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A Case of Spontaneous Coronary Artery Dissection Treated by Optical Coherence Tomography Guidance

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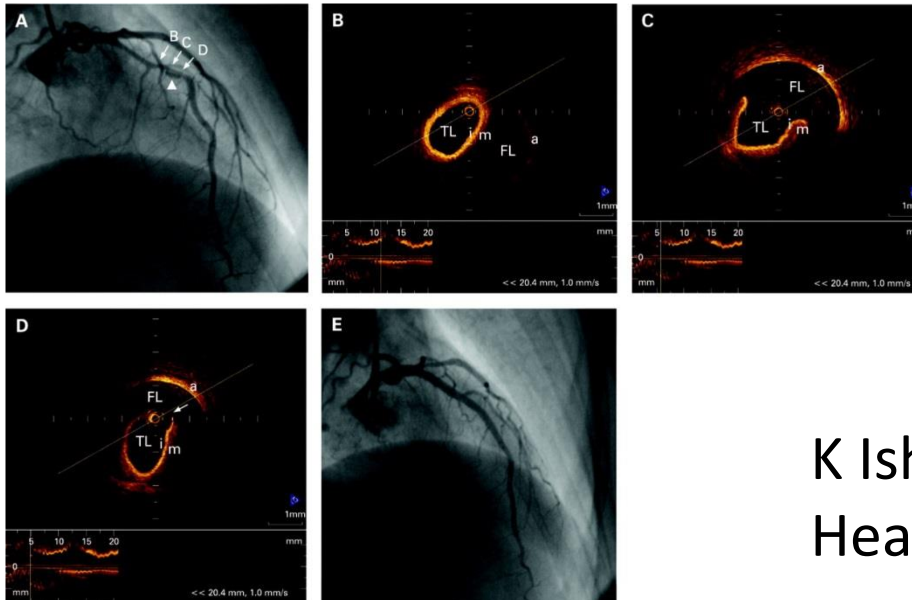
Spontaneous Coronary Artery Dissection (SCAD)

- ✓A rare, but fatal cause of ACS
- ✓Often underdiagnoesd
- ✓Usefulness of <u>intracoronary imaging</u>

