

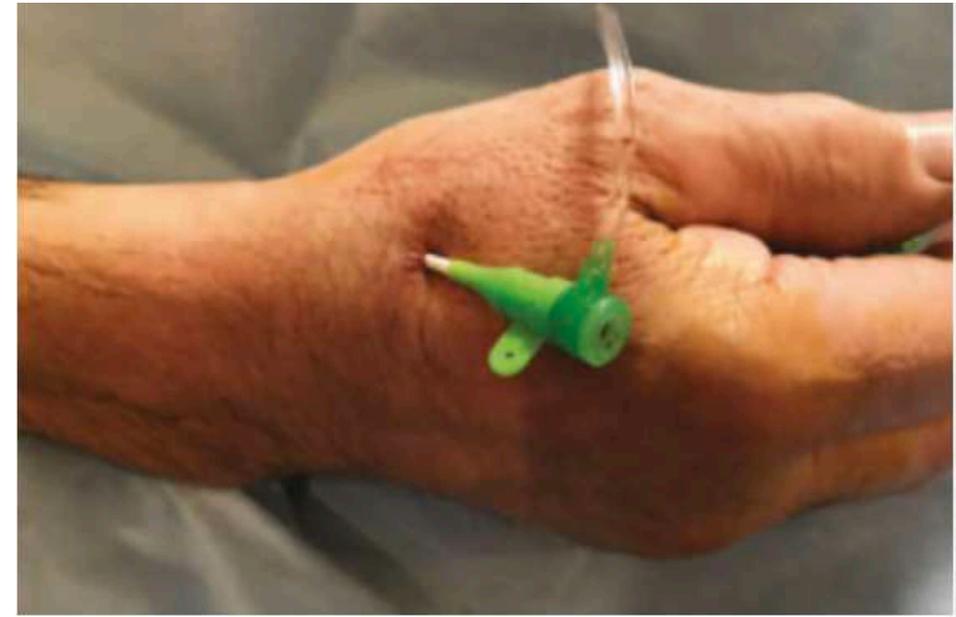
6 MINUTES POUR CONVAINCRE

APPROCHE RADIALE DISTALE



Dr NICOLAS LHOEST
Clinique RHENA

STRASBOURG



First TRA PCI worldwide in 1992 at OLVG Amsterdam



American Heart Journal, Volume 128, Issue 1, July 1994, Pages 167-174

Percutaneous transradial artery approach for coronary Palmaz-Schatz stent implantation

Ferdinand Kiemeneij, MD, and Gert Jan Laarman MD, PhD
Amsterdam, The Netherlands

The first metallic coronary stents were implanted in human beings in 1986 to overcome two major limitations of percutaneous transluminal coronary balloon angioplasty (PTCA): abrupt closure and late restenosis.¹ Rigorous anticoagulant therapy is mandatory to prevent thrombotic occlusion of metallic stents.² Coronary stenting by the femoral artery approach carries a substantial risk of bleeding complications, especially if large-bore guiding catheters are used. A possible prevention of severe puncture site-related events is the combination of a smaller puncture opening with selection of another entry site. With the introduction of 6F guiding catheters that allow passage of low-profile balloon catheters, percutaneous balloon angioplasty via the radial artery became possible as demonstrated by our group in 100 consecutive patients.³ This report describes the technique, procedural results, and clinical course in 20 consecutive patients who underwent Palmaz-Schatz coronary stent implantation via the radial artery.

METHODOLOGY

Patient selection. In an ongoing study, patients selected for coronary stent implantation who had a good pulsating right or left radial artery and a positive Allen test result were selected for transradial artery approach, irrespective of the patient's sex, weight, and size. The Allen test result was considered normal when, after compression of both ulnar and radial arteries, hand color returned to normal within

10 seconds after release of the ulnar artery. Patients were included in our study after giving informed consent.

Medical treatment. Patients were treated with Dextran 40, the first 500 ml at a rate of 100 ml/hr and the second 500 ml at 50 ml/hr. The infusion was started 2 hours before elective stent implantation or from the moment the decision was made to implant a stent in acute situations. At the day of stent implantation, dipyridazole 225 mg/day and acetylsalicylic acid 300 mg/day was started. After sheath insertion, 10,000 IU of heparin was administered intravenously, followed by 5,000 IU for each hour the procedure lasted. Three hours after hemostasis was achieved, 3,000 IU heparin was administered intravenously. Heparin was titrated to Activated Partial Thromboplastin Times (APTTs) of 80 to 100 seconds until stable adjustment on oral anticoagulant drug therapy (three consecutive therapeutic Thrombotests). Coumadin was given for 3 months and acetylsalicylic acid and dipyridazole were given for 6 months. To prevent radial and coronary artery spasm, 10 mg nifedipine was administered sublingually before radial artery puncture.

Radial artery catheterization. The right arm was abducted to an angle of 70 degrees, and the wrist was hyperextended. After local anesthesia with lidocaine 2%, the radial artery was punctured with an Arrow (Arrow International, Reading, Pa.) 22-gauge radial artery catheterization set or an 18-gauge introducer needle at a 45-degree angle 1 cm proximal from the styloid process. After appearance of pulsatile flow from the needle, and Angioson (Angiomed, Karlsruhe, Germany) 0.025-inch, 200 cm long guide wire was introduced through this system, followed by insertion of a Bard Hemaguet (Bard, Billerica, Mass.) II 6F 10 cm arterial introducer after a small skin incision was made with a No. 11 surgical blade.

Coronary artery cannulation. A Scimed Triguide (Scimed Life Systems, Maple Grove, Minn.) 6F

From the Amsterdam Department of Interventional Cardiology—OLVG.
Received for publication Nov. 22, 1993; accepted Dec. 20, 1993.
Reprint requests: Ferdinand Kiemeneij, MD, Amsterdam Department of Interventional Cardiology—OLVG, Oude Looze Vissers Gade 65, 1016
Impendium 176, 1001 RA, Amsterdam, The Netherlands.
Am Heart J 1994;128:167-74
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0895-7056/94/0000-0000\$05.00/0

GUIDELINES

2018 ESC/EACTS Guidelines on myocardial revascularization FREE

Franz-Josef Neumann ✉, Miguel Sousa-Uva ✉, Anders Ahlsson, Fernando Alfonso, Adrian P Banning, Umberto Benedetto, Robert A Byrne, Jean-Philippe Collet, Volkmar Falk, Stuart J Head, ... [Show more](#)

European Heart Journal, Volume 40, Issue 2, 7 January 2019, Pages 87–165,
<https://doi.org/10.1093/eurheartj/ehy394>

Published: 25 August 2018

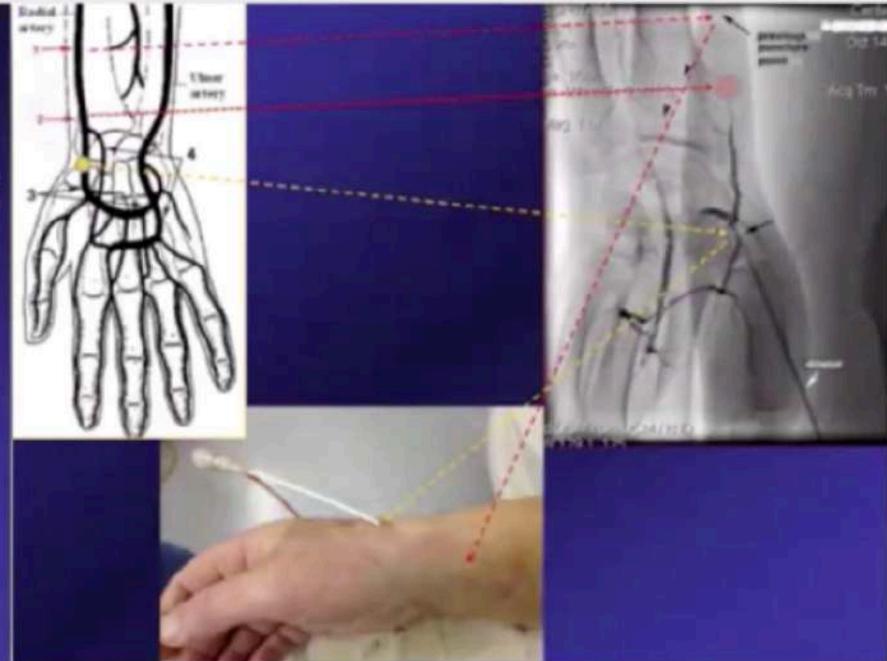
Recommendations	Class ^a	Level ^b
Radial access is recommended as the standard approach, unless there are overriding procedural considerations. ^{172,638,641}	I	A

