CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE
CONTROVERSIES & UPDATES IN VASCULAR SURGERY
JANUARY 23-25 2014
MARRIOTT RIVE GAUCHE & CONFERENCE CENTER PARIS, FRANCE
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Tips and tricks for tibial arteries interventions

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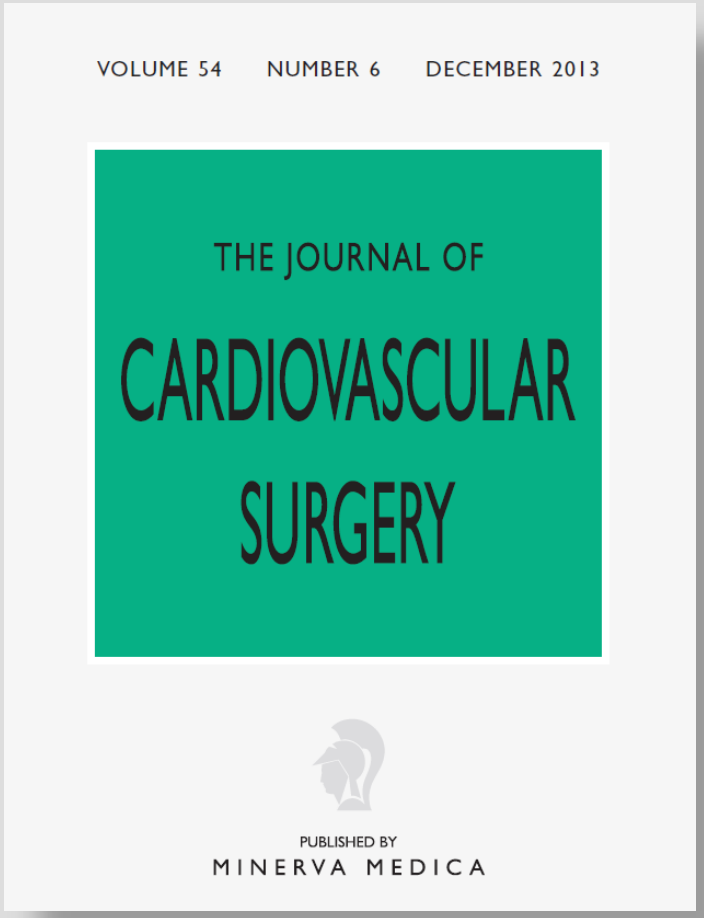
Disclosure

Speaker name:

Roberto Ferraresi

- ☐ I have the following potential conflicts of interest to report:
- ☒ Consulting: Medtronic, Abbott, LimFlow
- ☐ Employment in industry
- ☐ Shareholder in a healthcare company
- ☐ Owner of a healthcare company
- ☐ Other(s)
- ☐ I do not have any potential conflict of interest

Tips and tricks for tibial arteries intervention



Tips and tricks for a correct "endo approach"

R. FERRARESI [1], L. M. PALENA [2], G. MAURI [3], M. MANZI [4]

Tips and tricks for tibial arteries intervention

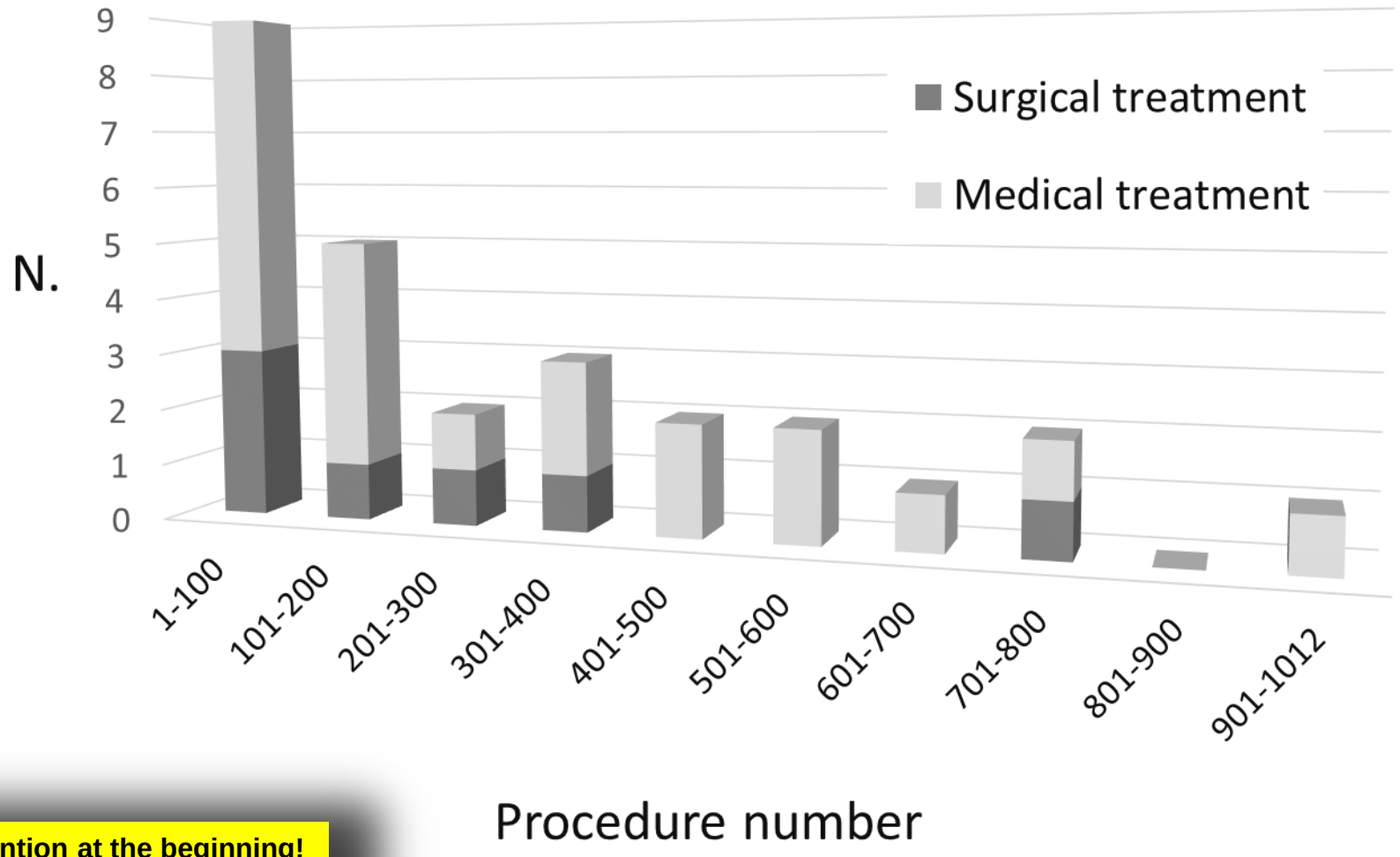
1. Use antegrade femoral approach
2. Obtain a correct anatomical study
3. Follow a step by step approach in CTOs
4. Tailor your rev. procedure on the patient
5. Work in a multidisciplinary team

Antegrade femoral approach

Our experience with the antegrade femoral puncture as first choice approach in below-the-groin vessel disease started in 2000. In the very first 1012 cases performed in the period 2000-2008, we had 27 major complications (2,7%)

