

Percutaneous angioplasty at previous radial puncture site via distal radial access of anatomical snuffbox

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CHUNGBUK NATIONAL UNIVERSITY HOSPITAL



Patient information 1

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- Female / 74 years old
- Chief complaint : Chest pain

Patient information 2 - 1

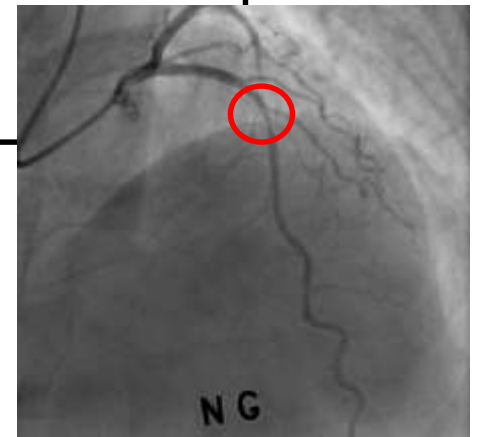
2012	2013	2014	2015	2016	2017	2018.1	2018.8
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Chief complaint: Chest pain

Diagnostic coronary angiography

- Via **Radial access**
- **60% stenosis** of Middle Left anterior Descending Artery (**mLAD**)
- Percutaneous coronary intervention (-)
- Medical follow up



Previous CAG 2012 Feb

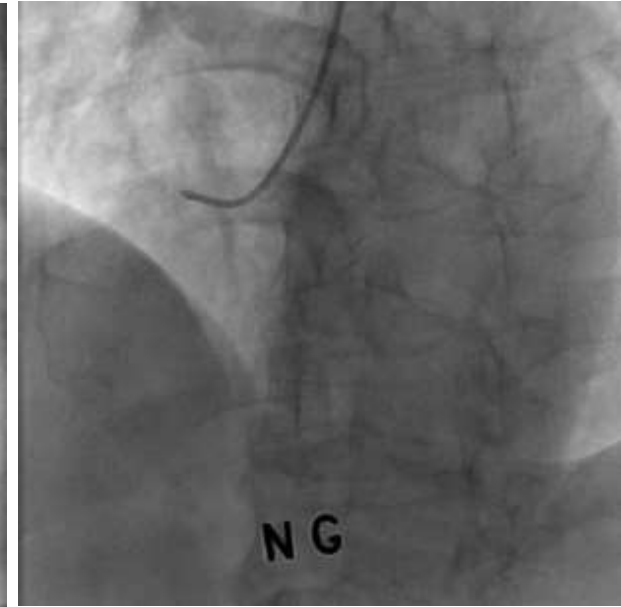
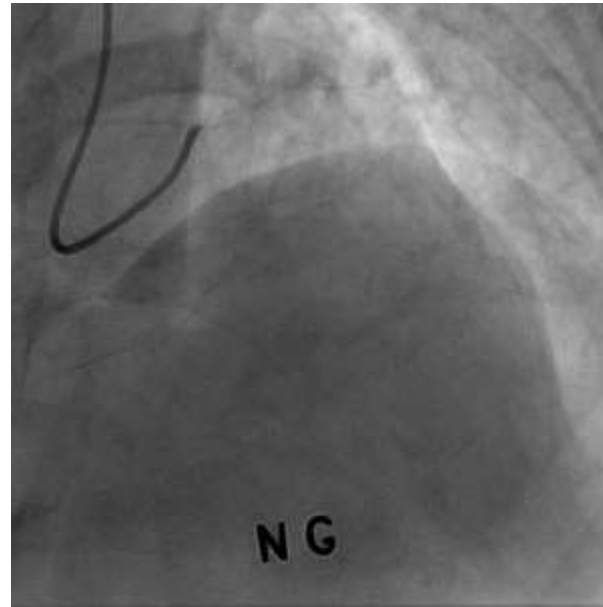
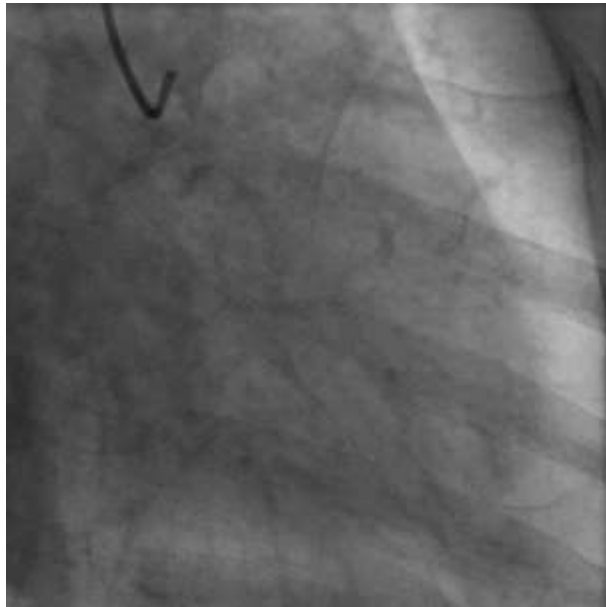
2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- Left coronary artery