Dr A Babunashvili

NOVEL TECHNIQUE OF RETROGRADE RECANALIZATION OF RADIAL ARTERY LATE OCCLUSION

Avtandil M. Babunashvili

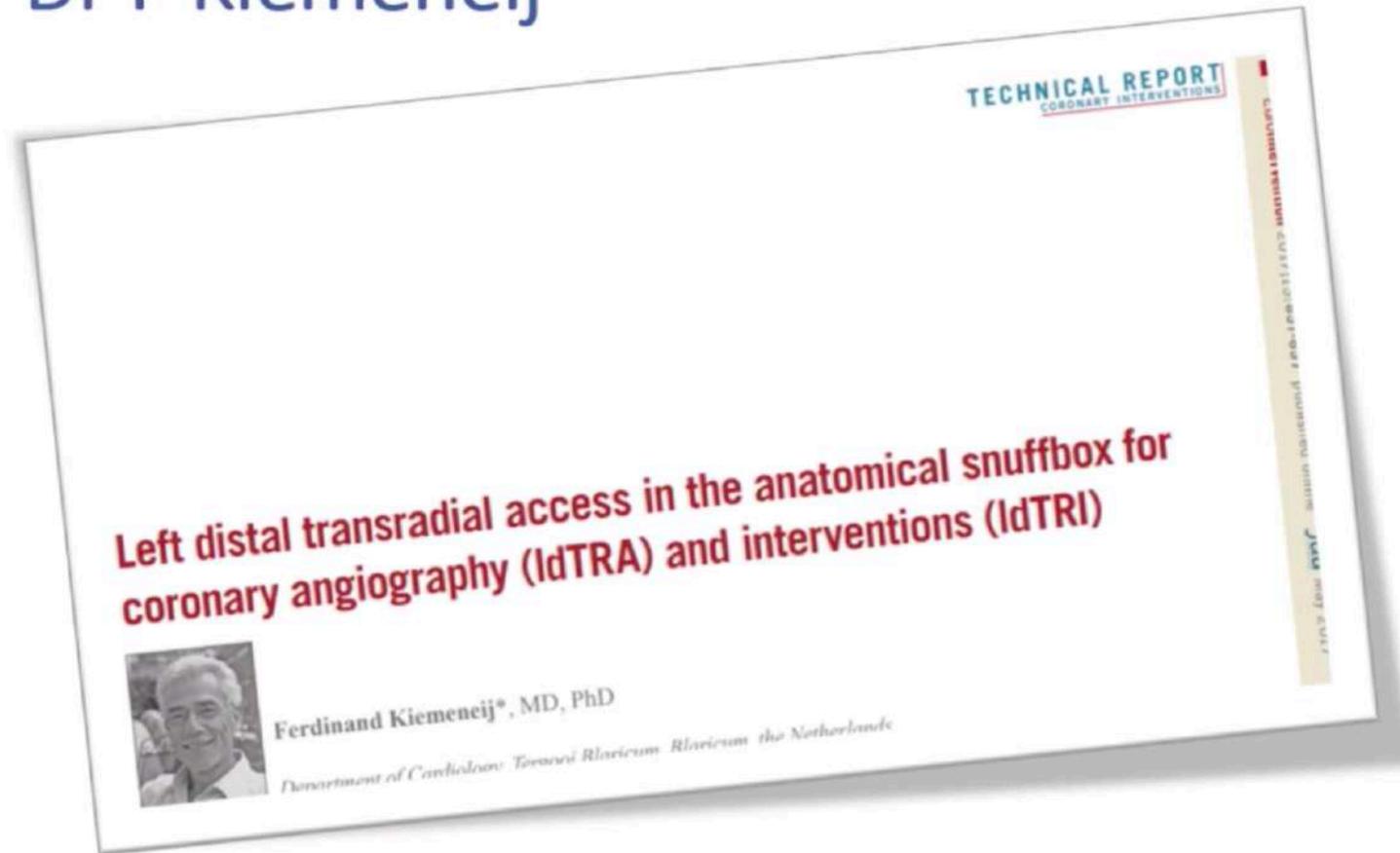
Center of Endosurgery, Moscow, Russia



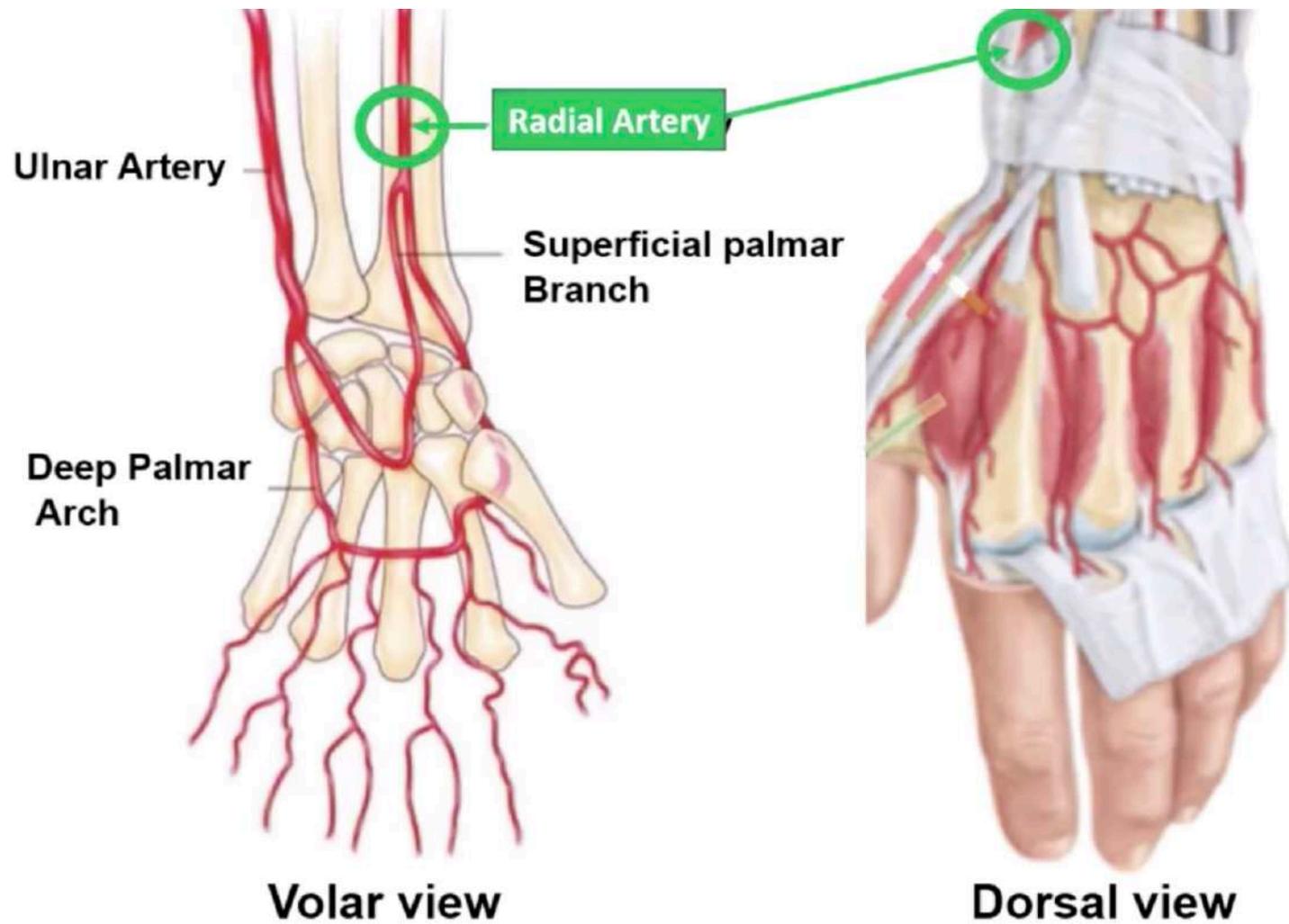
<https://www.slideshare.net/theradialist/11-aimradial2016-thu-babunashvili-a>

