



Spiral Dissection of RCA in Procedure of PCI

Side branch guided to find out the true lumen

Tangshan Gongren Hospital

唐山工人医院

Hebei Medical University

Zheng Ji, MD



History

- Male, 60y
- Chief complain: paroxysmal chest distress for 1 month
- Admitted time: 2010-5-13, 11: 00
- Risk factors: uncontrolled hypertension, smoking history 40 years, 20 cigarette/day.



Examination and basic therapy

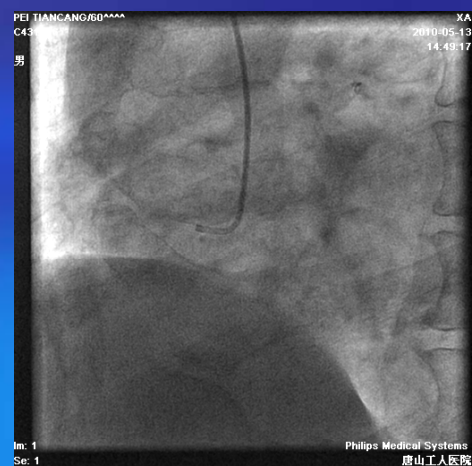
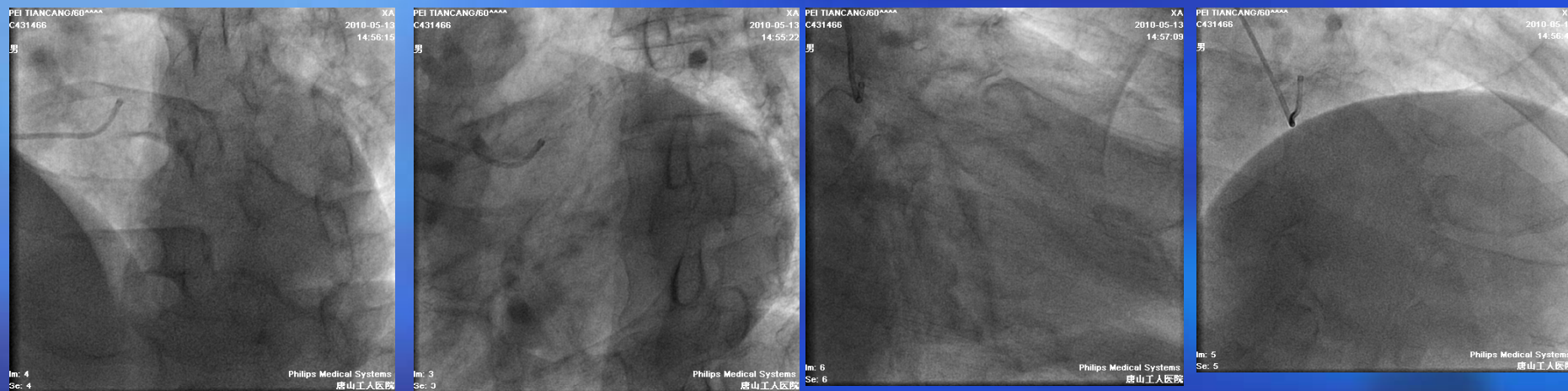
- ECG: Normal
- UCG (2010-5-17) : LA33mm, LV45mm, EF67%。
- Diagnosis: Coronary heart disease, Unstable angina pectoris, Essential hypertension grade 2
- Drug therapy:
 - ASP 0.3QN,
 - Plavix 75mgQD,
 - Rosuvastatin 10mgQN,
 - Amlodipine 2.5mgQD,
 - Isosorbide Dinitrate 10mgTID



Diagnostic coronary angiography

- pRCA 95% eccentric stenosis, mRCA 50-70% stenosis, dRCA 40% stenosis, RCA is a big vessel.
- pLAD 40~50% diffuse and calcified stenosis.
- pLCX 50-60% stenosis but the vessel is small.