- Left coronary artery

- Right coronary artery



Previous CAG 2012 Feb

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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• Summary

- Unstable angina

- **Right Radial artery approach**

- 1 vessel disease

60% stenosis of mid left anterior descending artery (LAD)

→ Medical Follow up

Aspirin protect 100mg

Clopidogrel 75mg

Atorvastatin 20mg qd

Perindopril 4mg qd



Patient information 2 - 2

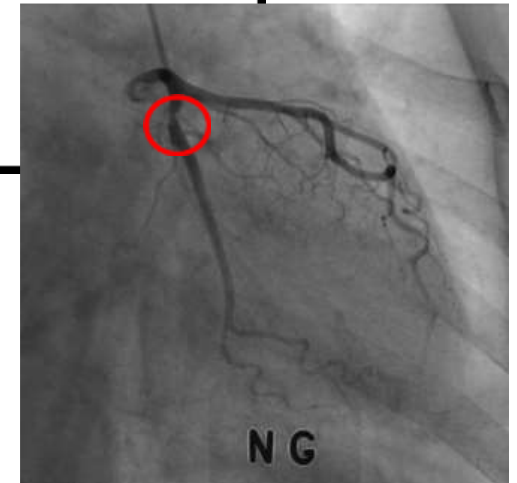
2012	2013	2014	2015	2016	2017	2018.1	2018.8
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Chief complaint: Chest pain

Diagnostic coronary angiography

- Via **Radial approach**
- **75% stenosis** of Posterior Left Circumflex Artery (**pLCX**)
- Percutaneous coronary intervention (+)



Previous CAG 2018 Jan

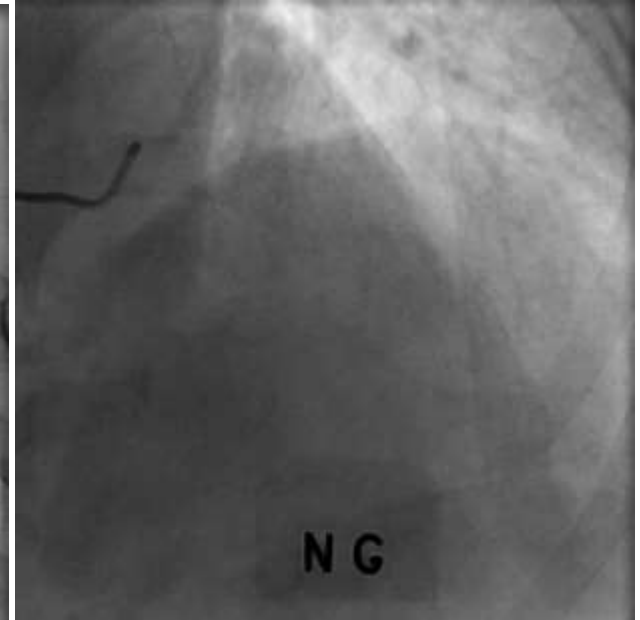
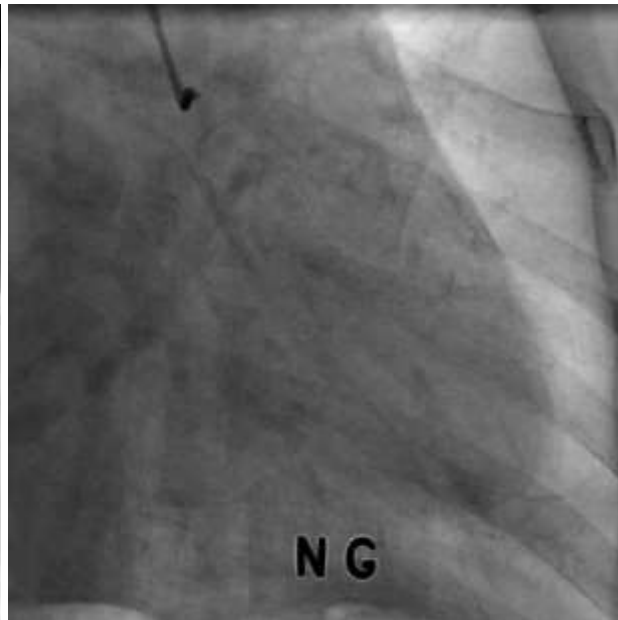
2012	2013	2014	2015	2016	2017	2018.1	2018.8
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• Radial artery access