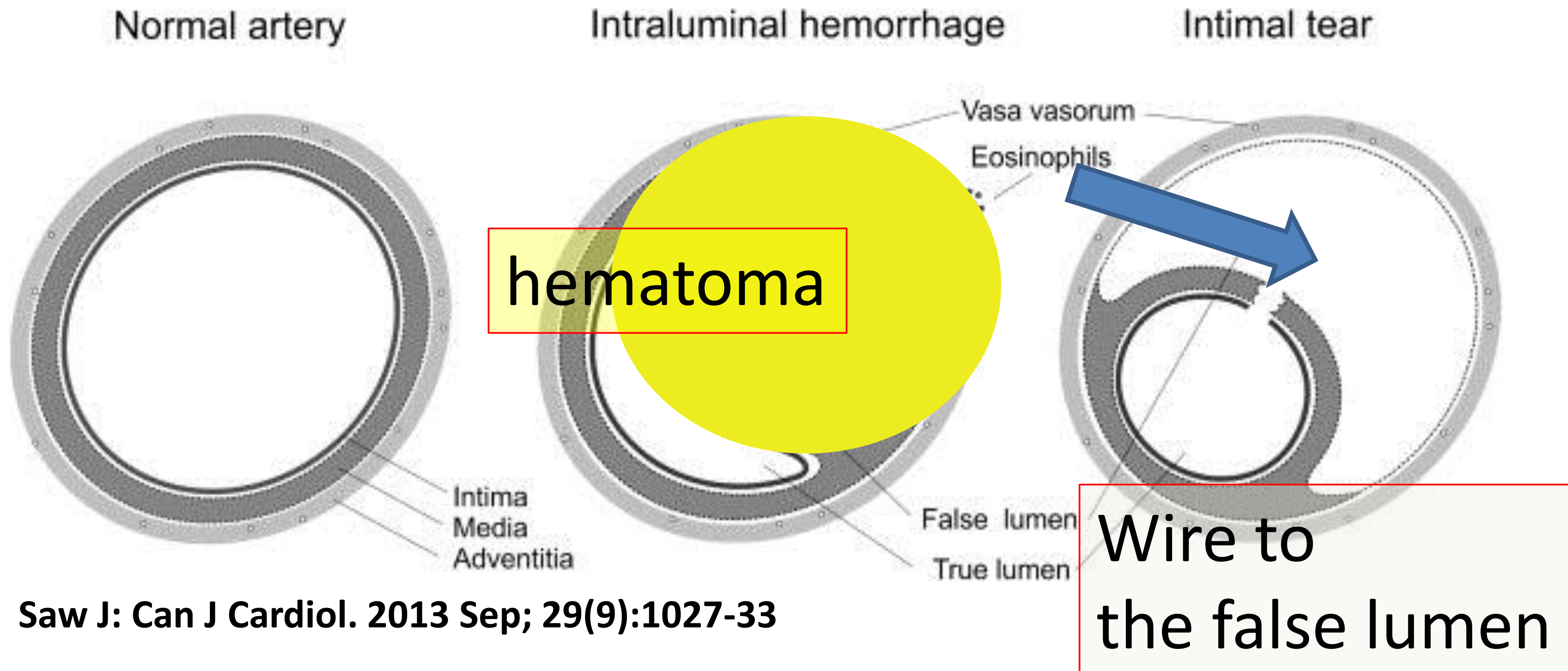


K Ishibashi, H Kitabata, T Akasaka
Heart 2009;95:818

PCI to SCAD

✓ **Procedural failure rate 35[1] - 53%[2] !**

1) Marysia S, et al: Circulation. 2012; 126(5): 579-588
2) Tweet MS, et al: Circ Cardiovasc Interv. 2014 Nov 18



Saw J: Can J Cardiol. 2013 Sep; 29(9):1027-33

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CC: chest pain

Present illness:

- Rest chest pain from 1 month ago.
- Severe chest pain was continued during 1 hour.
- ECG showed negative T wave in leads Ⅲ, and aVF.
- She was transferred to our hospital.

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Case: 44-year-old female

Coronary risk factor:

smoking (5 cigarettes/day)

Physical Examination:

PR: 72/min, BP:150/84mmHg

Heart sound: S1→ S2→ S3(-) S4(-)

no murmur

Breathe: clear, no crackles

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ECG

I

V1

II

V2

III

V3

aVR

V4

aVL

V5

aVF

V6

Laboratory data

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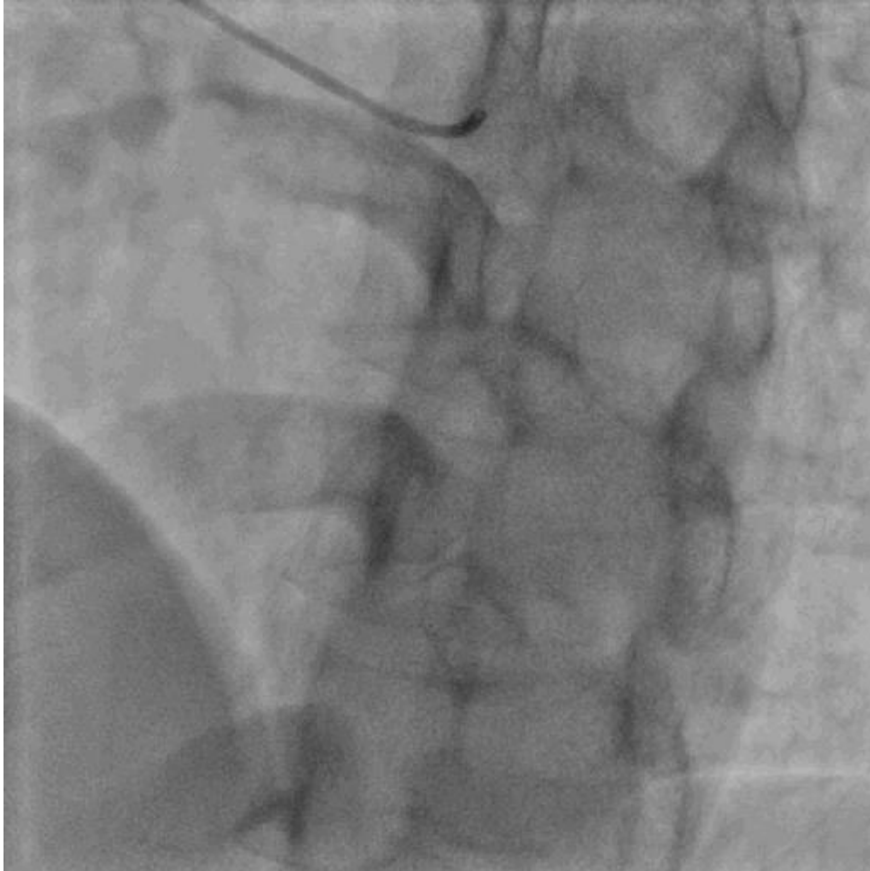
CBC