Diagnostic coronary angiography



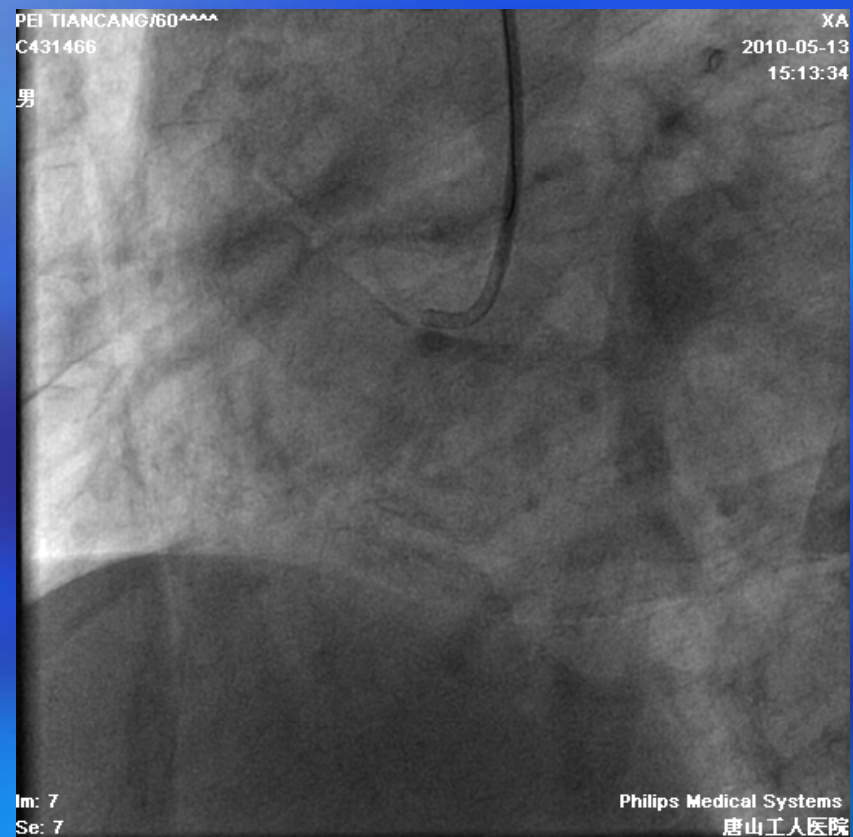


Procedure of PCI

- According the result of CAG, decided to intervene RCA
- Approach: Trans-right Radial Artery
- GC: 6FJR4
- GW: 0.014PILOT50×1、0.014BMW×3;
- Balloon:
 - pre-dilated balloon: RUYJIN2.5x15mm;
 - post-dilated balloon: KONGOU3.5x15mm
- Stent: EXCEL3.5x24mm;
- EXCEL2.5x36mm;
- EXCEL3.0x36mm.