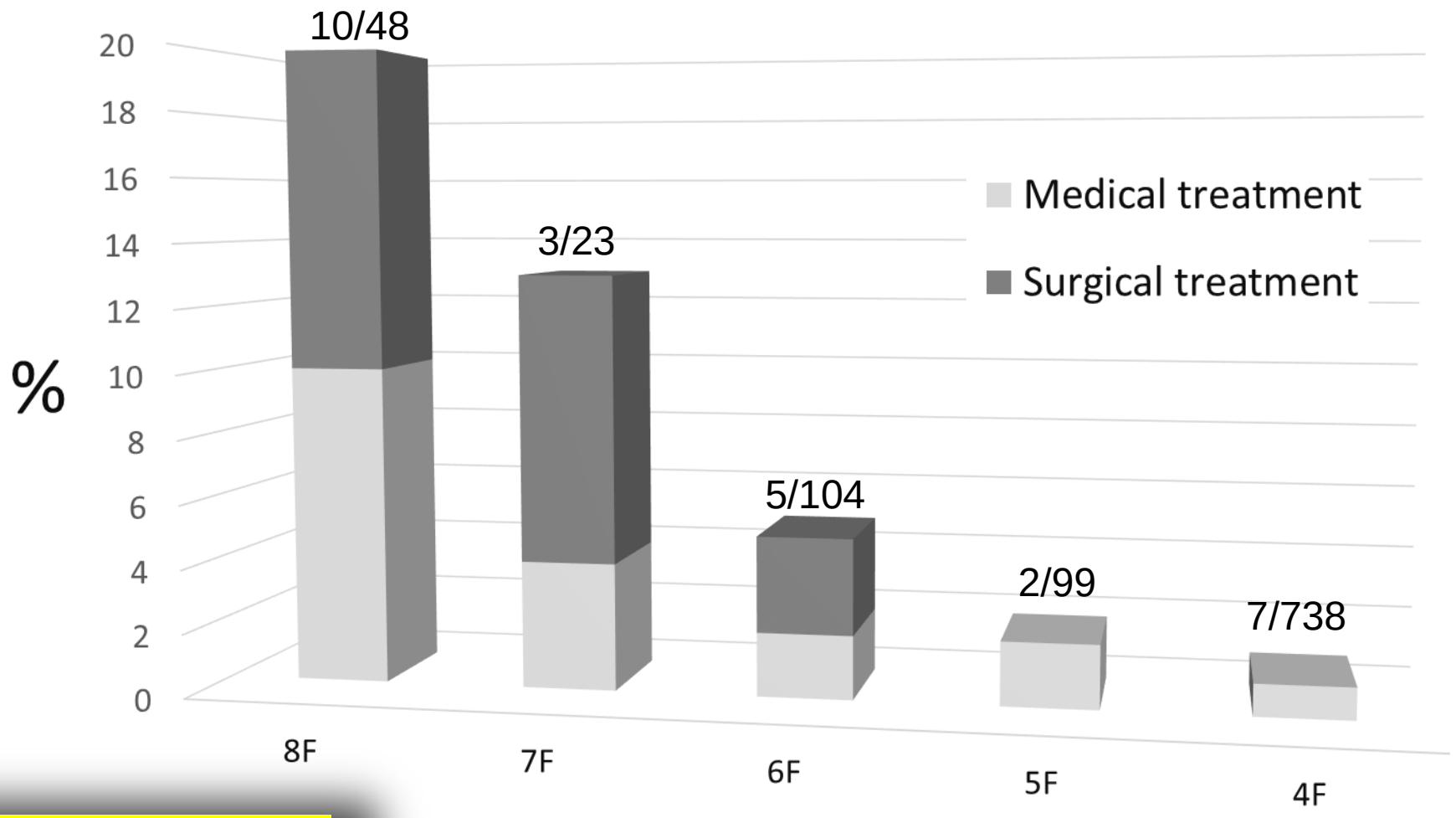
	Medical treatment	Surgical treatment	Puncture above half line of the femoral head	Puncture below half line of the femoral head
Groin hematoma	14	3	4	13
Abdominal wall hematoma	1	-	1	-
Scrotal hematoma	-	1	1	-
Pseudoaneurism	-	1	-	1
Retroperitoneal hematoma	5	1	6	-
Acute femoral thrombosis	-	1	-	1
Total	20	7		

Antegrade femoral approach complications (2000-2008 yy; 1012 procedures)

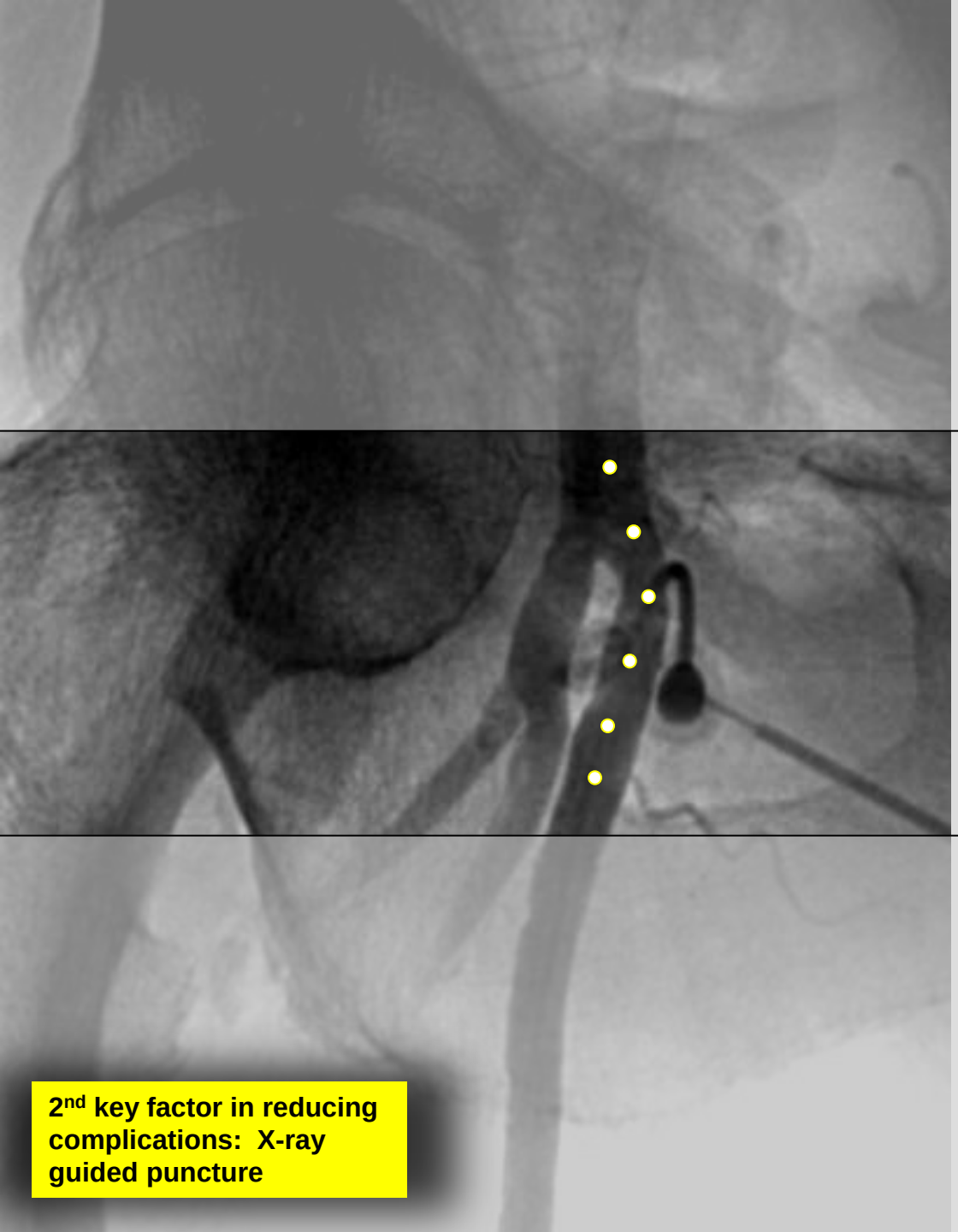


Attention at the beginning! The learning curve needs 200 procedures to stabilize to standard value

Antegrade femoral approach complications according to sheath size (2000-2008 yy; 1012 procedures)



1st key factor in reducing complications: standard use of 4-5 F sheaths



A too high puncture is highly problematic for manual compression hemostasis because the common femoral artery (CFA) is going deeply into the external iliac artery and the puncture may be above the inguinal ligament, which represents the best barrier against retroperitoneal bleeding.