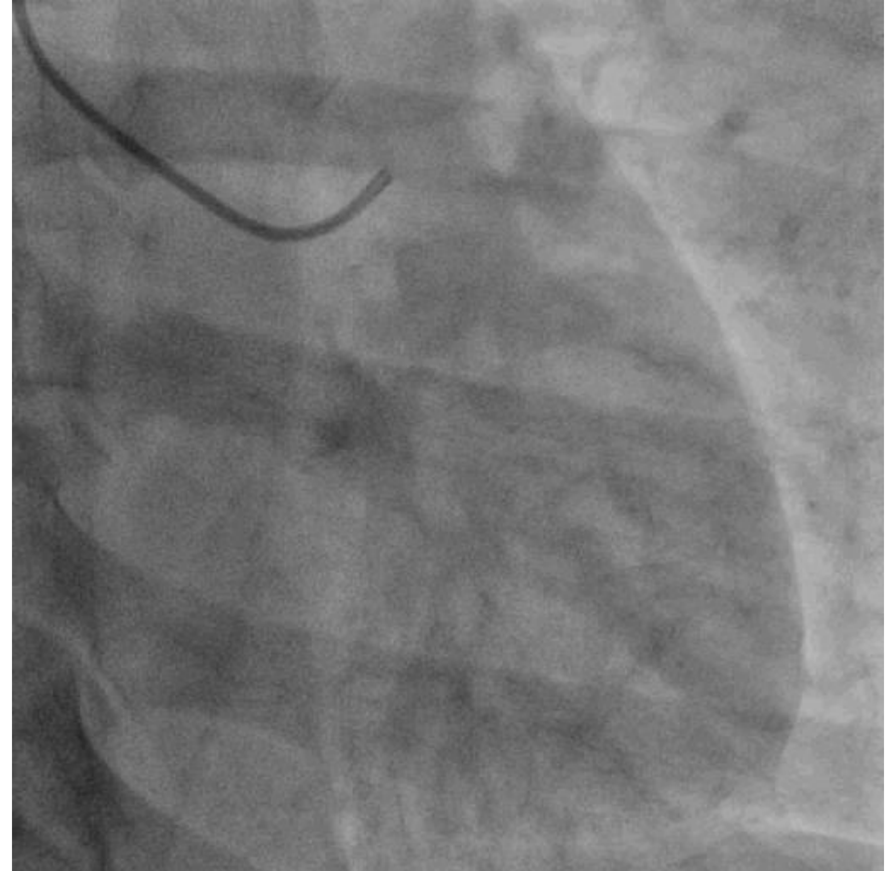
WBC	6030	/μL
RBC	464 $\times 10^4$	/μL
Hb	14.1	g/dL
Ht	41.4	%
Plt	27.4 $\times 10^4$	/μL