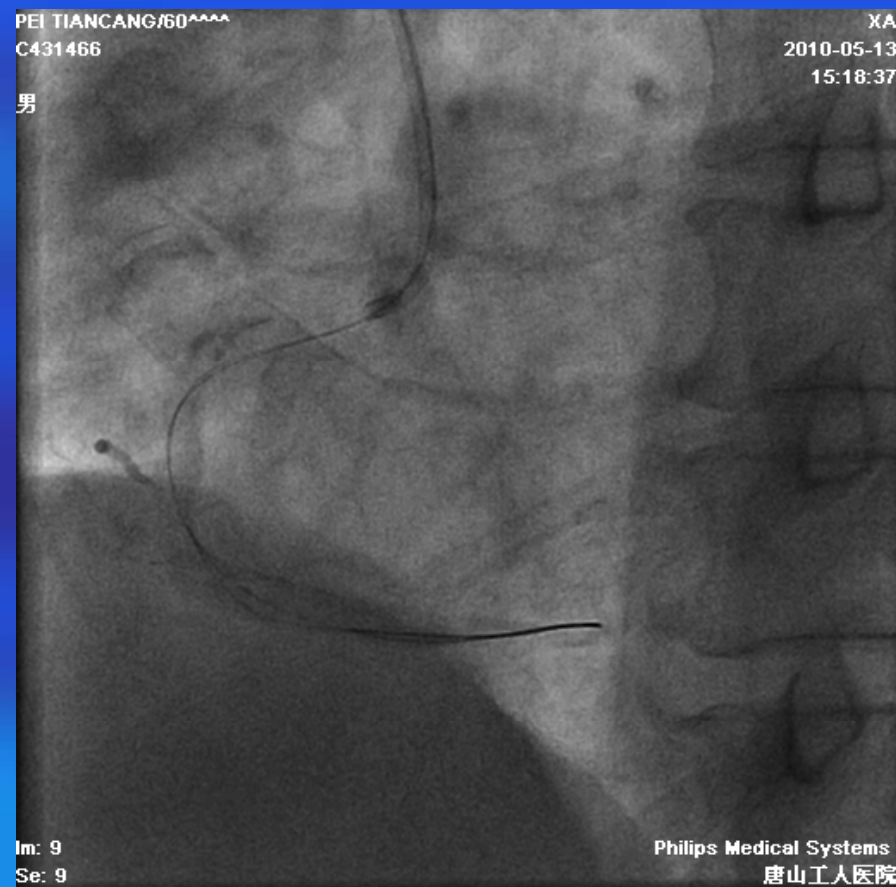
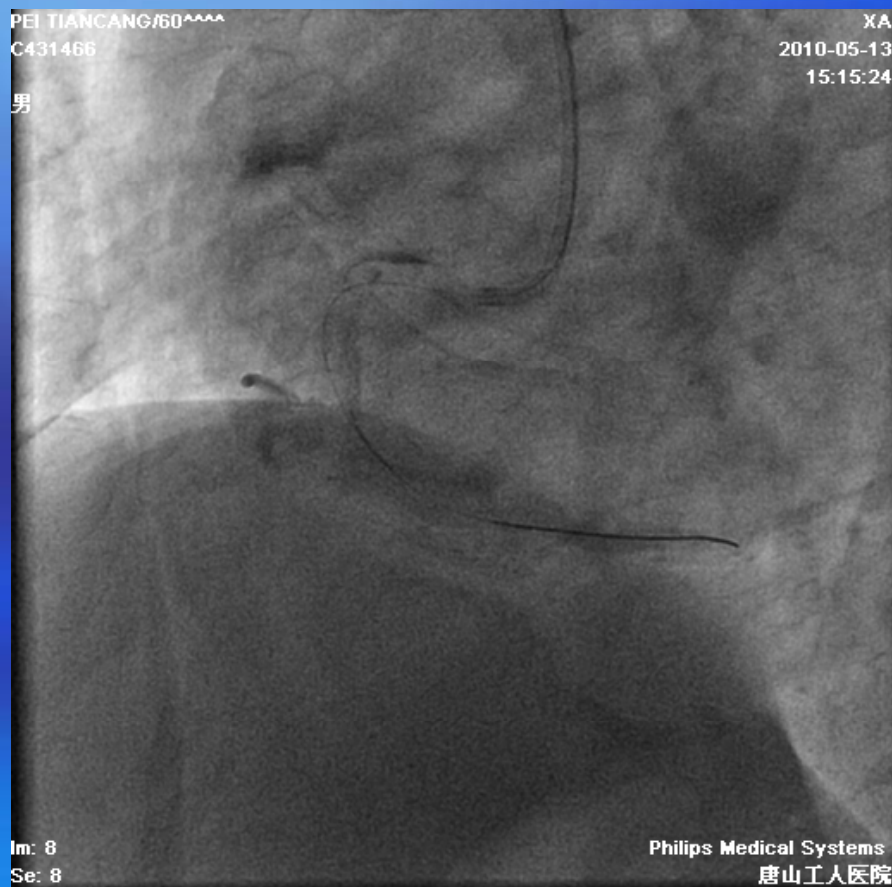