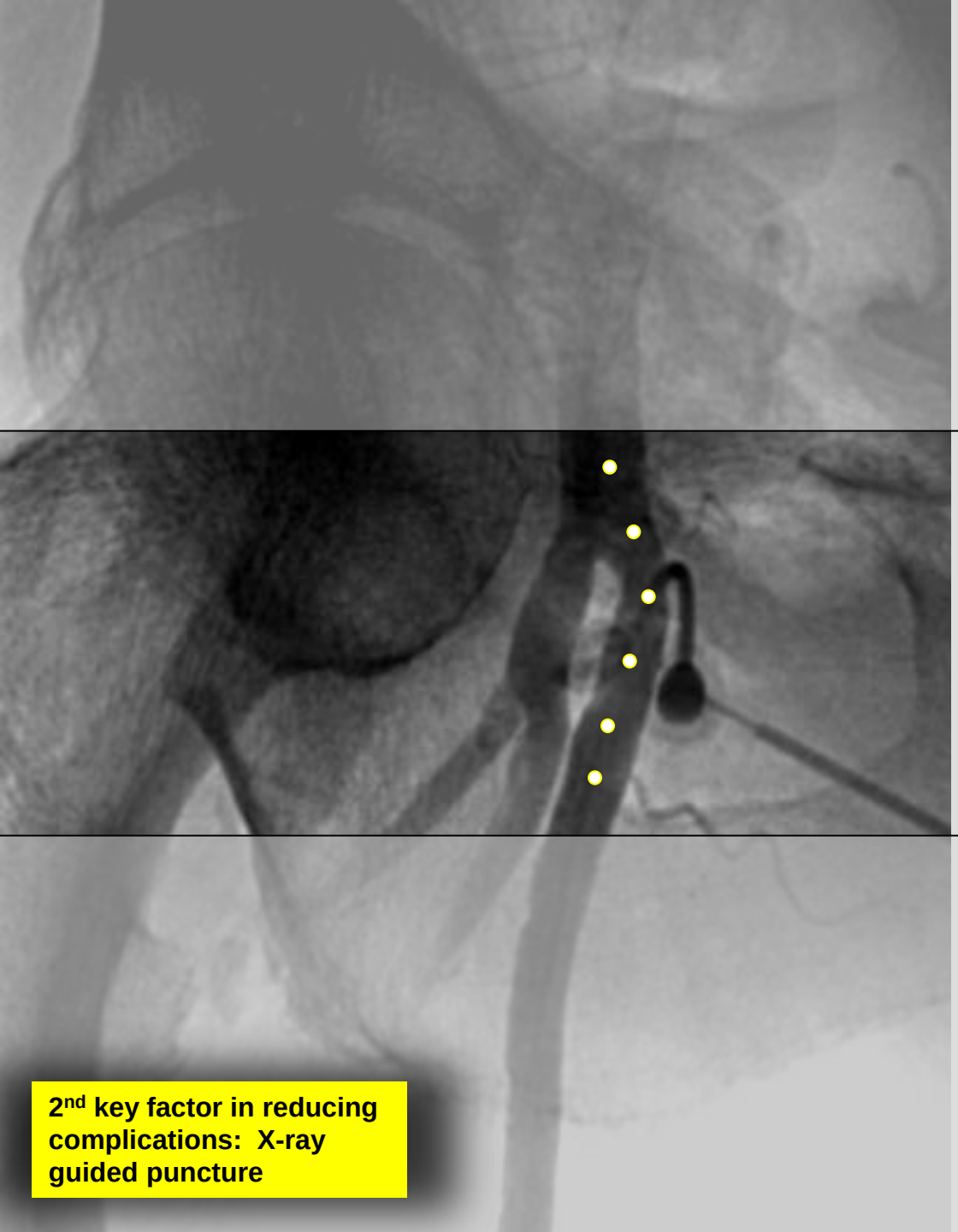
Irani F et Al. Common femoral artery access techniques: a review. J Cardiovasc Med 2009;10:517–22

This is the correct puncture region: below the inguinal ligament, not too distal from the inferior edge of the femoral head

A too low puncture into the superficial femoral artery (SFA) can impair manual compression hemostasis because the artery is going deeply into the muscle and is not surrounded by the connective groin tissue that is the best environment for a fast and sure hemostasis.

Gabriel M et Al. Location of femoral artery puncture site and the risk of postcatheterization pseudoaneurysm formation. Int J Cardiol 2007;120:167–71

2nd key factor in reducing complications: X-ray guided puncture



Danger of retroperitoneal, abdominal wall and external genital bleeding

The antegrade femoral puncture can be in the CFA or in the proximal SFA without an increase in morbidity.

Kweon M et Al. Antegrade Superficial Femoral Artery versus Common Femoral Artery Punctures for Infrainguinal Occlusive Disease. J Vasc Interv Radiol 2012;23:1160–4