Chemisties

CK	74	IU/L
CK-MB	11	IU/L
AST	17	IU/L
ALT	11	IU/L
LDH	241	IU/L
Troponin I	0.45	ng/mL
CRP	<0.02	mg/dL
HDL	**61**	mg/dL
LDL	**107**	mg/dL
TG	**64**	mg/dL
HbA1c	**5.0**	%

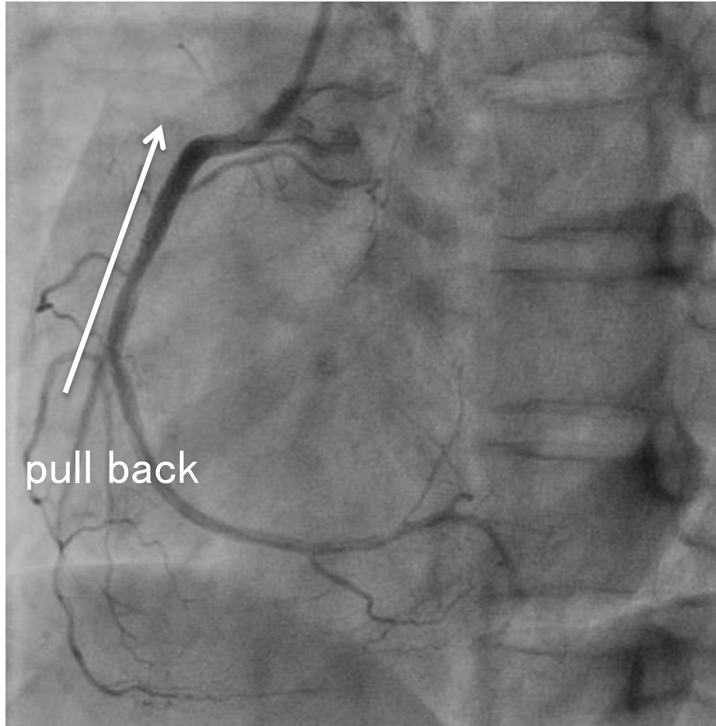
CAG（LCA）





CAG（RCA）

1st OCT



The guidewire was running through the false lumen

1 mm

OCT and IVUS images

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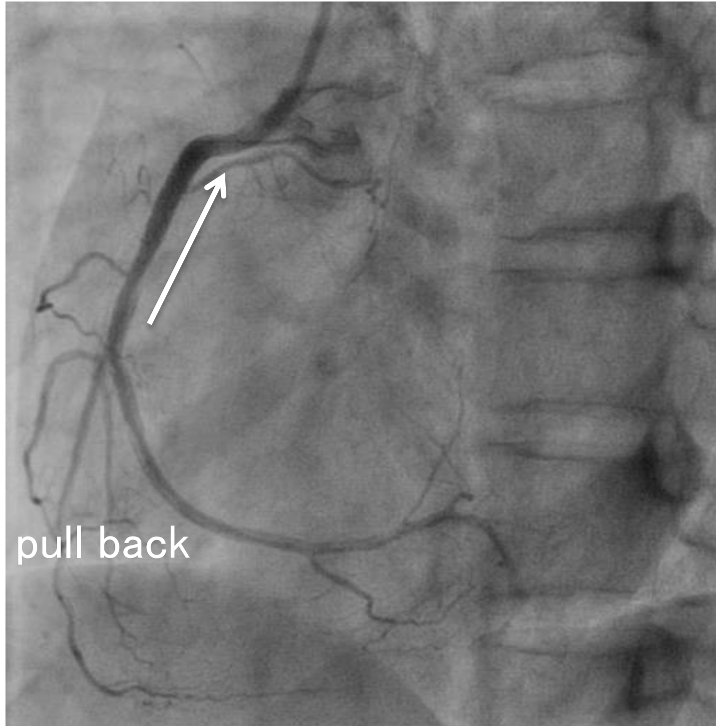
A B C