Procedure of PCI

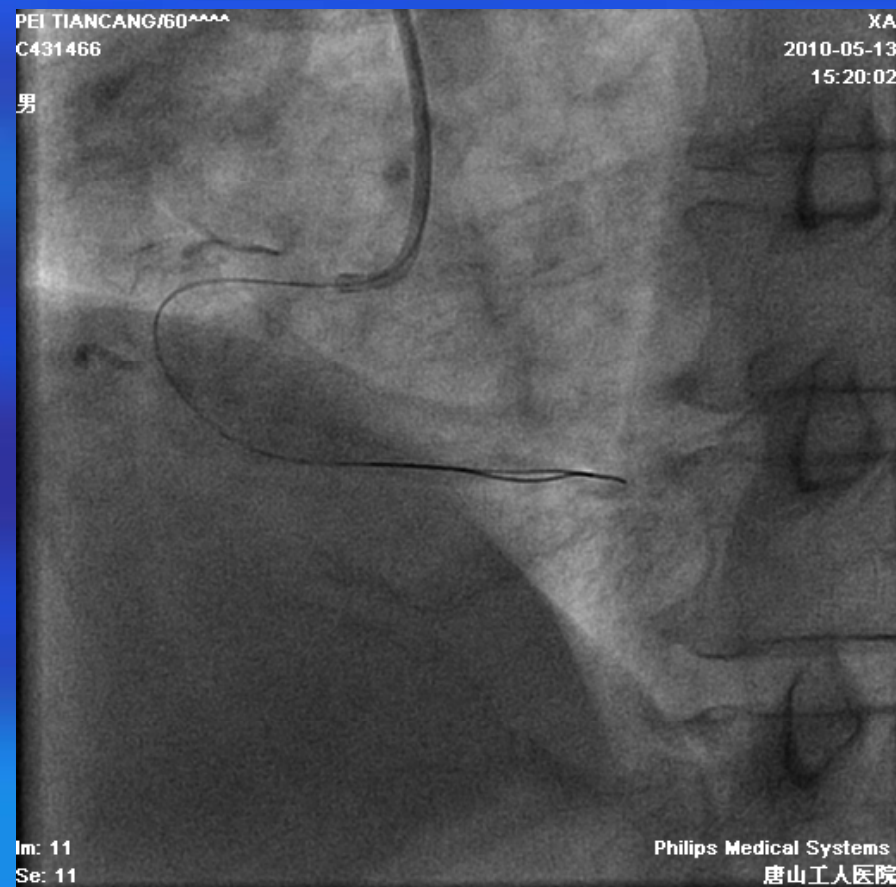
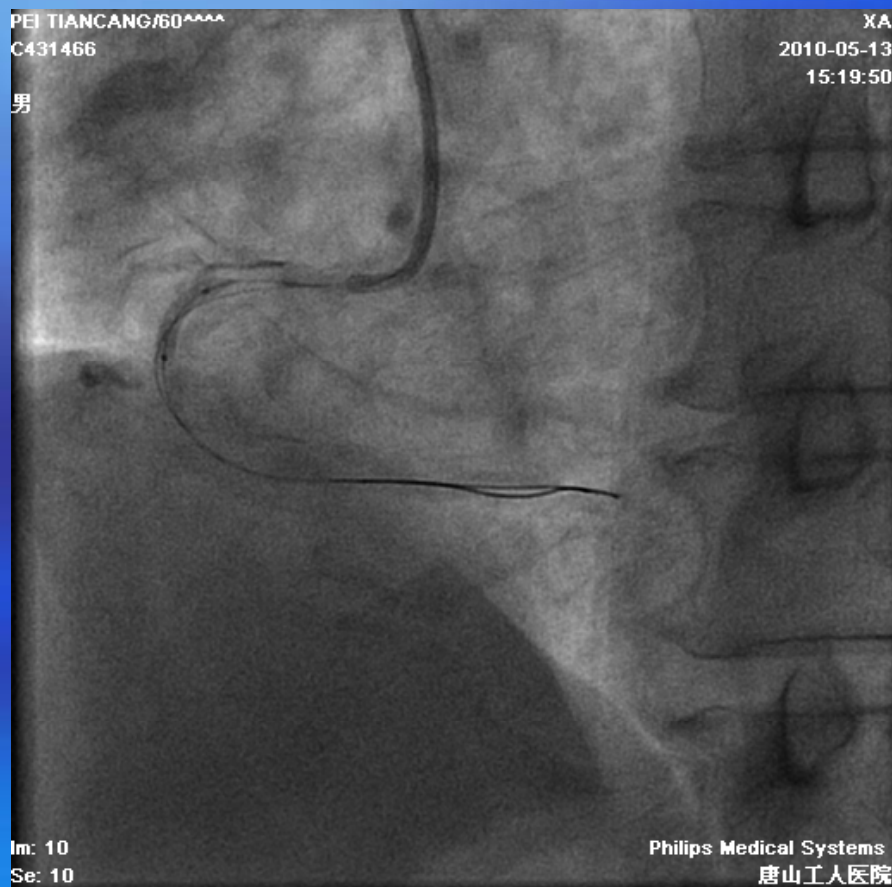




Procedure of PCI



Procedure of PCI





Time is urgent, time is myocardial!!!