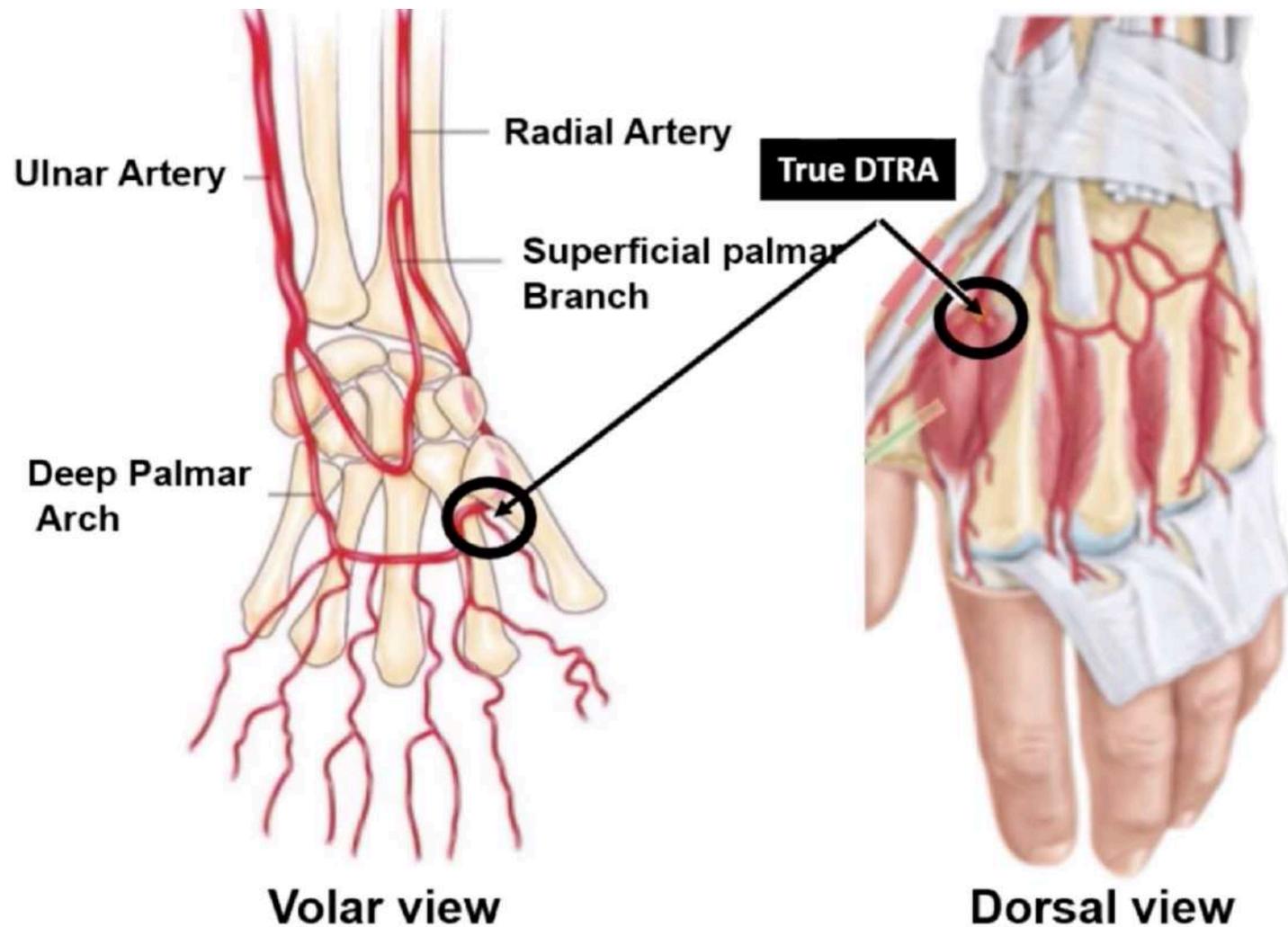
First description of distal radial puncture

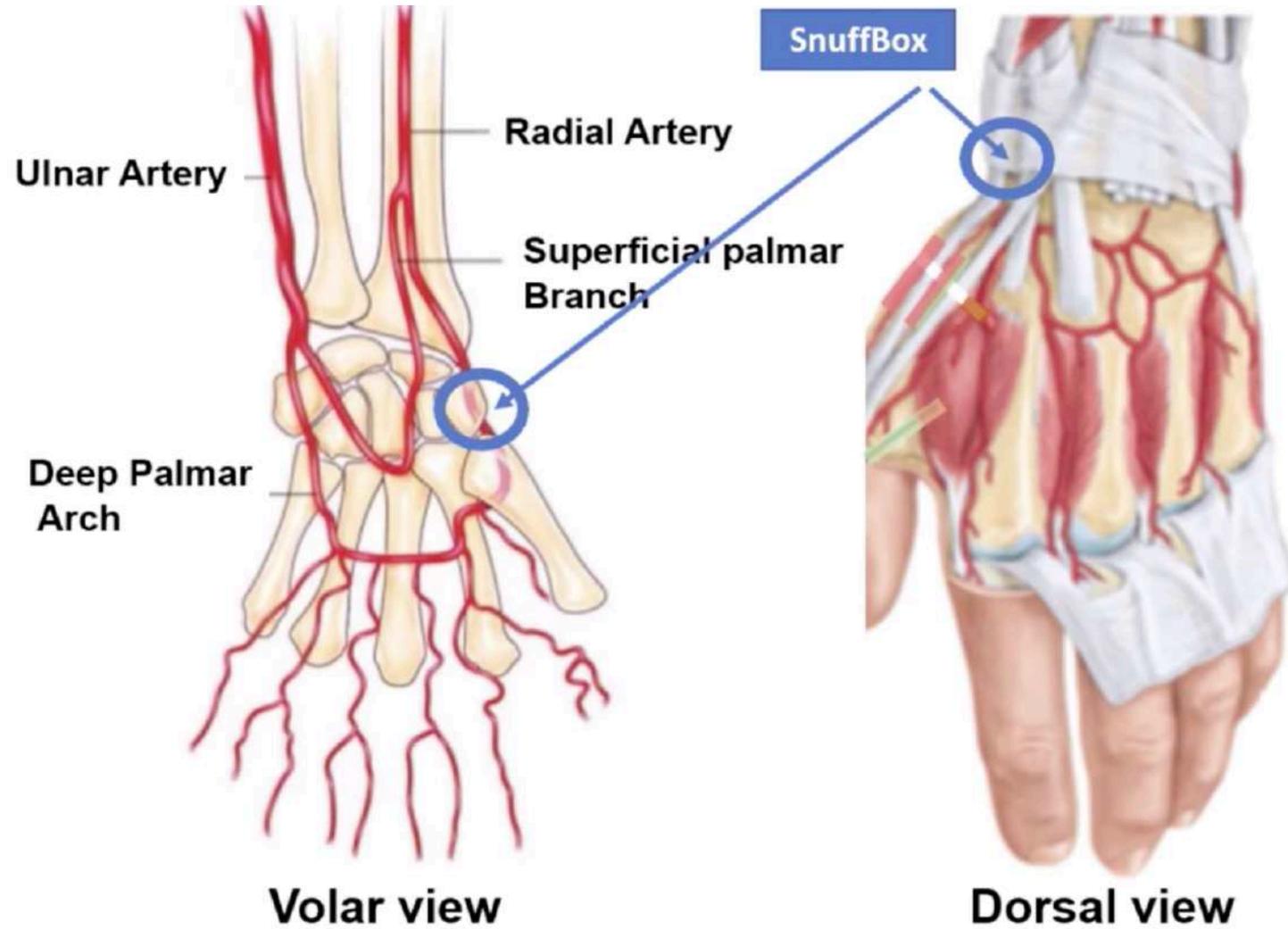
Dr F Kiemeneij



**First publication on
distal radial approach**
(Eurointervention 2017)







Comment vous Convaincre ?

