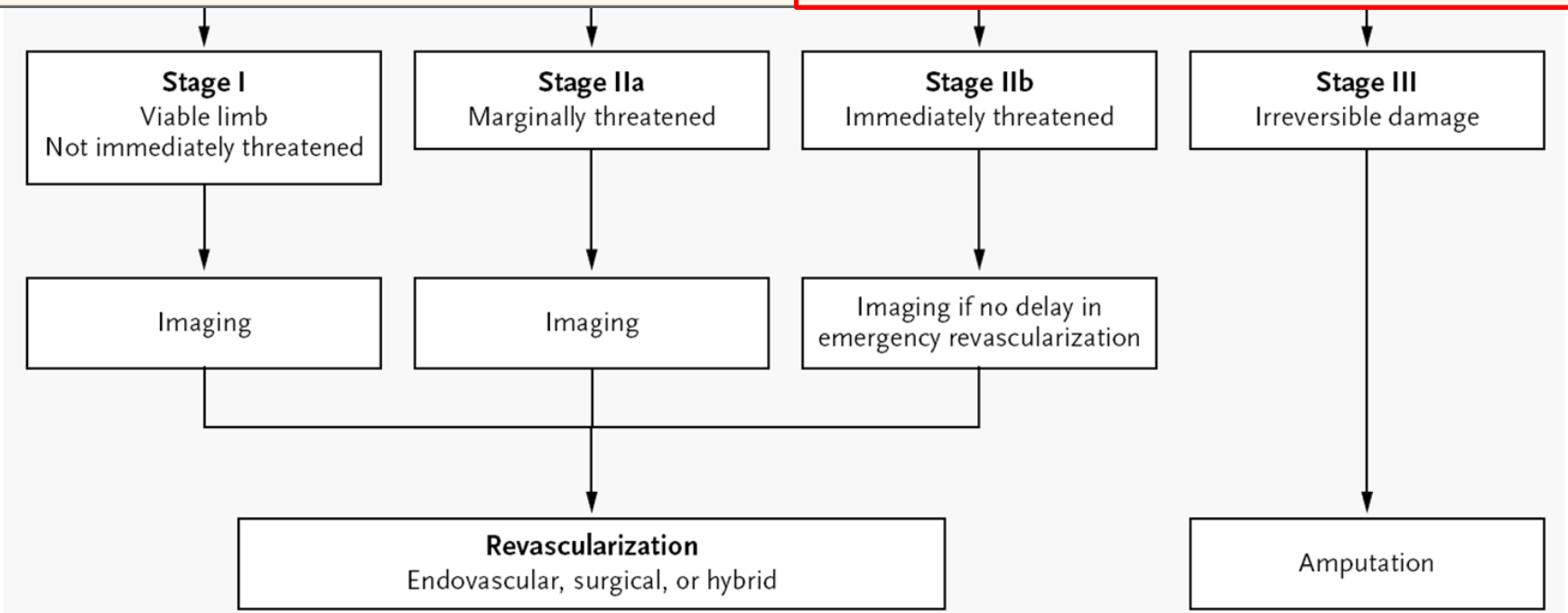


M/75

REMEMBER THE 6 Ps:

1. PAIN
1. PALLOR
1. PULSELESNESS
1. POIKILOTHERMIA
1. PARASTHESIAS
1. PARALYSIS

Stage	Description and Prognosis	Findings	
		Sensory Loss	Muscle Weakness
I	Limb viable, not immediately threatened	None	None
II	Limb threatened		
IIa	Marginally threatened, salvageable if promptly treated	Minimal (toes) or none	None
IIb	Immediately threatened, salvageable with immediate revascularization	More than toes, associated with pain at rest	Mild or moderate
III	Limb irreversibly damaged, major tissue loss or permanent nerve damage inevitable	Profound, anesthetic	Profound, paralysis (rigor)