A B C

1 mm 1 mm 1 mm

2nd OCT (Wire recross)



The 2nd guidewire was running through the true lumen

PCI（Stent implantation）

Guiding catheter:

6Fr Profit JR4.0

Guide wire:

1st Rinato

2nd Runthrough NS

Stent (BMS):

KAGURA(BMS)

3.0×23mm

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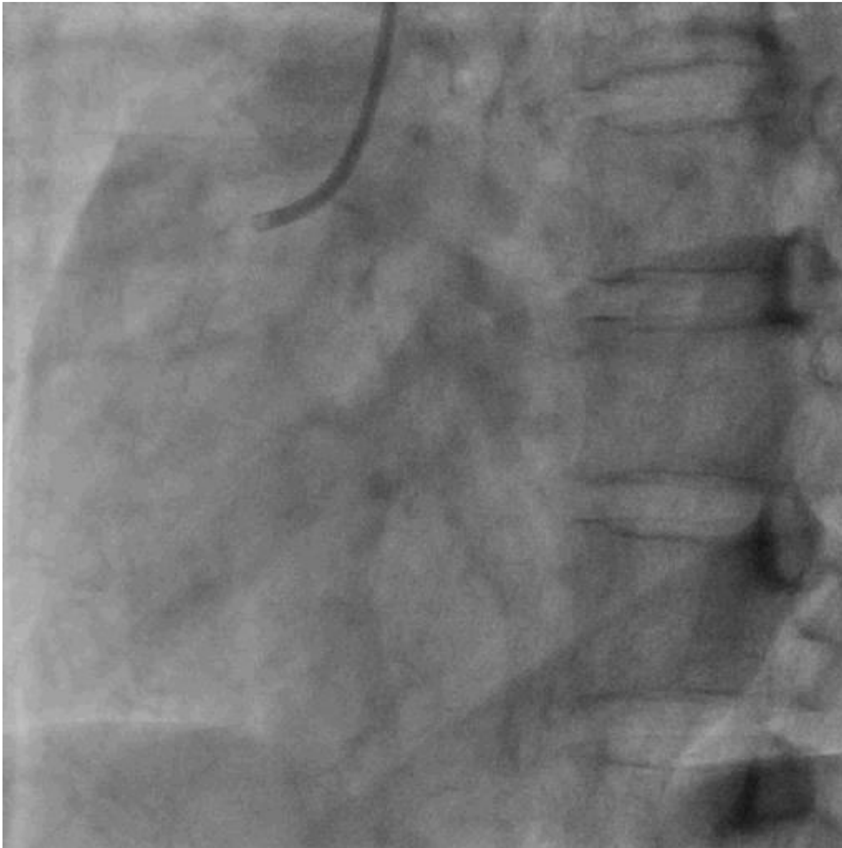
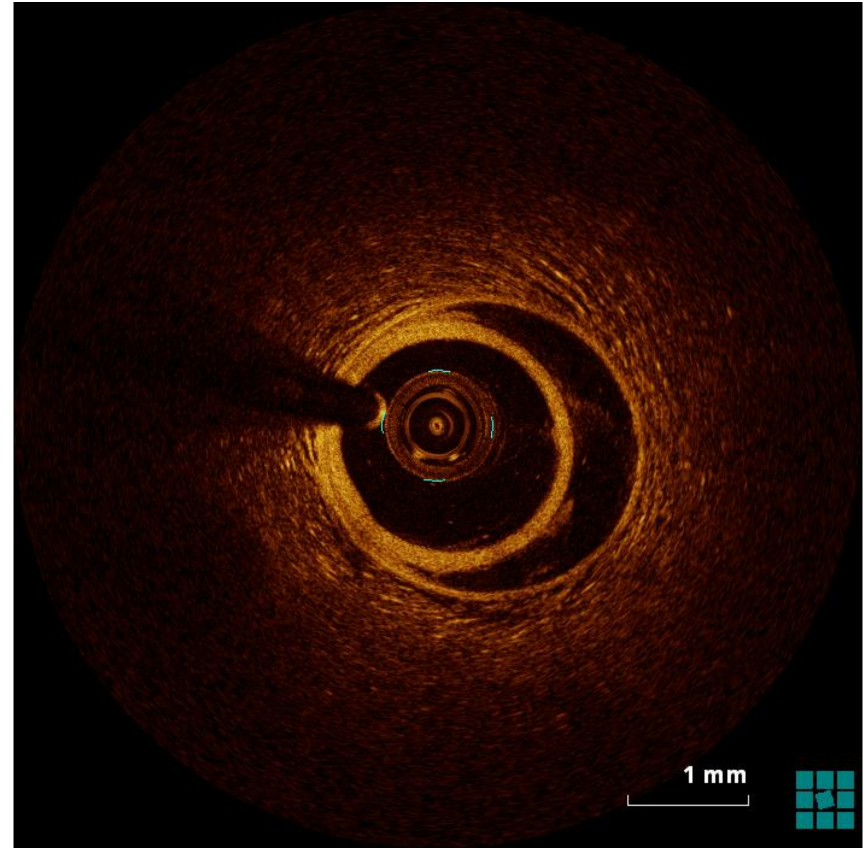
CAG & OCT (post PCI)