Danger of thigh ematoma or pseudoaneurism

2nd key factor in reducing complications: X-ray guided puncture

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Case 2

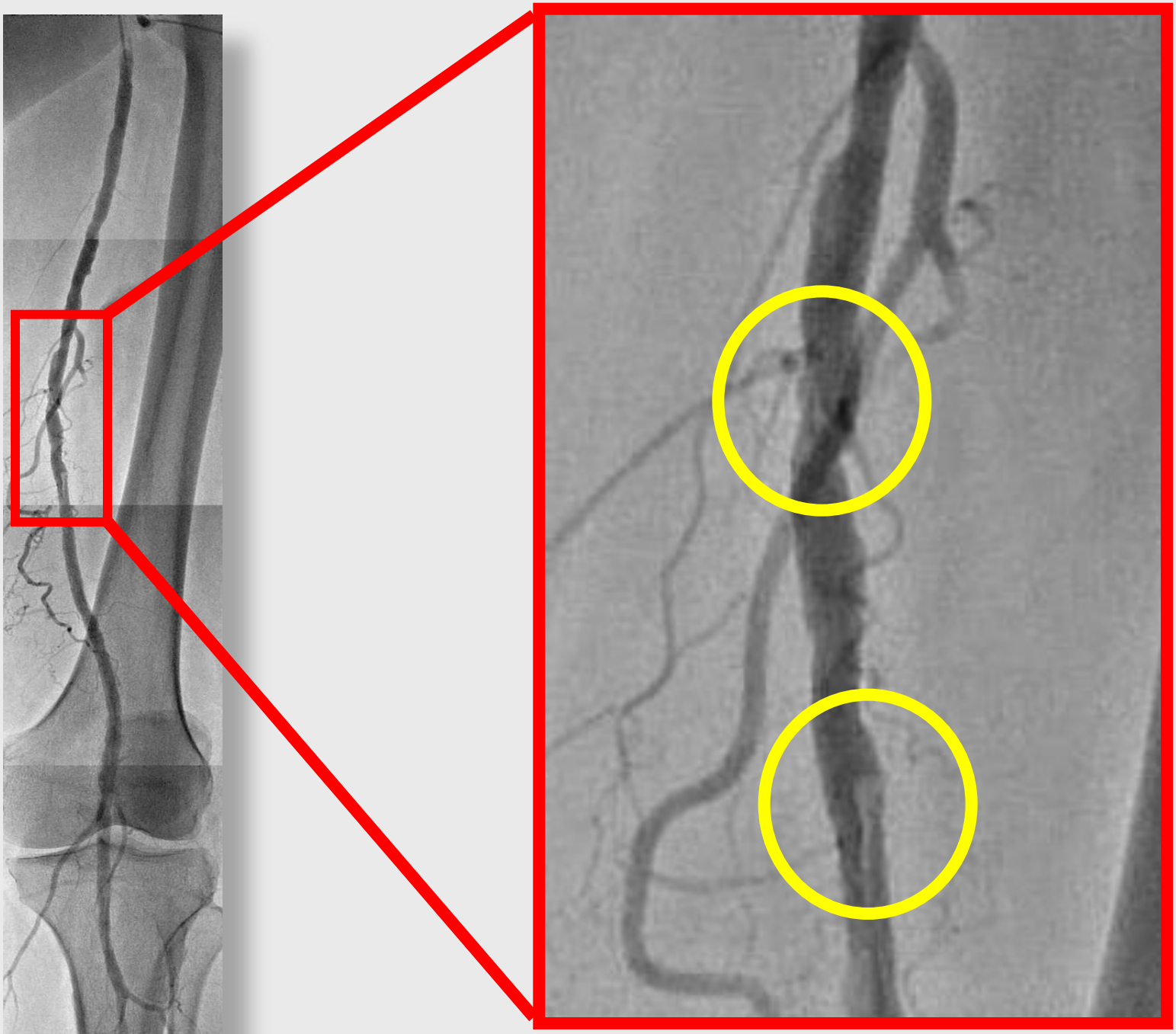
Patient data

- Male, 76 yy old
- 50 m claudication

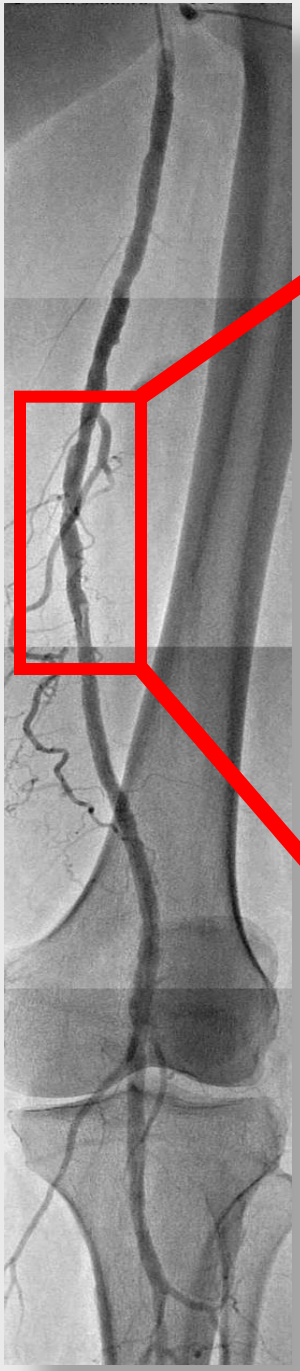
Diagnosis

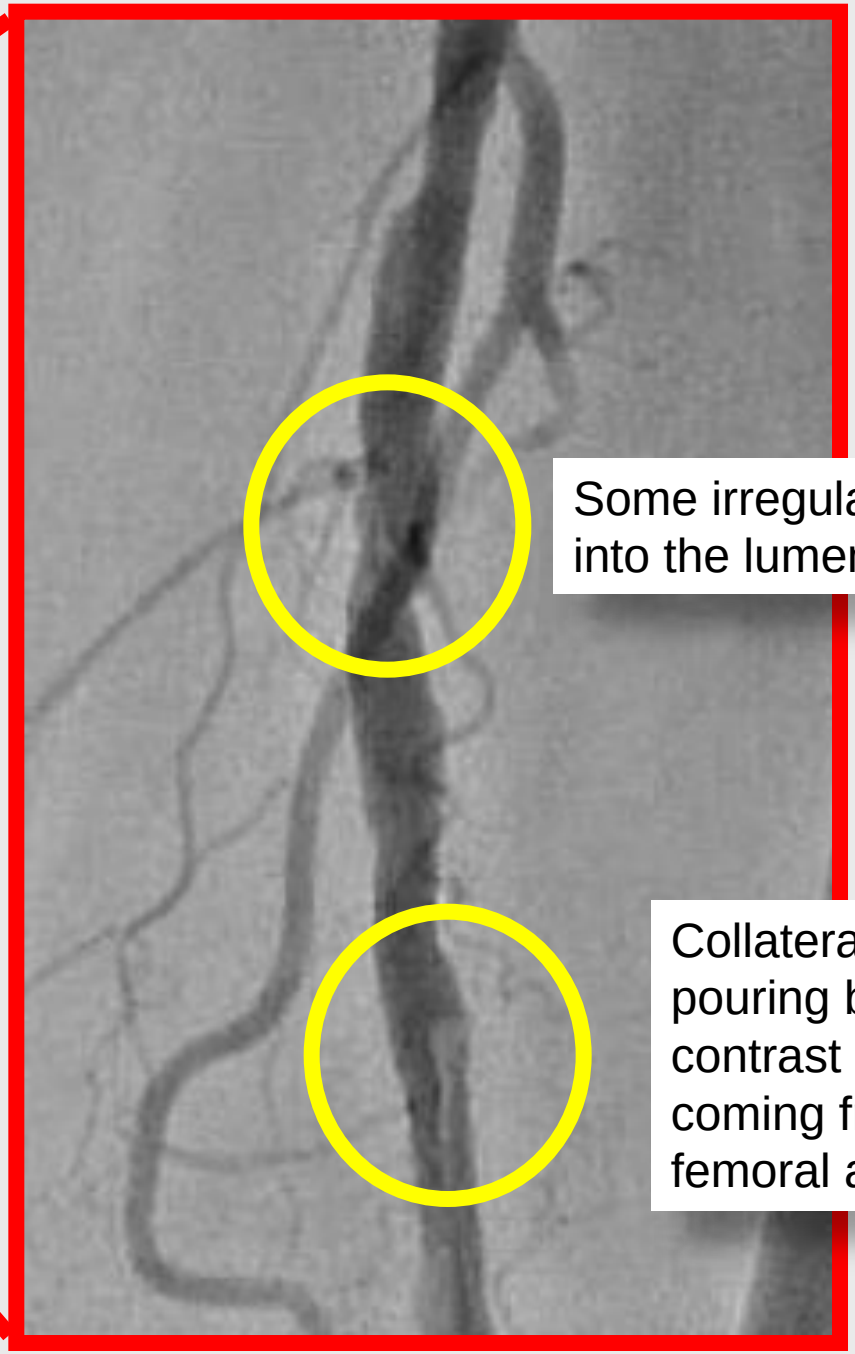
- Apparently good FEM-POP patency
- Occlusion of ATA