The pRCA is totally occluded, AMI occurred.

The two guiding wires are in false lumen, we meet great difficulty to find the true lumen, the patient is in severe dangerous status. The patient began to have angina and chest stuffy.

At the crucial time, what to do? How to do to avoid the disaster?

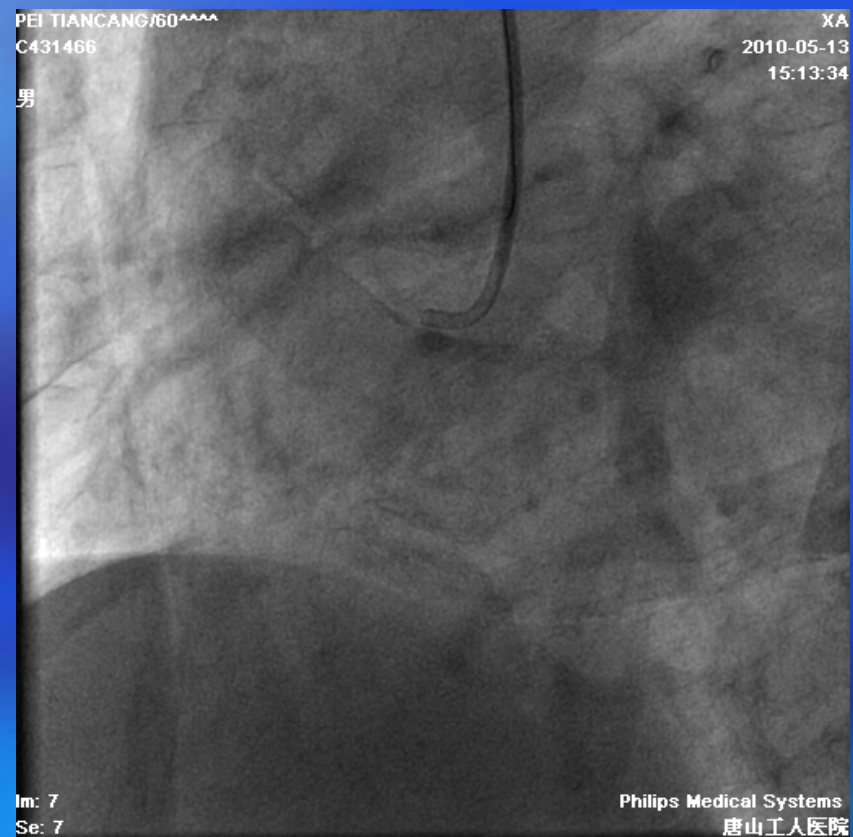
What's the emotion condition of the operator?

Can we find the true lumen quickly?, what's the method? If we cannot, what's the outcome?

Ok, let's study the angiography film carefully, **maybe** we can find a way.