• Left coronary artery

• Left coronary artery

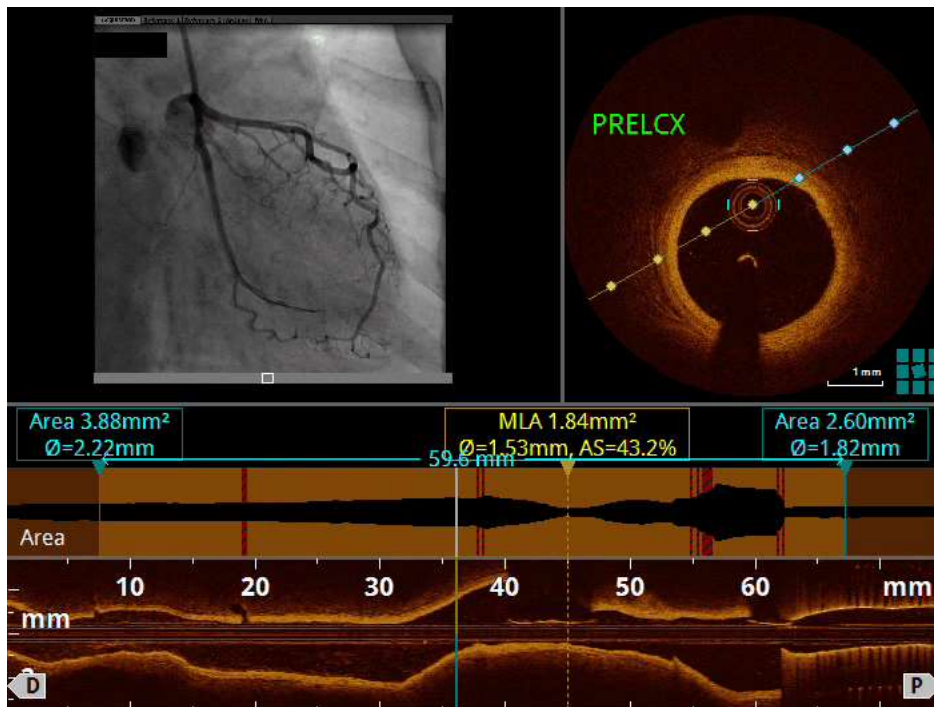


Previous CAG 2018 Jan

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- Pre OCT (Optical Coherence Tomography)
 - **LCX** OCT angiography image
(Left Circumflex Artery)