Case 2



Case 2



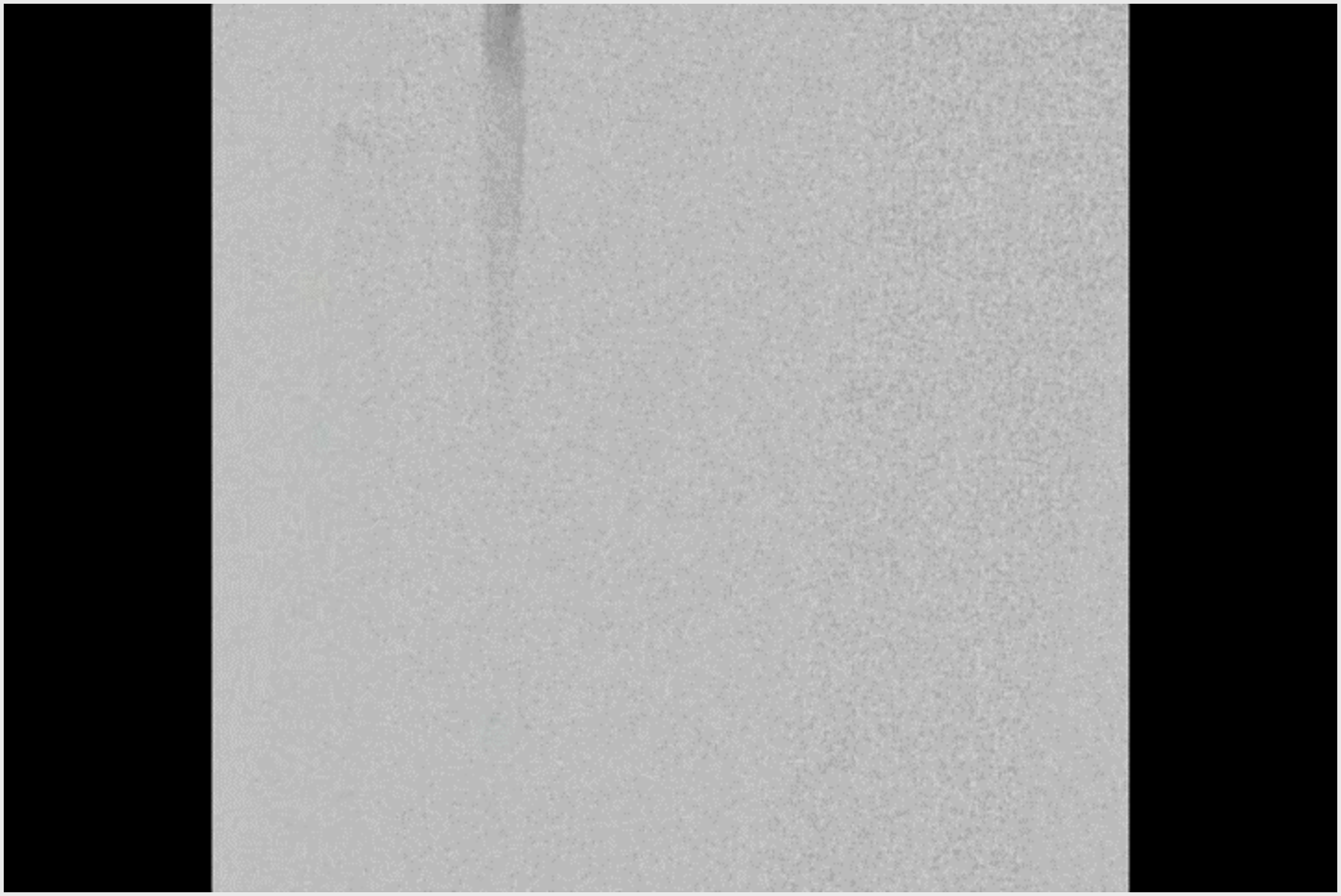


Some irregularities into the lumen

Collateral vessel pouring blood without contrast dye because coming from deep femoral artery