- 1) Confort du Patient
- 2) Confort de l'opérateur
- 3) Résultats des études cliniques
- 4) la technique:

1) Confort du Patient

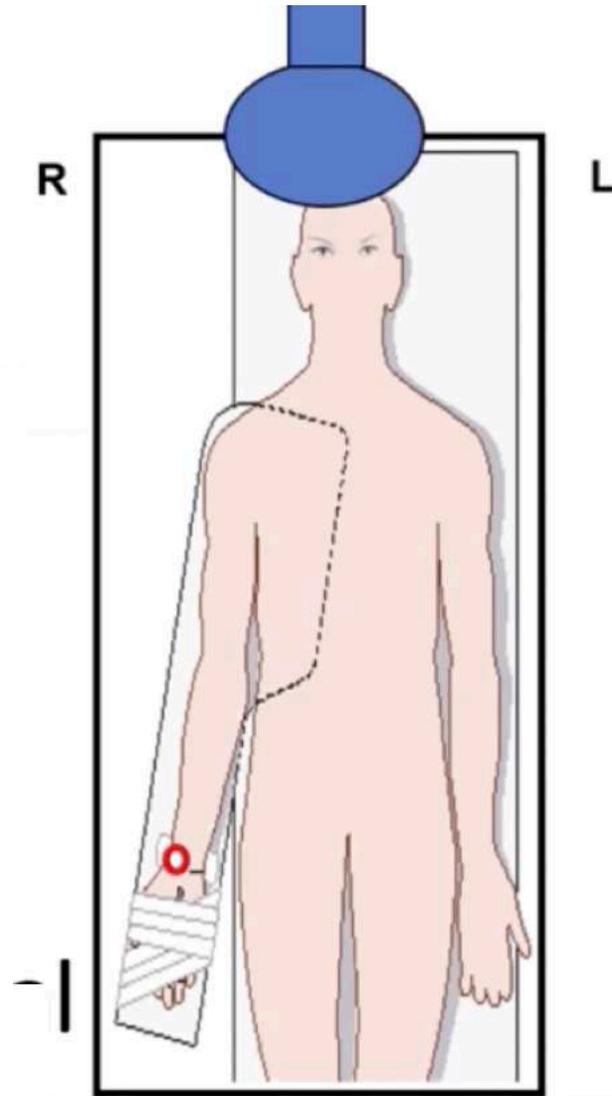
- Pendant la procédure, parfois la supination est difficile
- Après la procédure, pas d'immobilisation du poignet
- Temps d'hémostase très court... Sortie rapide, Fast Ambulatoire

9.0
 Satisfaction Score

Primary endpoints		
CAG success	187/187 (100)	
PCI success	86/87 (98.9)	
Secondary endpoints		
Puncture success	191/200 (95.5)	
Crossover	9 (4.5)	
Left radial	7 (3.5)	
Right distal radial	2 (1)	
Procedural variables (n=191)		
Puncture time, min	Mean, SD	3.0±2.8
	Median (IQR)	2 (1, 4)
Total procedure time, min	35.6±42.5	
Fluoroscopic time, min	11.3±18.4	
Fluoroscopic dose, Gy-cm ²	106.9±110.8	
Contrast volume, mL	127.9±75.6	
Haemostasis time, min	151.8±39.9	
Questionnaire (n=182)		
Pain score (0-10)	2.6±2.4	
Satisfaction score (0-10)	9.0±1.5	
Pain score ≥7	17 (9.3)	
Haematoma ≥2 cm	4	
Insertion of introducer sheath	4	
Puncture-related	9	
Satisfaction <4	3 (1.6)	