Minimal Lumen Area

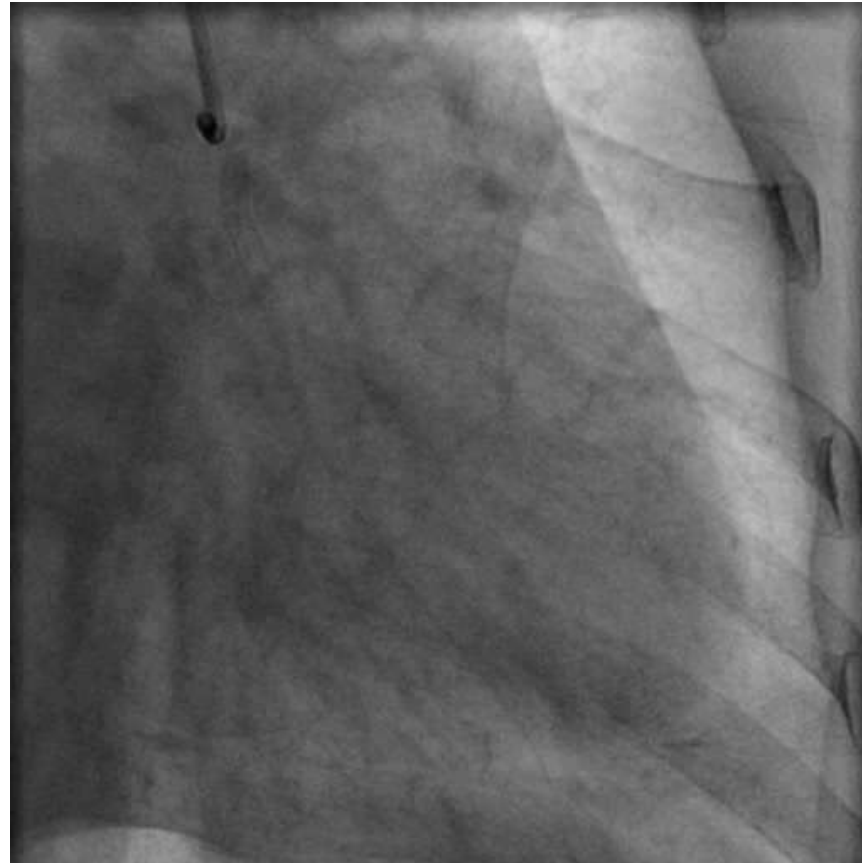
: **1.84** mm²

Previous PCI 2018 Jan

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- Post stent angiogram



Previous PCI 2018 Jan

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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• Summary

- Unstable angina
 - **Right Radial artery access**
 - 1 vessel disease
 - 1) LMCA - normal
 - 2) LAD - mid : diffuse narrowing up to 40%
 - 3) LCx - proximal : segmental stenosis up to 75%
 - 4) RCA - proximal : diffuse narrowing up to 40%
- Drug eluting stent (**Genoss 3.0 X 23 mm**) implanted

Patient information 3

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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Smoking : never-smoker

Hypertension / Diabetes mellitus (-/-)

Family history (-)

Patient information 4

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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Cardiac enzyme : Troponin T 0.012 ng/ml (0.1 이하)

CK-MB 2.36 ng/ml (4.94 이하)

CPK 65 IU/L (167 이하)

Chest x ray : Normal chest radiography

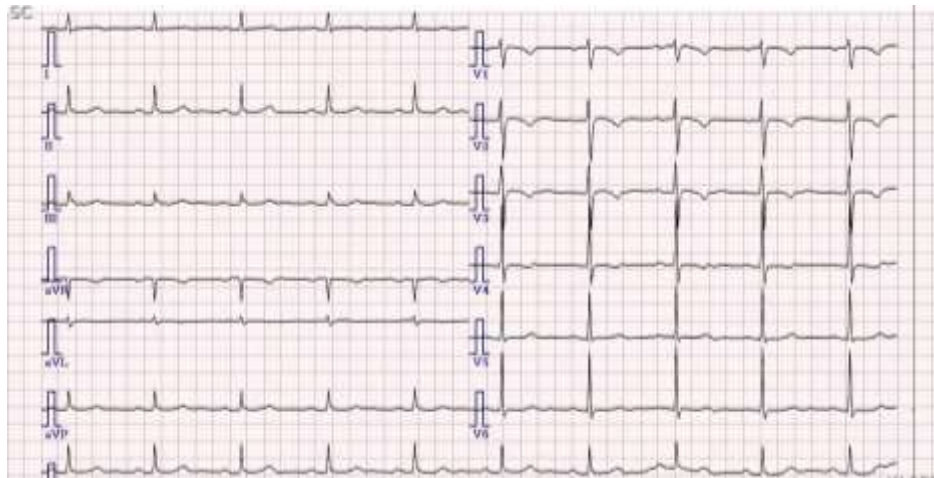


Patient information 5

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ECG : Sinus bradycardia (HR:56)



Portable echocardiogram

- Normal Left ventricle size and systolic function
- Mild Mitral Regurgitation
- No Regional Wall Motion Abnormality