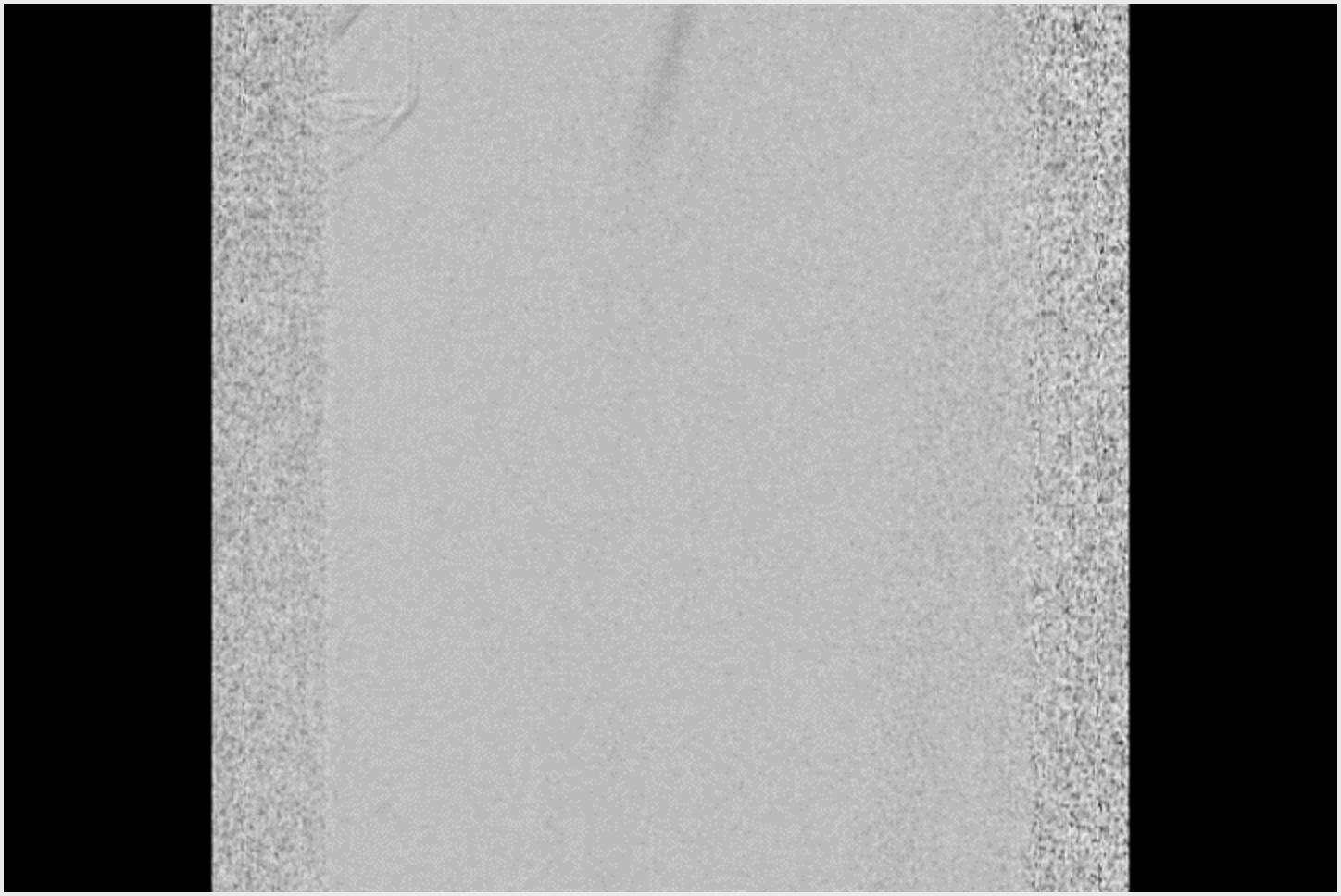
DSA using antero-posterior projection

Case 2



DSA using oblique projections

Case 2

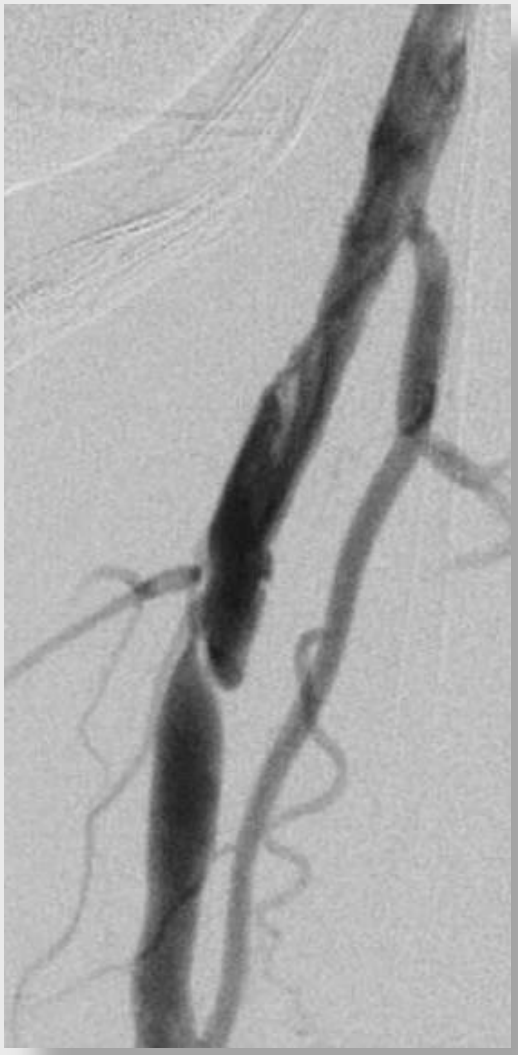


DSA using oblique projections

Case 2

AP

RAO 30°



RAO 30° CRA 15°

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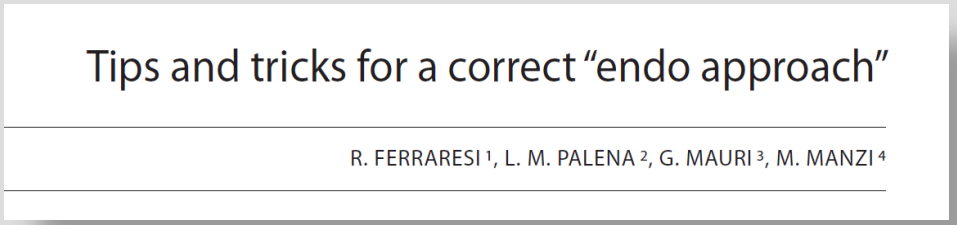
Step-by-step approach in CTOs crossing strategy

The first step in percutaneous recanalization is to cross the long CTOs typical of diabetic CLI. Different techniques are now available: endoluminal approach, subintimal, trans-collateral, pedal-plantar loop technique and retrograde puncture of the vessel beyond the CTO. The next slide summarizes the role of these different techniques in a step-by-step approach.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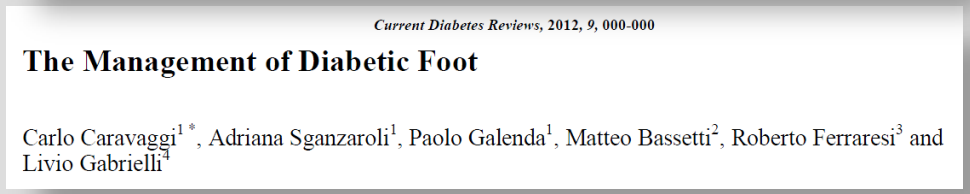
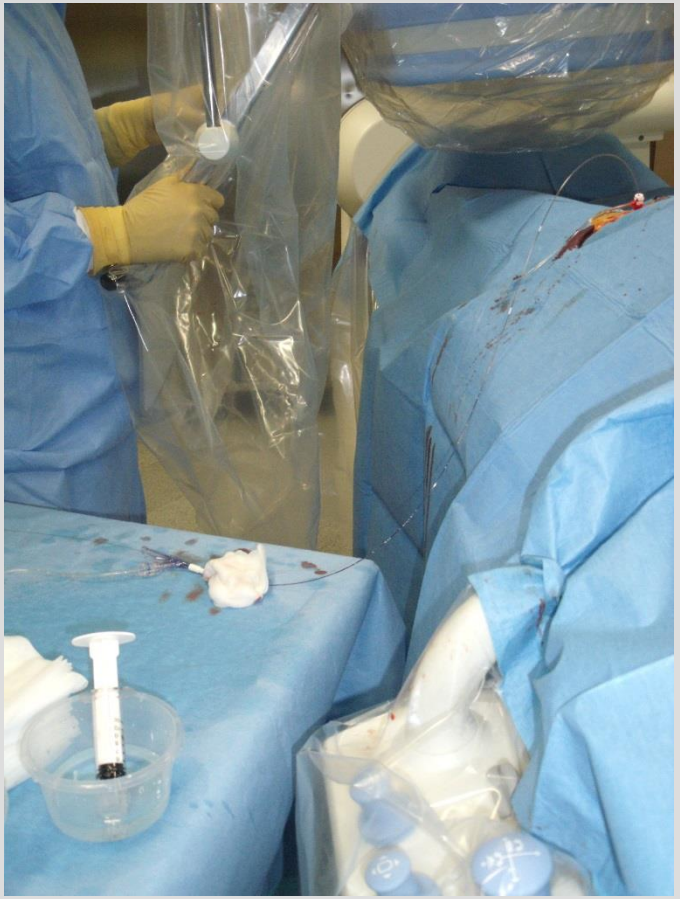

Current Diabetes Reviews, 2012, *9*, 000-000

The Management of Diabetic Foot

Carlo Caravaggi[1 *], Adriana Sganzaroli[1], Paolo Galenda[1], Matteo Bassetti[2], Roberto Ferraresi[3] and Livio Gabrielli[4]