Procedure of PCI



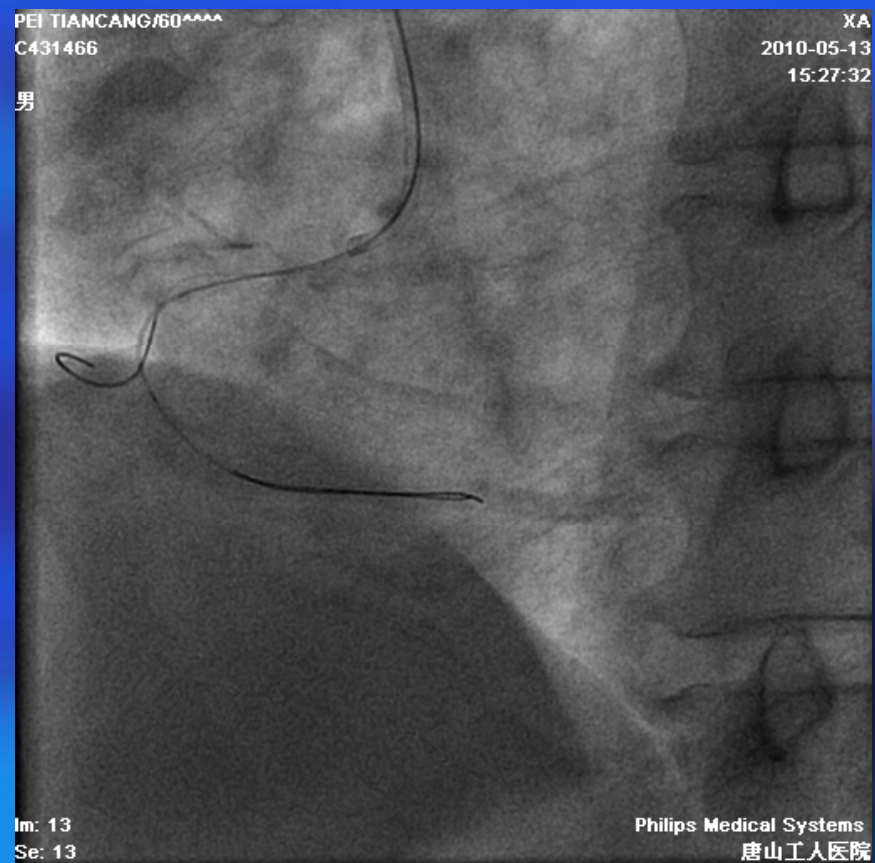
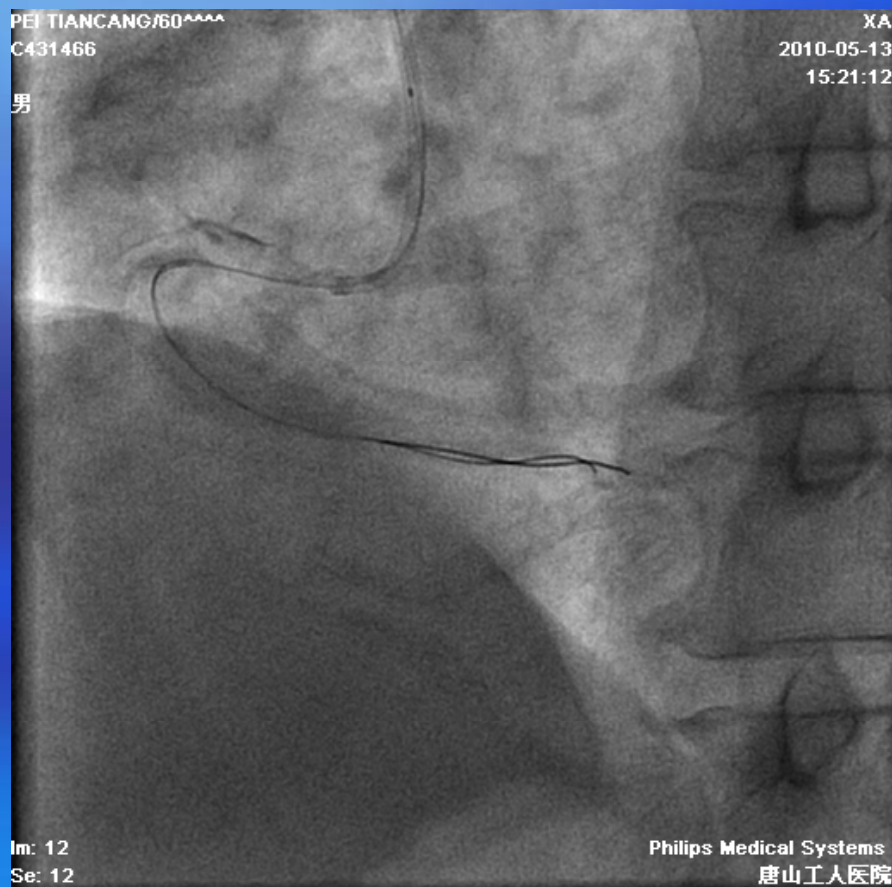


Time is urgent, time is myocardial!!!