2018 August (7 month later after the last PCI) : Index event

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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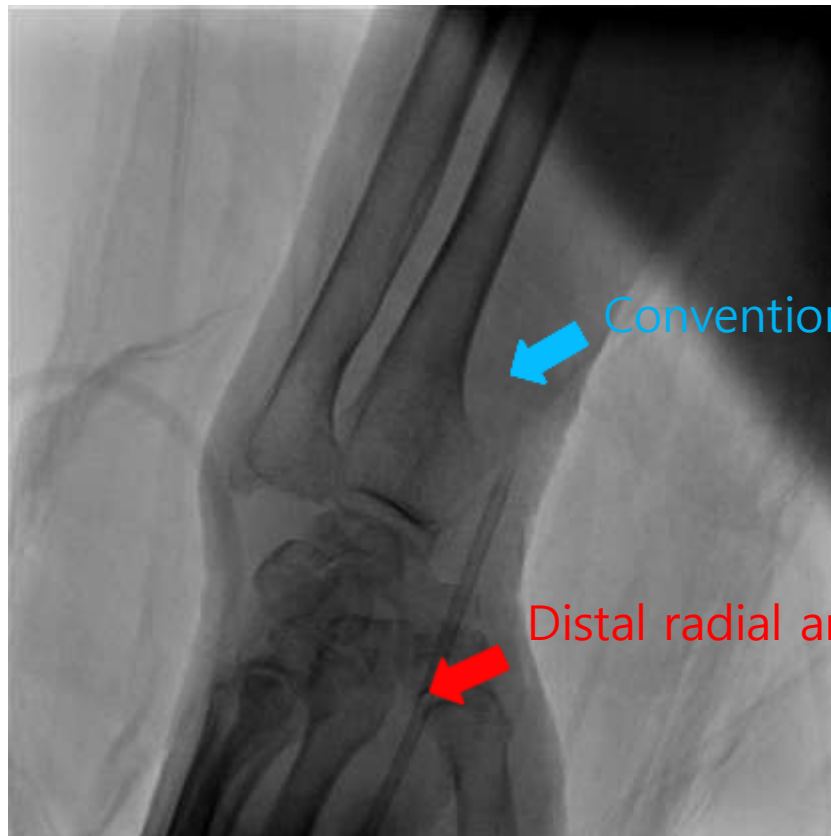
- Female / 74 years old
- Chief complaint : Chest pain

 Coronary angiography

Follow up CAG 2018 Aug

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- Distal radial artery access at anatomical snuffbox



Conventional radial artery access

Distal radial artery access



Follow up CAG 2018 Aug

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- Radial artery angiography



- 0.035 fixed core J tip guidewire



Follow up CAG 2018 Aug

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- Terumo wire



- Dissection and flow limitation



Follow up CAG 2018 Aug

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- Wire change
: 0.014 coronary intervention guidewire



- Wire : successfully passed



Follow up CAG 2018 Aug

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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- 5F diagnostic catheter was not advanced



- 4F catheter was advanced



FU CAG 2018 Aug

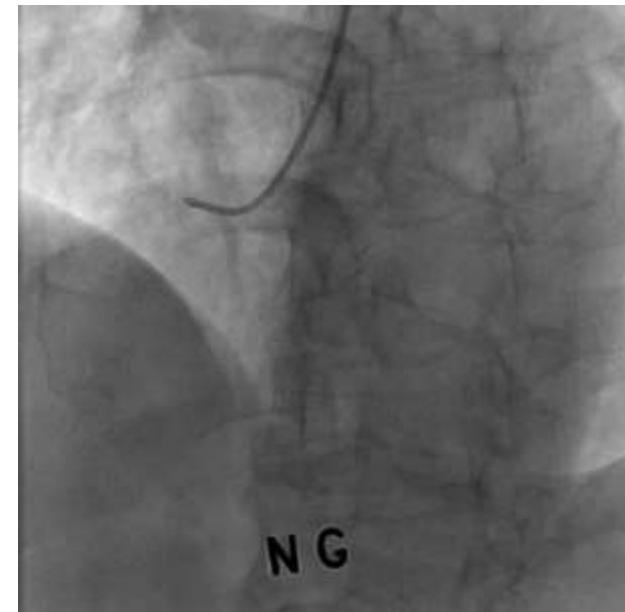
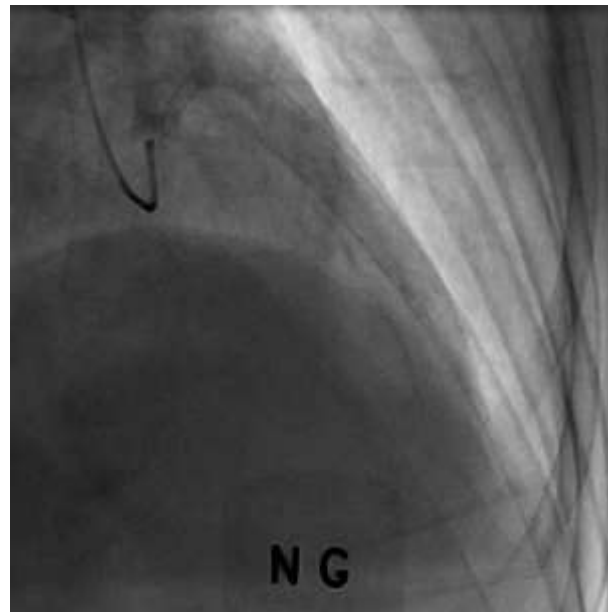
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• Left coronary artery