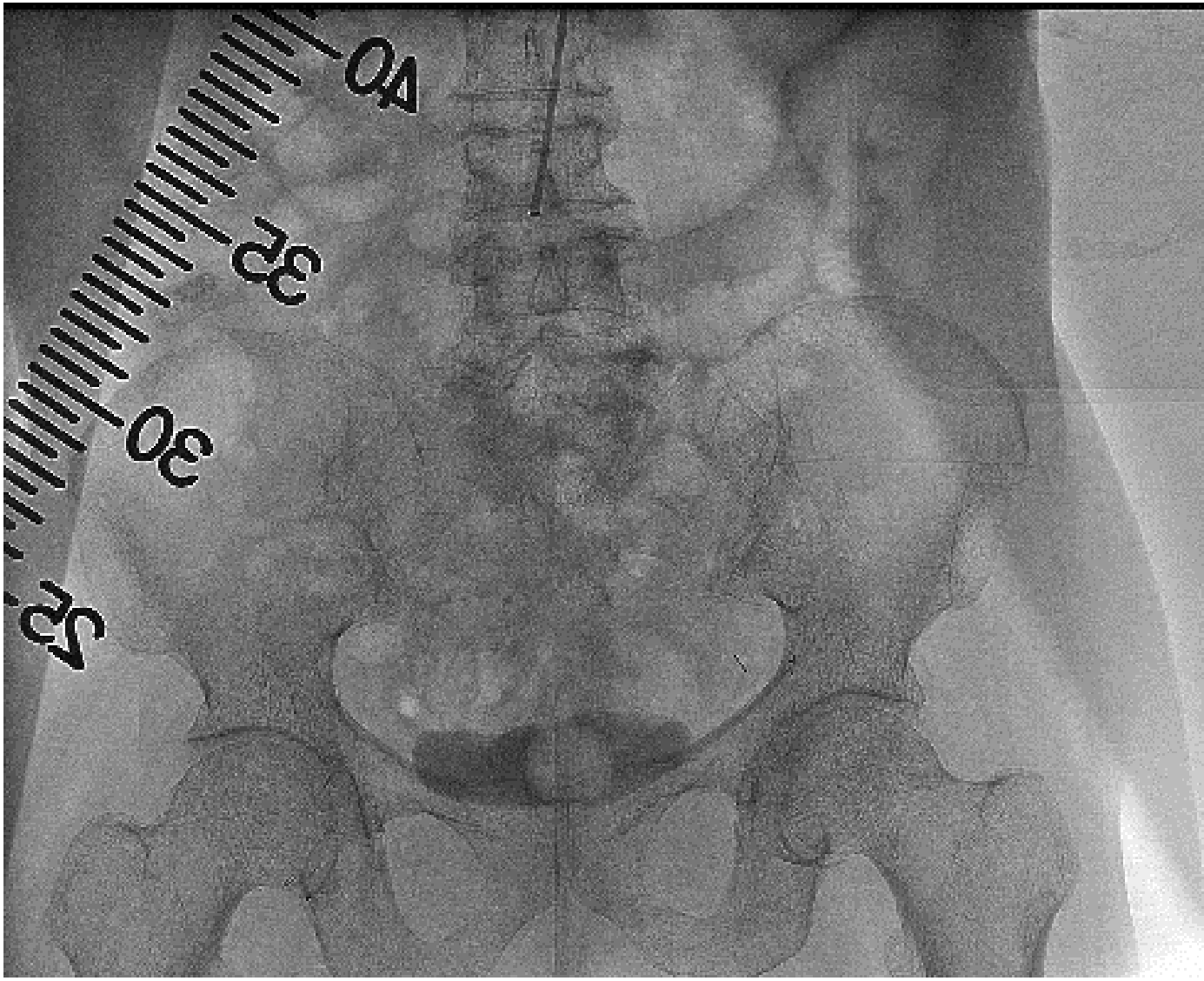
Management of ALI. N Engl J Med 2012;366:2198-206

F/72

Case 4. Acute limb ischemia

Hybrid approach

Thrombectomy with forgathy catheter



Summary

- History taking and physical examination are essential steps to diagnose and decide the treatment modality in patients with intermittent claudication

- Major goals for treatment of PAD are improvement of symptom, limb salvage and prevention of cardiovascular event.

- Multiple diagnostic modalities including ABI and CT angiography should be used to assess the critical limb ischemia

- Team approach including endocrinologist, infectionist, vascular surgeon, cardiologist and podiatrist is necessary for proper management for diabetic foot and co-morbidity

Save life with limb !!!

경청해 주셔서 감사합니다