Step-by-step approach in CTOs crossing strategy

Position of the operator

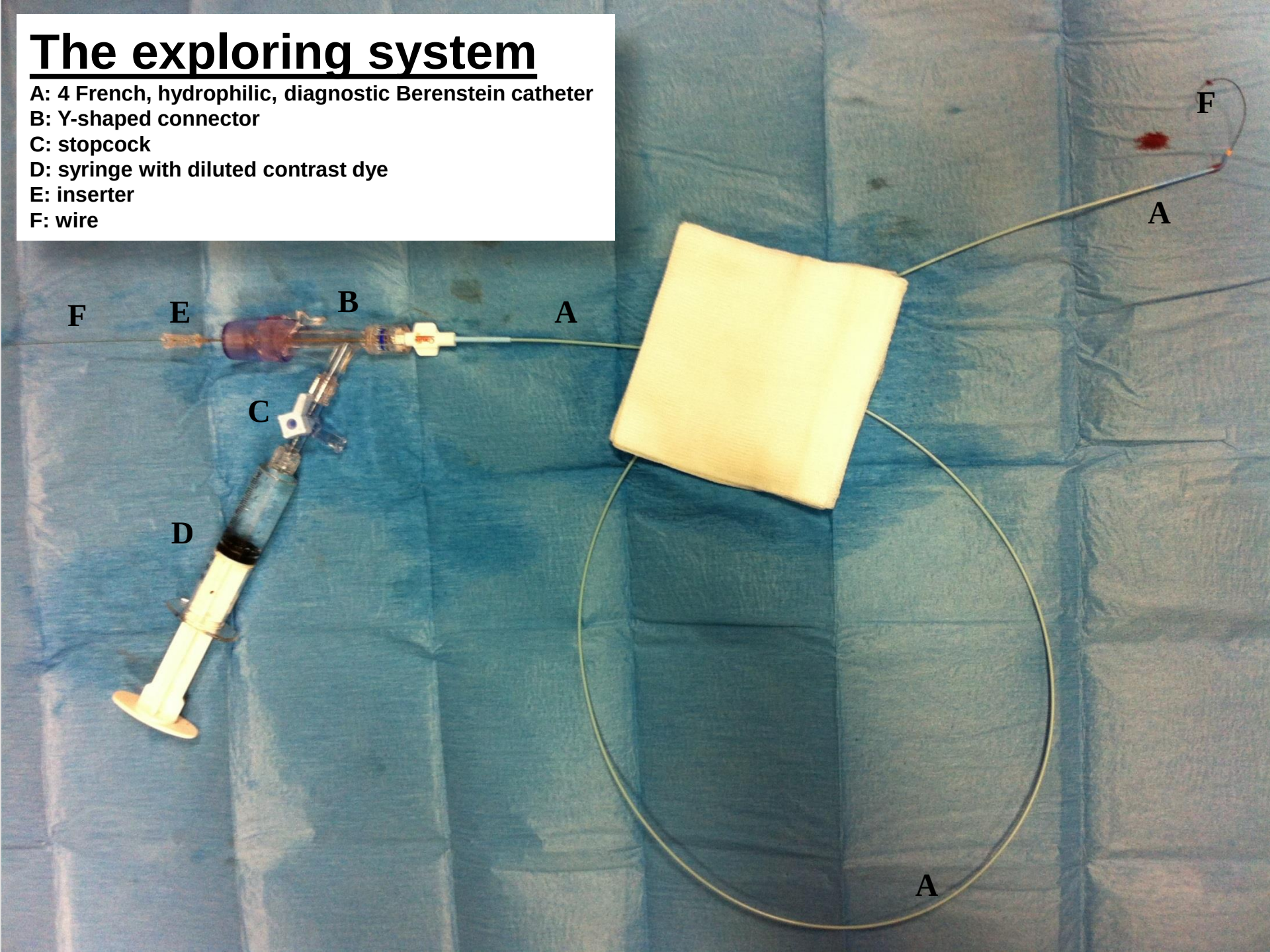


In antegrade femoral approach we prefer to work in this way:

- the patient has the head on the right side of the operator
- The screen are on the right side of the patient, in front of the operator
- The table is on the right side of the operator and the devices (balloons etc) can be put directly on the table

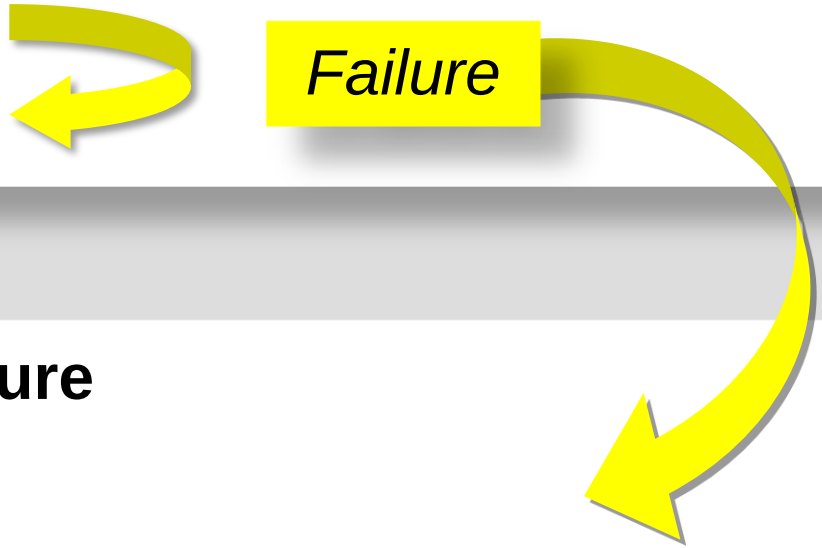
The exploring system

A: 4 French, hydrophilic, diagnostic Berenstein catheter
B: Y-shaped connector
C: stopcock
D: syringe with diluted contrast dye
E: inserter
F: wire



Step-by-step approach in CTOs crossing strategy

- **Antegrade approach**
  1. Endoluminal
  2. Subintimal



- **Retrograde puncture**
- **Transcollateral**
  1. Pedal-plantar loop technique
  2. Peroneal artery branches PTA

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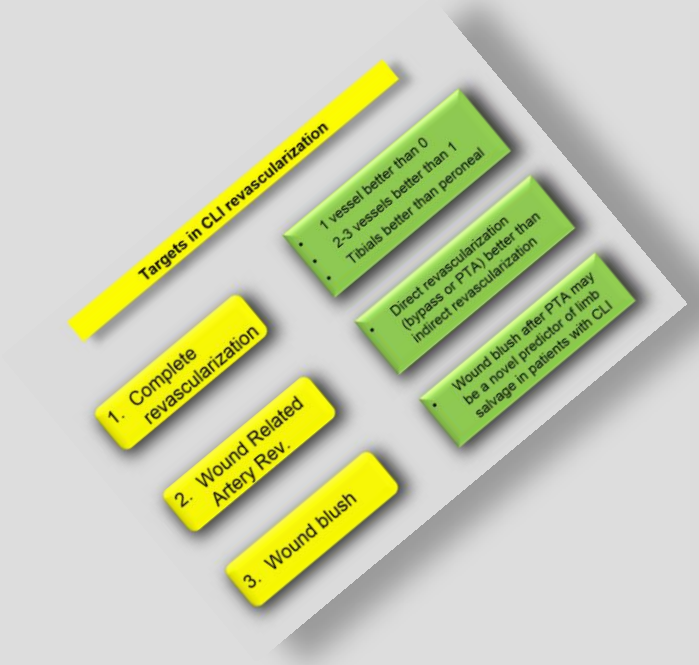
Targets in CLI revascularization

1. Complete revascularization
   - 1 vessel better than 0
   - 2-3 vessels better than 1
   - Tibials better than peroneal
2. Wound Related Artery Rev.
   - Direct revascularization (bypass or PTA) better than indirect revascularization
3. Wound blush
   - Wound blush after PTA may be a novel predictor of limb salvage in patients with CLI

Targets in CLI revascularization



Complete/WRA/WB must not be uncritically pursued: the procedure must be tailored on technically realistic strategies and on the general patient status. Consider patient/foot/technique and the possibility to check the clinical result on the wound in the next days and, in case of persistent ischemia, to improve the result in another procedure

PATIENT

- Procedure time
- Volume infused
- Contrast dye amount
- Double antiplatelet therapy
- Procedure stress

FOOT

- Type/site of lesion
- Presence or not of infection
- Scheduled surgical procedure
- Ability to walk

TECHNIQUE

- Treatable vessels
- Technical options
- Material costs (balloons, atherectomy, stent, DES, DEB, laser etc.)
- Late patency

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1°

INFECTION TREATMENT

- ULCER DEBRIDEMENT & URGENT SURGERY (GANGRENE/ABSCESS/ PHLEGMON)
- IDENTIFICATION OF BACTERIAL STRAINS → APPROPRIATE ANTIMICROBIAL TREATMENT
- METABOLIC & CARDIOLOGIC TREATMENT
- PRE-MEDICATIONS