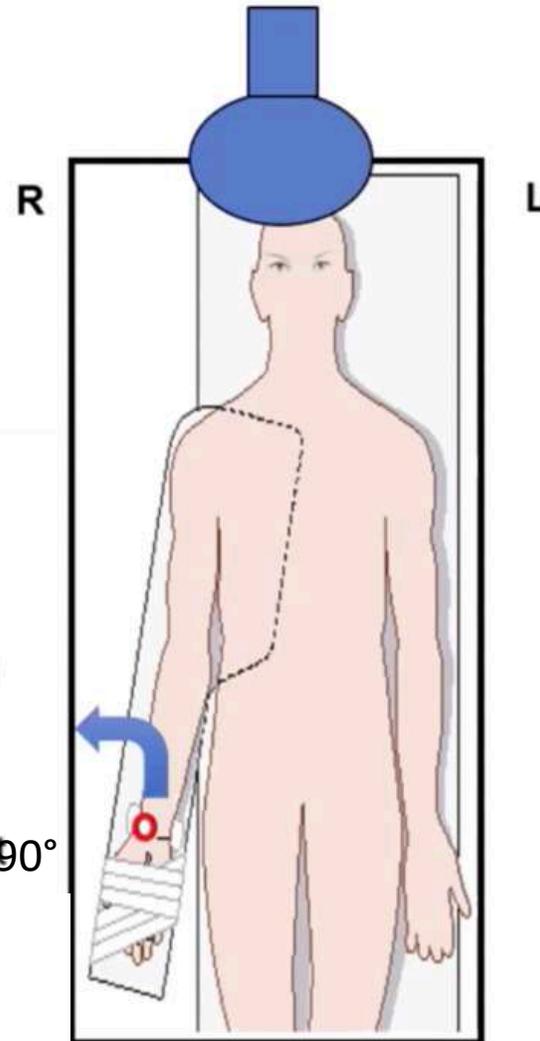
2) Confort de l'opérateur

Radiale droite



2) Confort de l'opérateur

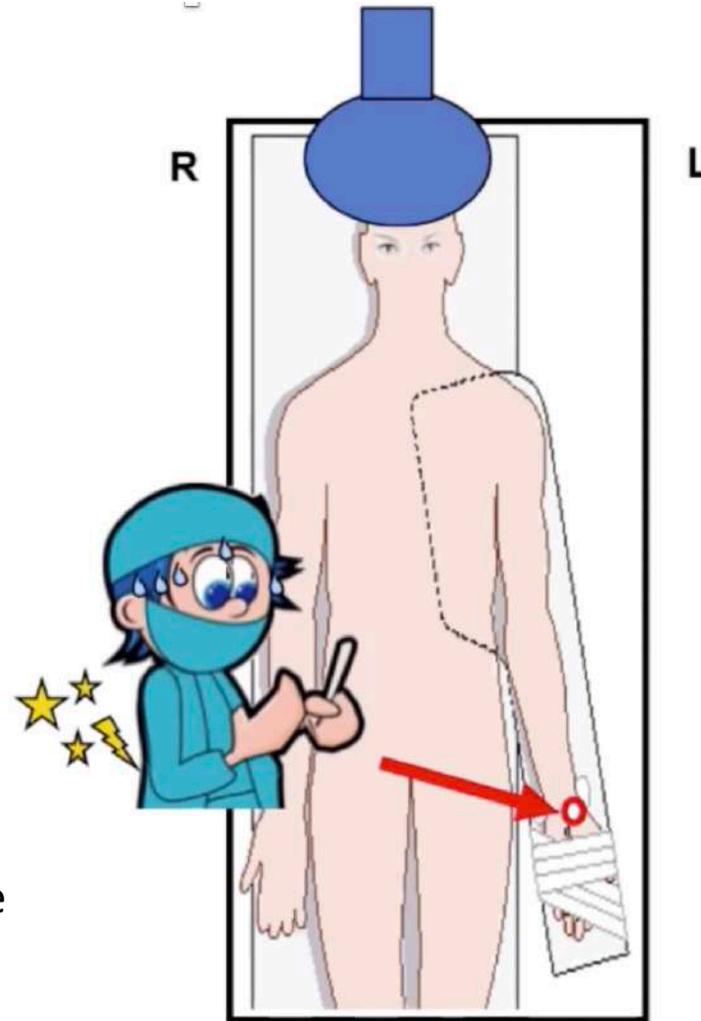
Radiale droite distale



2) Confort de l'opérateur

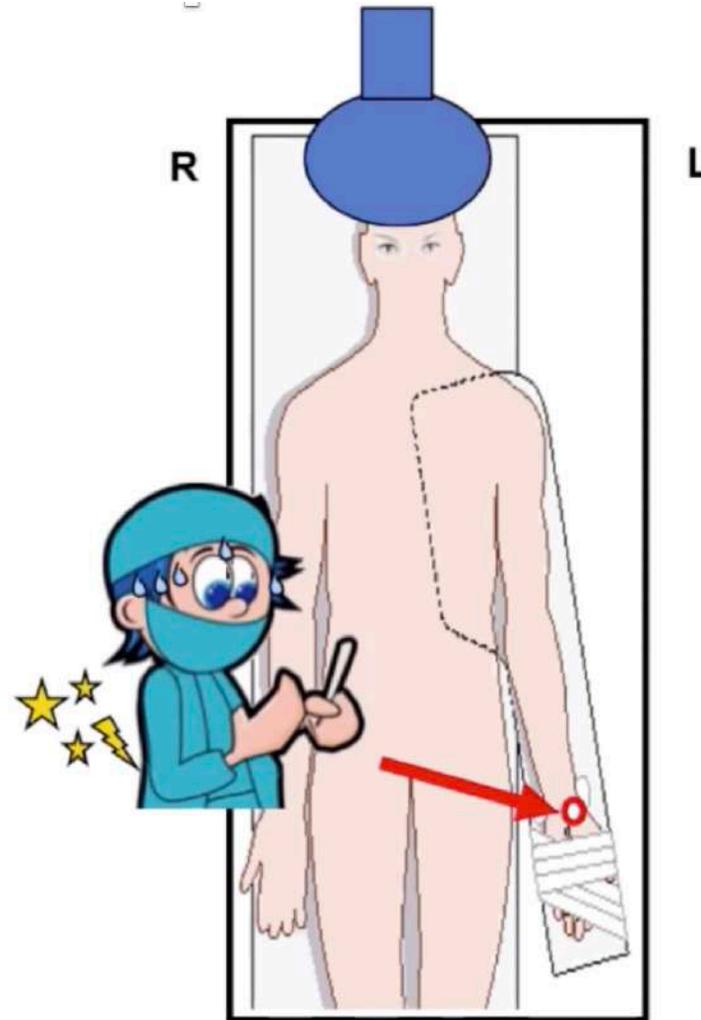
Radiale gauche

Position à droite:
Opérateur de petite taille
Dorsalgie



2) Confort de l'opérateur

Radiale gauche



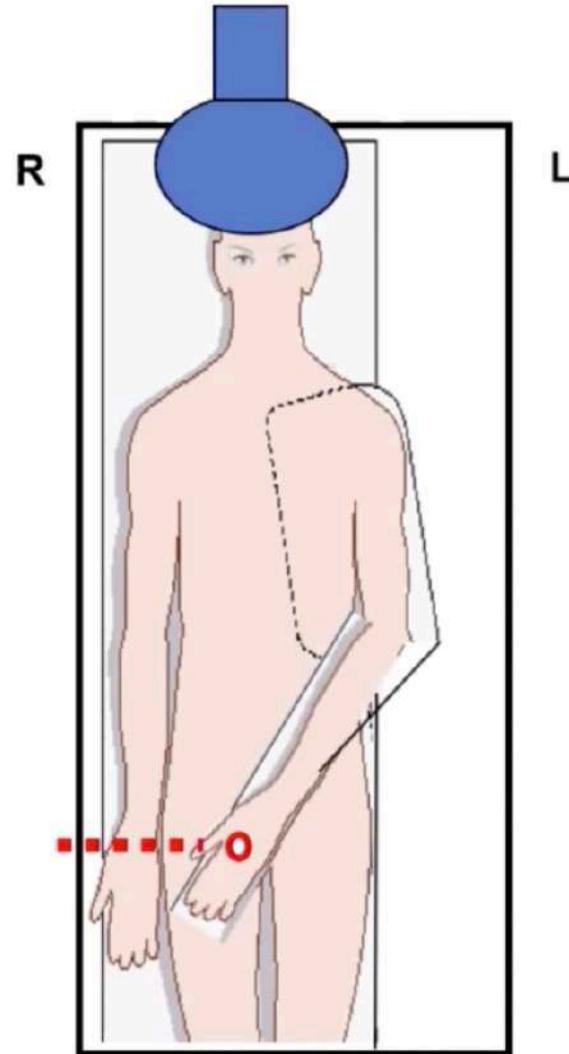
Position à Gauche:
Les droitiers...
Ergonomie différente
Parfois moins à l'aise

2) Confort de l'opérateur

Radiale gauche distale



Confort ++
Comme une fémorale



3) Résultats cliniques

- Succès de ponction? :

Primary endpoints		
CAG success		187/187 (100)
PCI success		86/87 (98.9)
Secondary endpoints		
Puncture success		191/200 (95.5)
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Satisfaction <4		3 (1.6)



95%

Procedural success

3) Résultats cliniques

- Succès de ponction : 95%

- Taux d'Occlusion?

At admission		15/191 (7.9)	
BARC bleeding type 2, 3, 5		0 (0)	
Minor haematoma		14 (7.4)	
Haematoma grade	<2 cm	10 (5.2)	
	2-5 cm	1 (0.5)	
	>5 cm	3 (1.6)	
Distal radial artery occlusion		0 (0)	0%
Perforation		0 (0)	
Pseudoaneurysm		0 (0)	
Dissection		1 (0.5)	
Arteriovenous fistula		0 (0)	
1-month follow-up by ultrasonography		2/141 (1.4)	
Distal radial artery occlusion		0 (0)	0%
Neuropathy		2 (1.4)	

3) Résultats cliniques

- Succès de ponction : 95%

- Taux d'Occlusion: 0%

+++ Préservation de l'artère radiale si occlusion distale

- Fistule A-V chez les dialysés
- Pontage artériel
- Intervention à répétition

3) Résultats cliniques

- Succès de ponction : 95%

- Taux d'Occlusion: 0%

+++ Préservation de l'artère radiale si occlusion distale

- Fistule A-V chez les dialysés
- Pontage artériel
- Intervention à répétition

- Complications hémorragiques:?

Table 4. Access-site complications at admission (n=191) and 1-month follow-up, as assessed by ultrasonography (n=141).