• Left coronary artery

• Right coronary artery



	2018.8 CAG result
LMCA	Normal
LAD	Normal
LCx	proximal (previous stenting site) : diffuse narrowing up to 20 %
RCA	proximal to mid : diffuse narrowing up to 40%

2018 Aug Percutaneous angioplasty (PTA)

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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Balloon dilatation with **Sleek balloon 2.0 X 150 mm** at Rt. radial artery

8 atm (2.04 mm) - 60 secs, 20 secs

2018 Aug Post PTA

2012	2013	2014	2015	2016	2017	2018.1	2018.8
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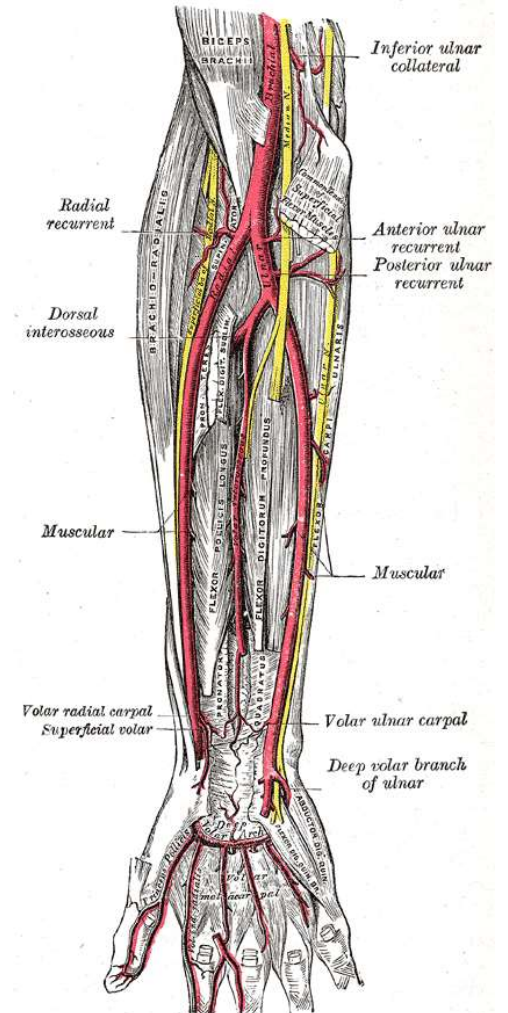


Residual stenosis up to 30% with good flow

Review

- Radial artery

Clinical significance : Arterial access of catheterization
Arteriovenous fistula for Hemydialysis
Candidate of arterial graft for CABG



Review

- Radial artery occlusion



- Usually asymptomatic with rare cases of acute hand or digit ischemia
- **1-10%** of patients undergoing transradial catheterization.
- The primary mechanism: **Arterial thrombosis** triggered by vascular injury from sheath insertion.
- Predictive factor: Size of sheaths or sheathless guides
 - Patient's non-occlusive hemostasis
 - Appropriate anticoagulation

dTRA is brand-new...