Dissection was remained at the distal portion of RCA

The entry of dissection was closed by the stent

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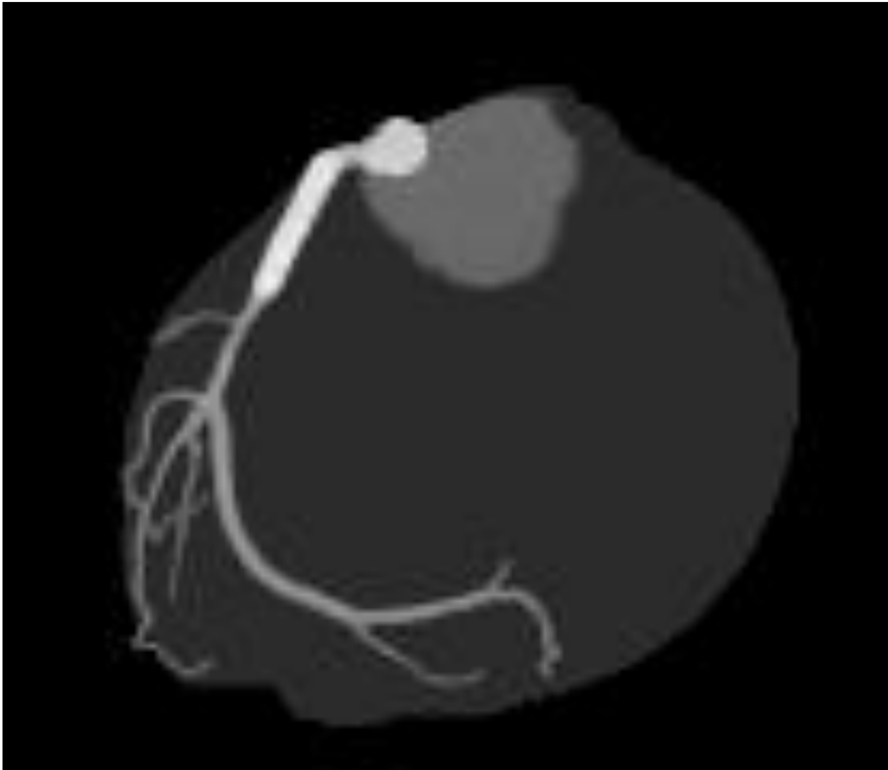
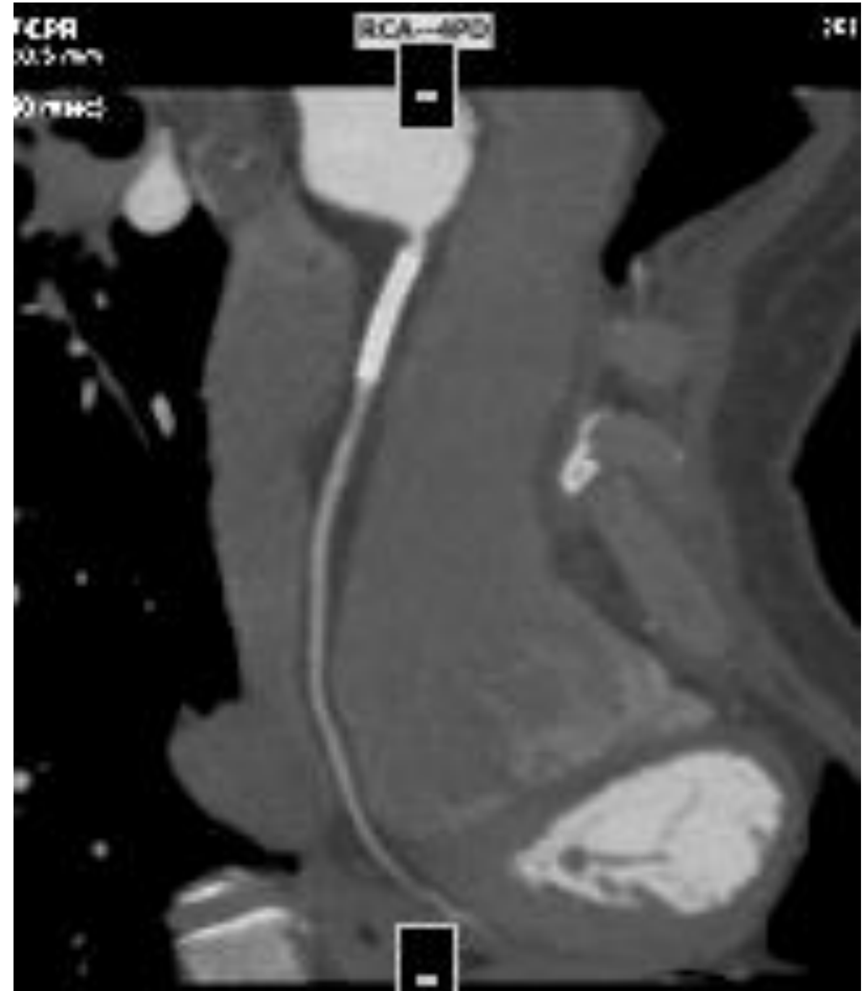
CT angiography (7 days later)