At admission		15/191 (7.9)
BARC bleeding type 2, 3, 5		0 (0)
Minor haematoma		14 (7.4)
Haematoma grade	<2 cm	10 (5.2)
	2-5 cm	1 (0.5)
	>5 cm	3 (1.6)
Distal radial artery occlusion		0 (0)
Perforation		0 (0)
Pseudoaneurysm		0 (0)
Dissection		1 (0.5)
Arteriovenous fistula		0 (0)
1-month follow-up by ultrasonography		2/141 (1.4)
Distal radial artery occlusion		0 (0)
Neuropathy		2 (1.4)
Data are presented as n (%). BARC: Bleeding Academic Research Consortium		

3) Résultats cliniques

- Succès de ponction : 95%

- Taux d'Occlusion: 0%

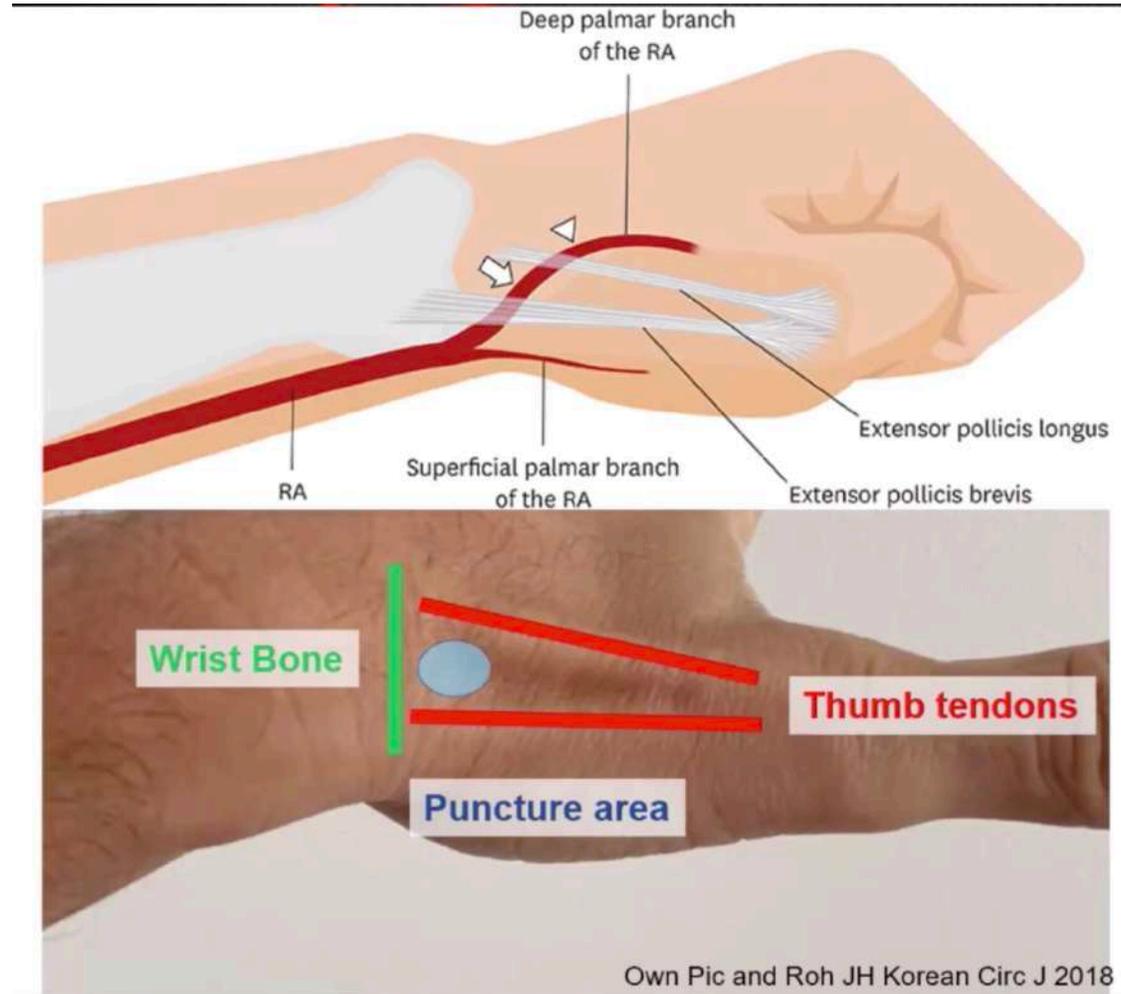
+++ Préservation de l'artère radiale si occlusion distale