- Dr. Avtandil M. Babunashvili (Moscow, Russia) : about 3000 cases of dTRA, but not published
- First technical report : Dr. Ferdinand Kiemeneij, 70 cases of dTRA

EuroIntervention 2017;13:851-857

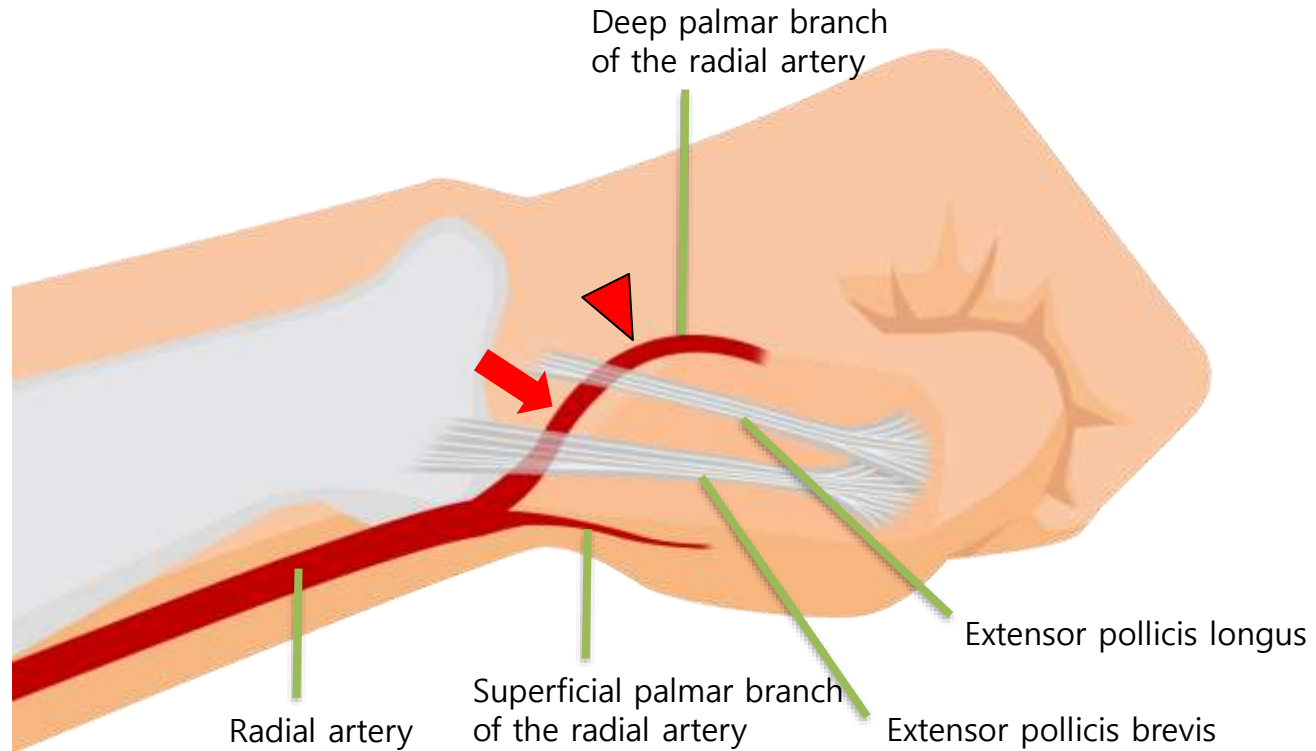


Ferdinand Kiemeneij*, MD, PhD

Department of Cardiology, Tergooi Blaricum, Blaricum, the Netherlands

A screenshot of the EuroIntervention journal website. The page features the journal's logo, "Official Journal of EuroPCR and the European Association of Percutaneous Cardiovascular Interventions (EAPCI)", and an impact factor of 5.165. A navigation menu includes "CURRENT ISSUE", "ISSUES", "TEXTBOOKS", "SUBMISSION", "SERVICES", and "ABOUT". A search bar is present. The main content area highlights a "JUST ACCEPTED ARTICLE" titled "Left distal transradial access in the anatomical snuffbox for coronary angiography (ldTRA) and interventions (ldTRI)", published on 16 May 2017. There is a comment icon and a print article icon at the bottom of the article preview.