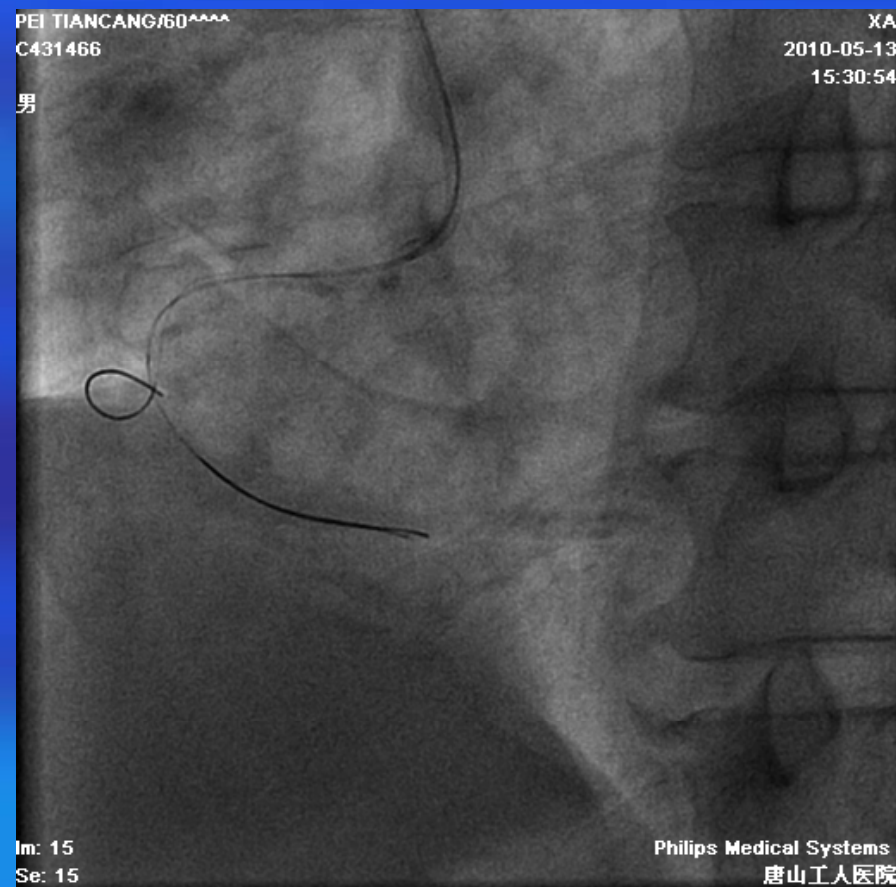
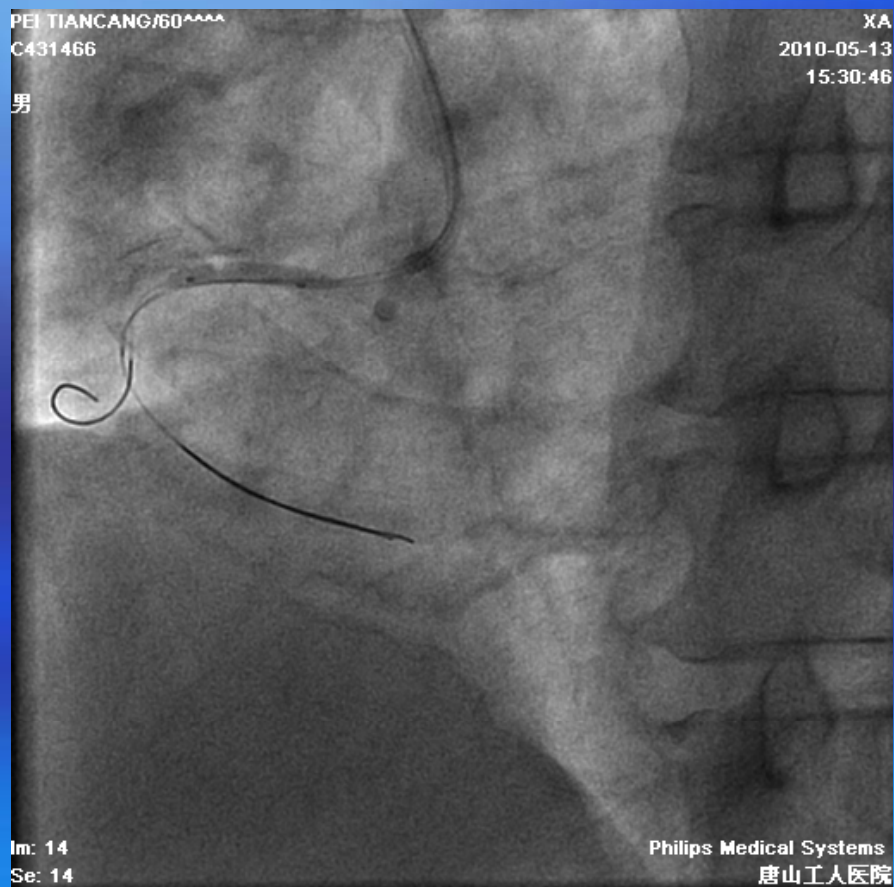
We notice: a right ventricular branch originated from the proximal segment of RCA, if we can wire the third guiding wire into the RV branch, then the segment between the orifice to the RV branch must be the true lumen, then the first stent should be deployed at the pRCA, **then the true lumen maybe appear.** To seal the dissection of proximal segment of RCA is important, the orifice is the very 'god' to save the vessel and the life.