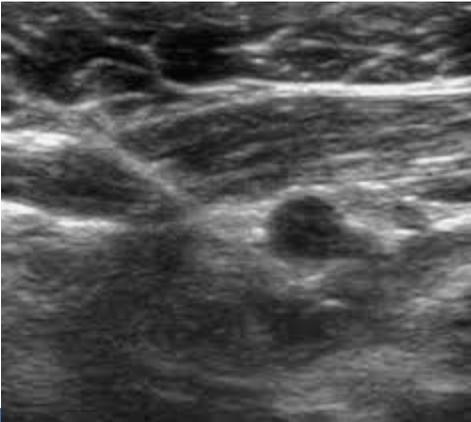
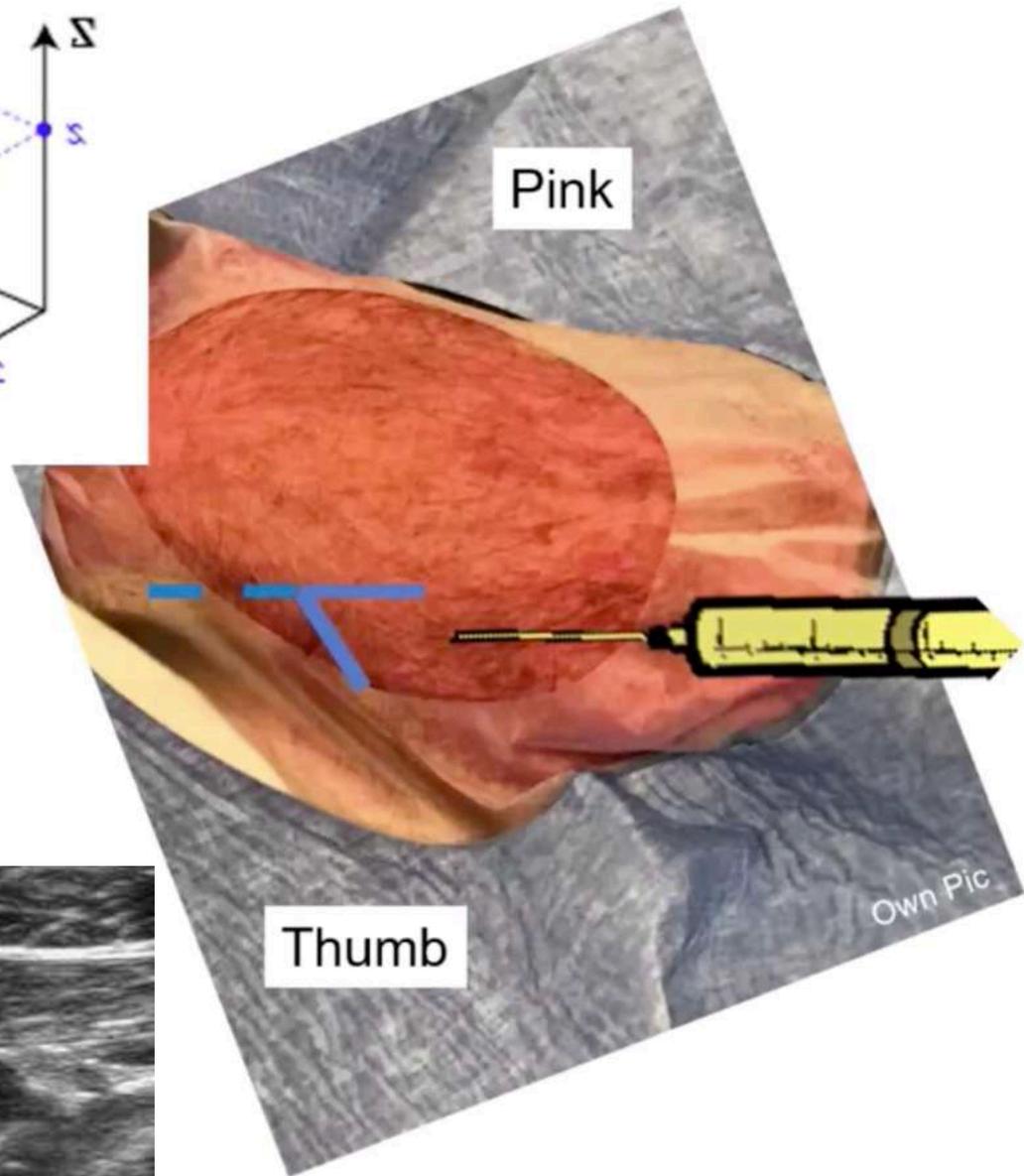
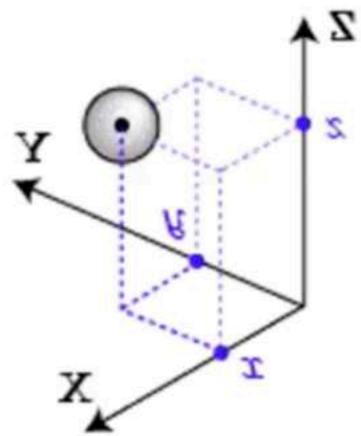
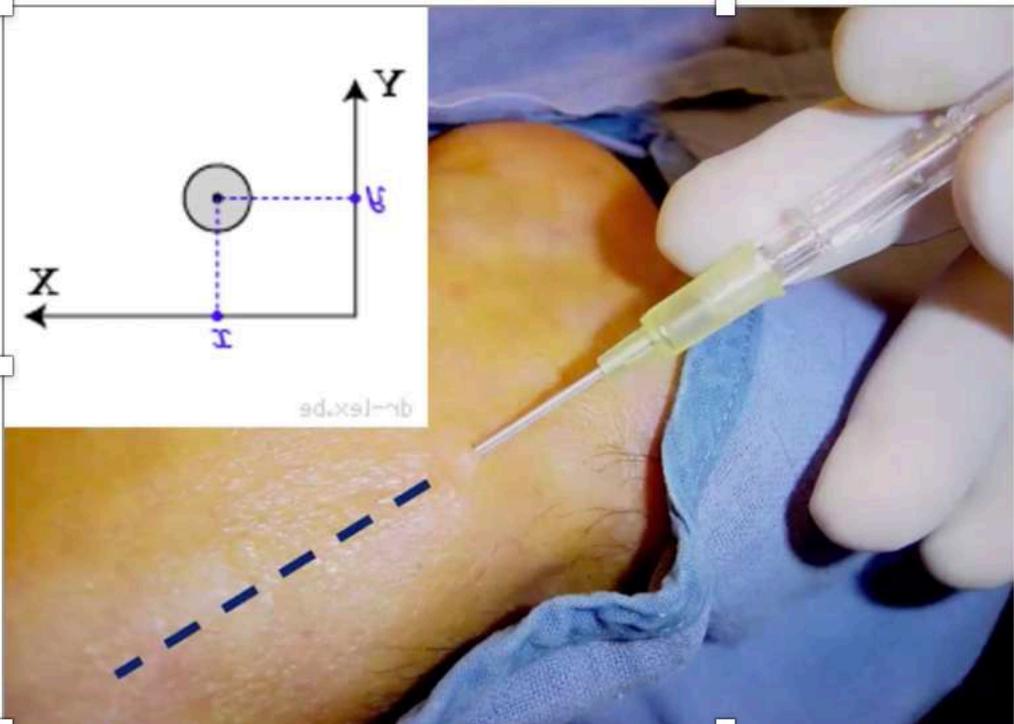
- Fistule A-V chez les dialysés
- Pontage artériel
- Intervention à répétition

- Complications hémorragiques: 0%

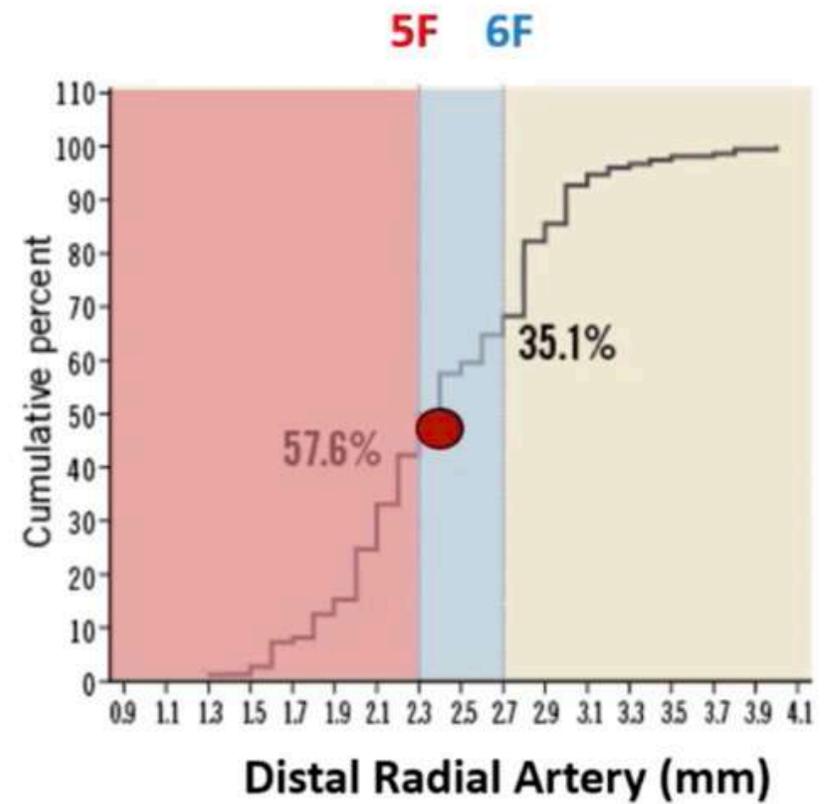
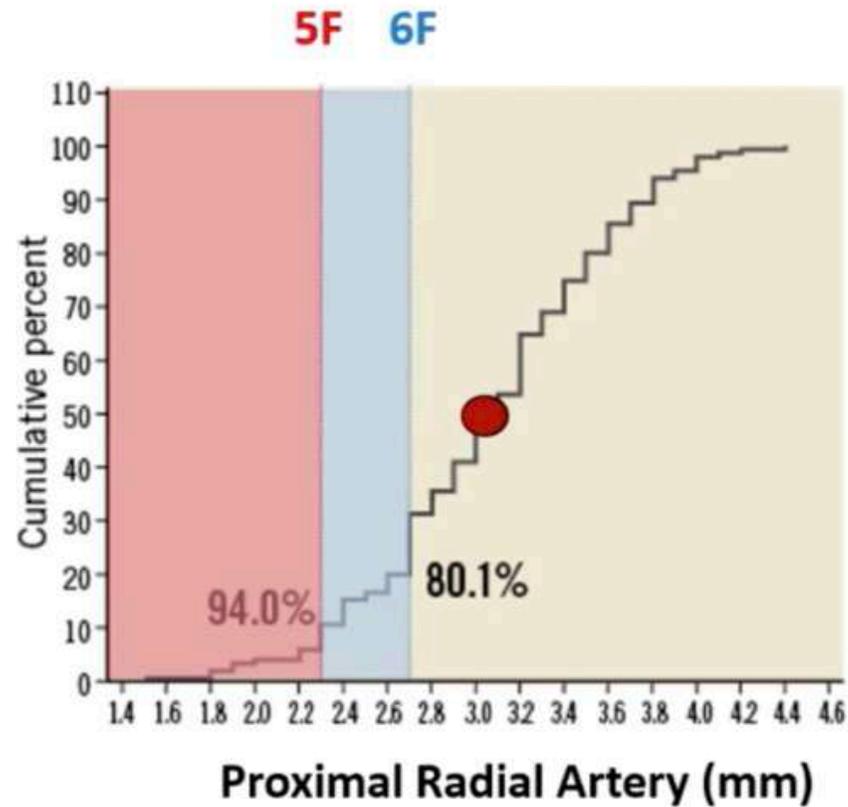
4) La technique

Comment?