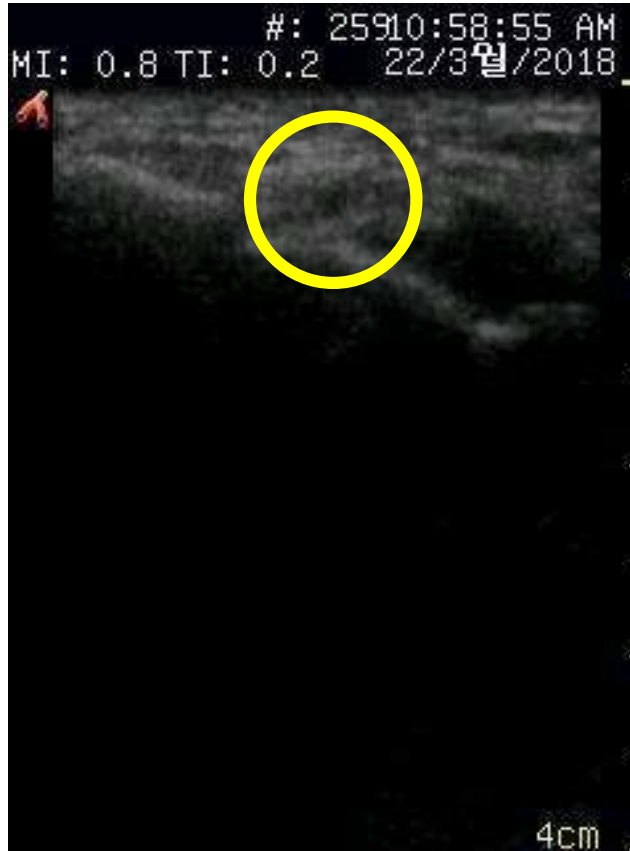
How to puncture ?



Courtesy of Jae-Hyung Roh, MD, PhD and Jae-Hwan Lee, MD, PhD

Sono guided bailed out process increases success rate.

Sono guided snuffbox puncture (bailed out process)



Articles of feasibility have published **in this year**

About 90% without sono

95% with sono

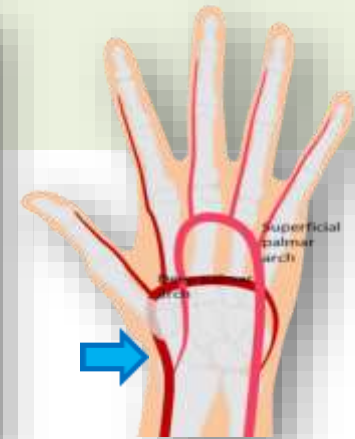
Study	Location	Patients	Success rate (puncture)	Success rate (annulation)
Kiemeneij (2017 Eurointervention)	Netherlands	70		89%
Soydan et al. (2018 Anatol J Cardiol)	Turkey			90%
Valsecchi et al. (2018 J Invasive Cardiol)				90%
(2018 Chonnam National University Hospital)	Korea	49	89.8%	81.8%
Yonsei University Wonju Hospital (2018 Eurointervention)	Korea	200	95.5%	95.5%
Chunbuk National University Hospital	Korea	210 (sono guided)	100%	95%

All published in 2018.

EuroIntervention 2017;13:851-857
 Anatol J Cardiol 2018; 19: 243-8
 J Invasive Cardiol. 2018 Jun;30(6):218-223
 Korean Circ J. 2018 Dec;48(12):e118
 EuroIntervention 2018;14:e995-e1003

Review

- Distal radial access (snuffbox puncture)



Numerous advantages over conventional radial access

- 1) blood supply to the hand would maintain via the superficial palmar arch.
- 2) hard structures (e.g., carpal bones) and the small diameter of the distal radial artery in the snuff box make hemostasis easy
- 3) no need for compression around the wrist for hemostasis
- 4) operator could easily move to the conventional radial approach despite snuff box approach fail
- 5) can save radial artery for CABG graft or AV fistula
- 6) can evaluate the radial artery via distal transradial access.
the narrowed radial artery may be treated via dTRA.

Conclusion

1. Previous Coronary angiography or intervention via Conventional radial artery access could cause radial artery occlusion or stenosis
2. Compared to Radial artery access, distal radial artery access has numerous advantages including Percutaneous angioplasty at the previous CAG puncture site.



Thank you for your attention.