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CAG & OFDI (Case 2)

f/u CAG & OFDI (3weeks later)

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b
c
a
d
e

a

Pullback Speed: 20mm/sec
Pullback Length: 39.7mm

Gain: 10
Contrast: 7
Gamma: 1
Depth: 4.5
Flush Media: Contrast (100%)

b

c

Pullback Speed: 20mm/sec
Pullback Length: 129.8mm

d

Pullback Speed: 20mm/sec
Pullback Length: 129.8mm

e

Pullback Speed: 20mm/sec
Pullback Length: 129.8mm

Unstable angina
Non-ST elevation MI
ST elevation MI
Sudden death & Successful CPR

- Young patient
- Low coronary risk profile
- Female sex
- Post-partum

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Coronary angiography

- Severe CAD
- SCAD
  - Asymptomatic → Medication → Cardiac CT angiography
    - Resolution → Conservative treatment
    - Persistent → IVUS or OCT imaging → PCI
  - Ongoing myocardial ischaemia → IVUS or OCT imaging → PCI
  - Left main or multivessel dissection → CABG

Christian JM Vrints :
Heart 2010;96:801–808

Summary

- ✓ We experienced two cases with spontaneous coronary artery dissection (SCAD) .
- ✓ OCT could detect the entry and re-entry portion of SCAD clearly.
- ✓ In these cases, each stents were deployed to close the entry of SCAD, and good recanalization was achieved.
- ✓ OCT was useful to diagnose SCAD and determine the strategy of PCI.