Quel taille de désilet ? : DTRA plus petite

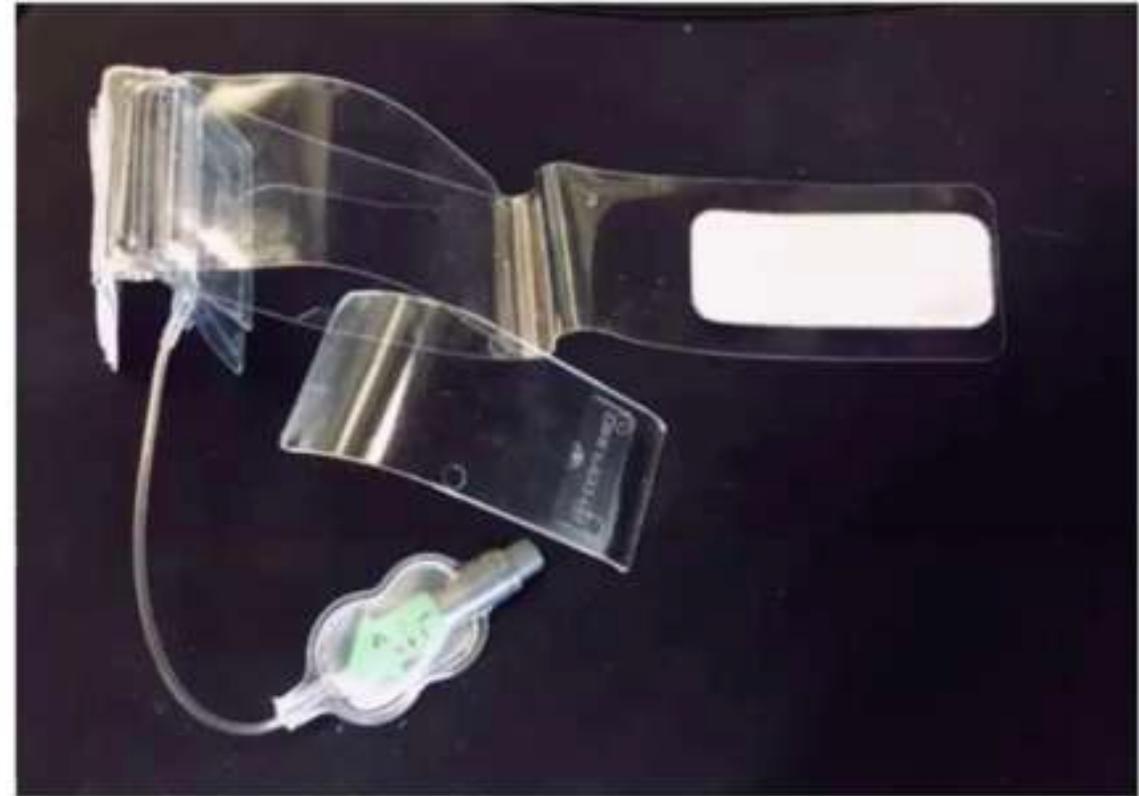


Patients who underwent PCI (n=87)		
PCI performed		87/191 (45.5)
Ad hoc		78/87 (89.7)
Staged		9/87 (10.3)
Culprit lesion	Left main	6 (6.9)
	Left anterior descending	47 (54)
	Left circumflex	6 (6.9)
	Right coronary artery	28 (32.2)
Bifurcation		28 (32.2)
In-stent restenosis		9 (10.3)
Chronic total occlusion		8 (9.8)
Guiding catheter	5 Fr	5 (5.7)
	Sheathless 6.5 Fr	19 (21.8)
	6 Fr	62 (71.3)
	7 Fr	1 (1.1)
Use of IVUS		55 (63.2)
Data are presented as n (%). CAG: coronary angiography; Fr: French; IVUS: intravascular ultrasonography; PCI: percutaneous coronary intervention		

La Compression



Avec 6cc d'air 1h



Avec 10cc d'air 1h

La Compression



Learning Curve

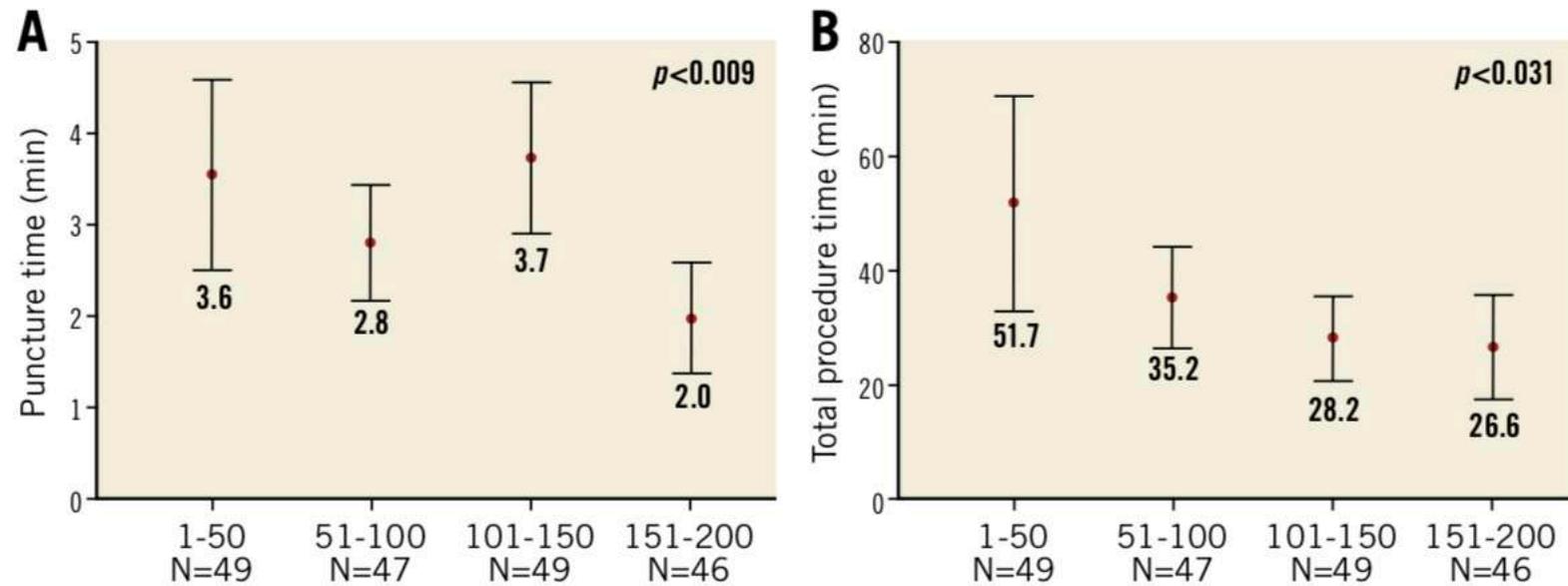


Figure 5. Learning curves. A) Puncture time. B) Total procedure time.

Penser à la cubitale distale



Conclusions:

- 0% d'occlusion
- Compression simple et durée courte
- Learning Curve, intérêt de l'écho
- Evolution naturelle de notre technique