2°

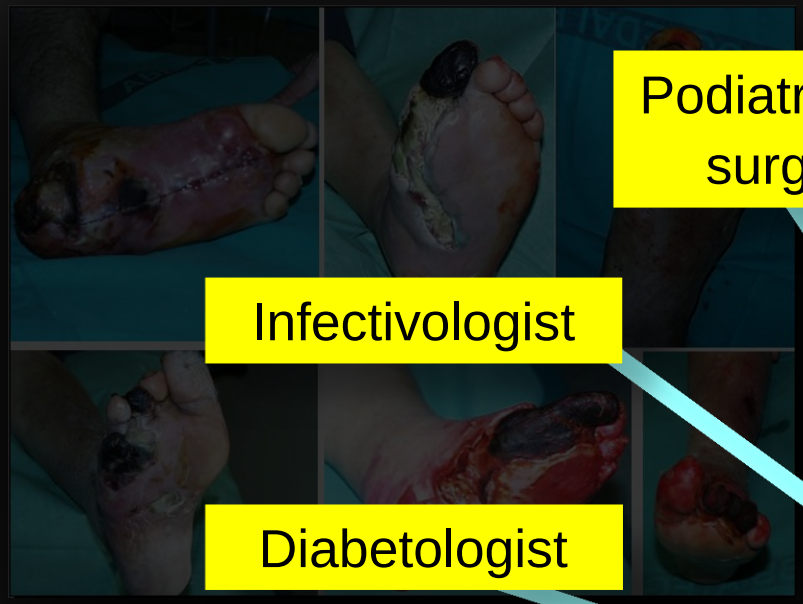
REVASCULARIZATION

PTA/Bypass are not the first line therapy in Texas D wounds (infection+ischemia)

3°

FINAL TREATMENT

- MEDICAL
- SURGICAL
- ORTHOPEDIC
- PROSTHESIS
- REHABILITATION



Podiatrist/foot surgeon

Orthopaedic

Plastic surgery

Infectivologist

Diabetologist

1°

INFECTION TREATMENT

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2°

REVASCULARIZATION

PTA/Bypass are not the first line therapy in Texas D wounds (infection+ischemia)

3°

FINAL TREATMENT

- MEDICAL
- SURGICAL
- ORTHOPEDIC
- PROSTHESIS
- REHABILITATION

Nephrologist/Dialysis

Cardiologist

Vascular surgery

Interventional radiologist

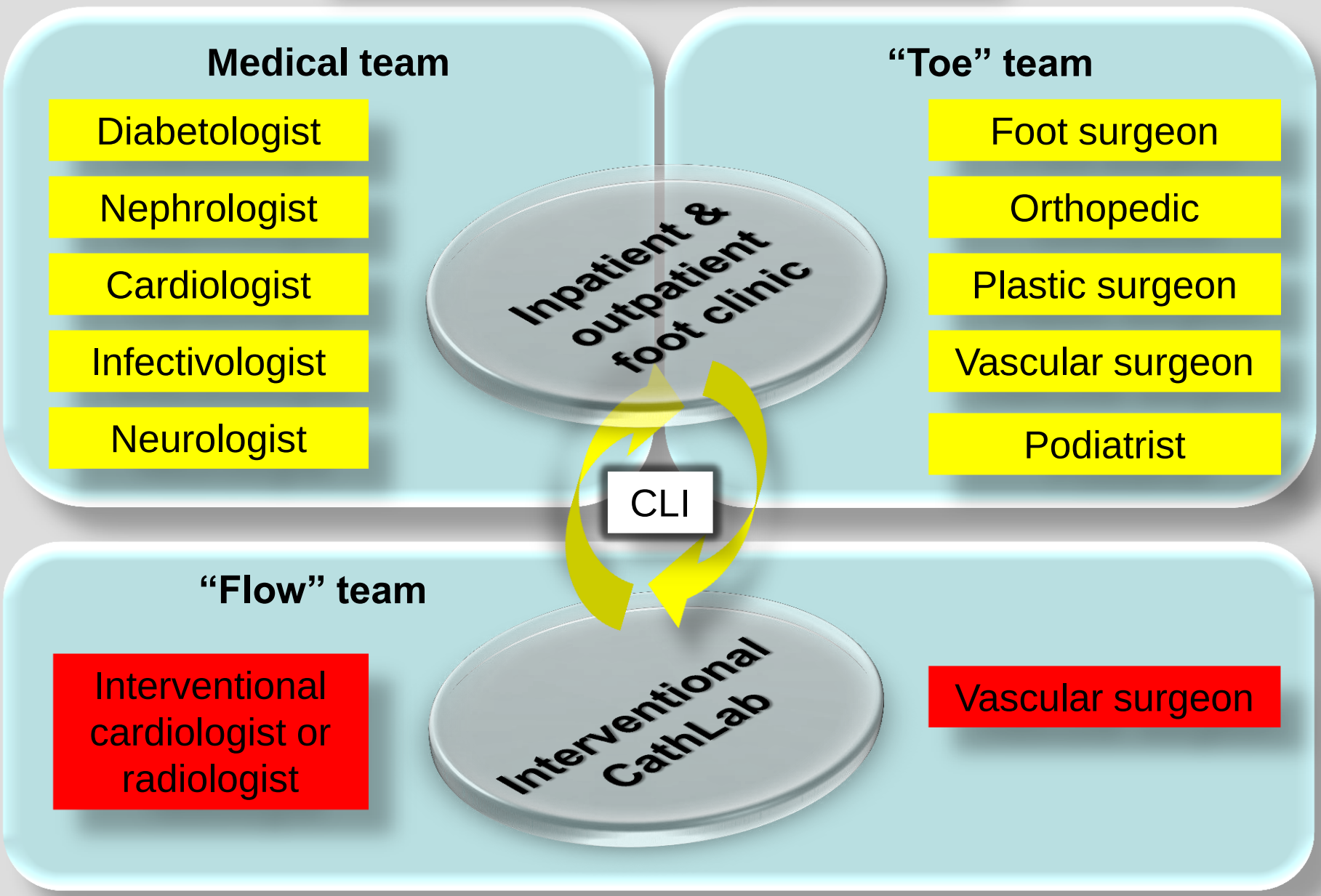
Interventional cardiologist

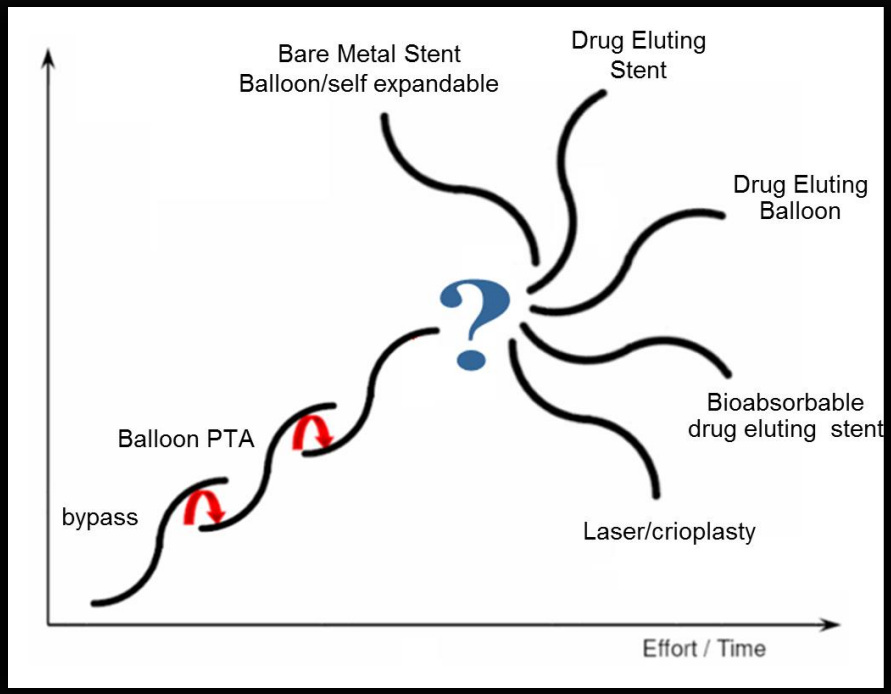
Prosthesis

Physiotherapist

Palliative care

Multidisciplinary team




Bare Metal Stent
Balloon/self expandable
Drug Eluting
Stent
Drug Eluting
Balloon
?
Bioabsorbable
drug eluting stent
Balloon PTA
bypass
Laser/crioplasty
Effort / Time