So the BMW wire is selected.

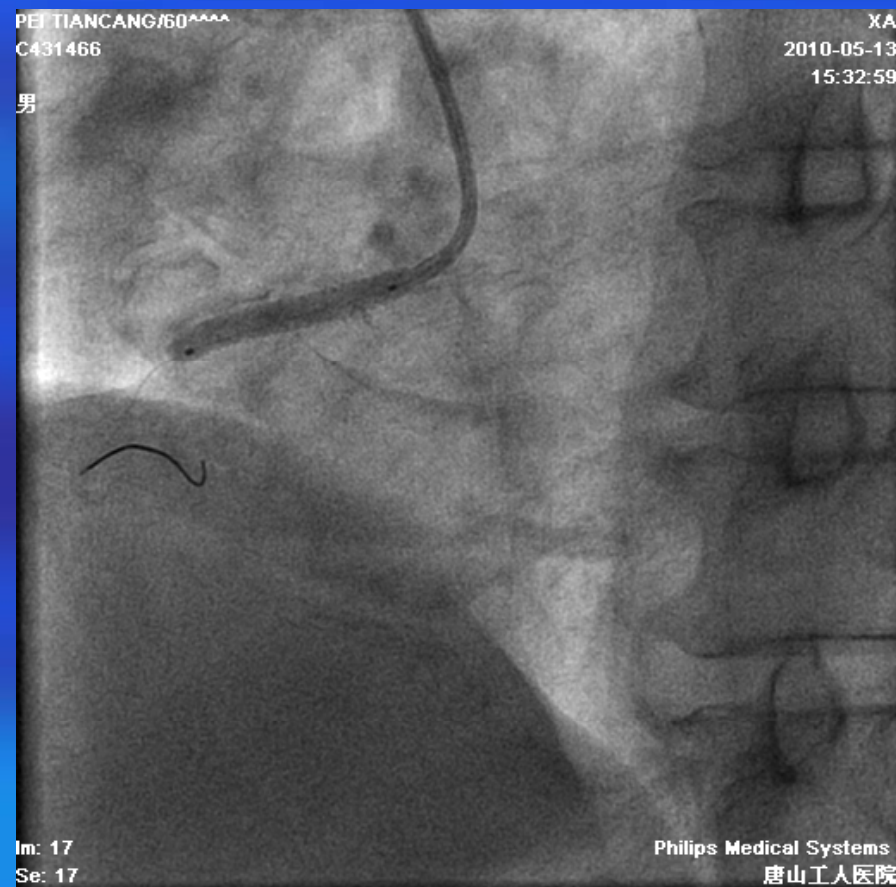
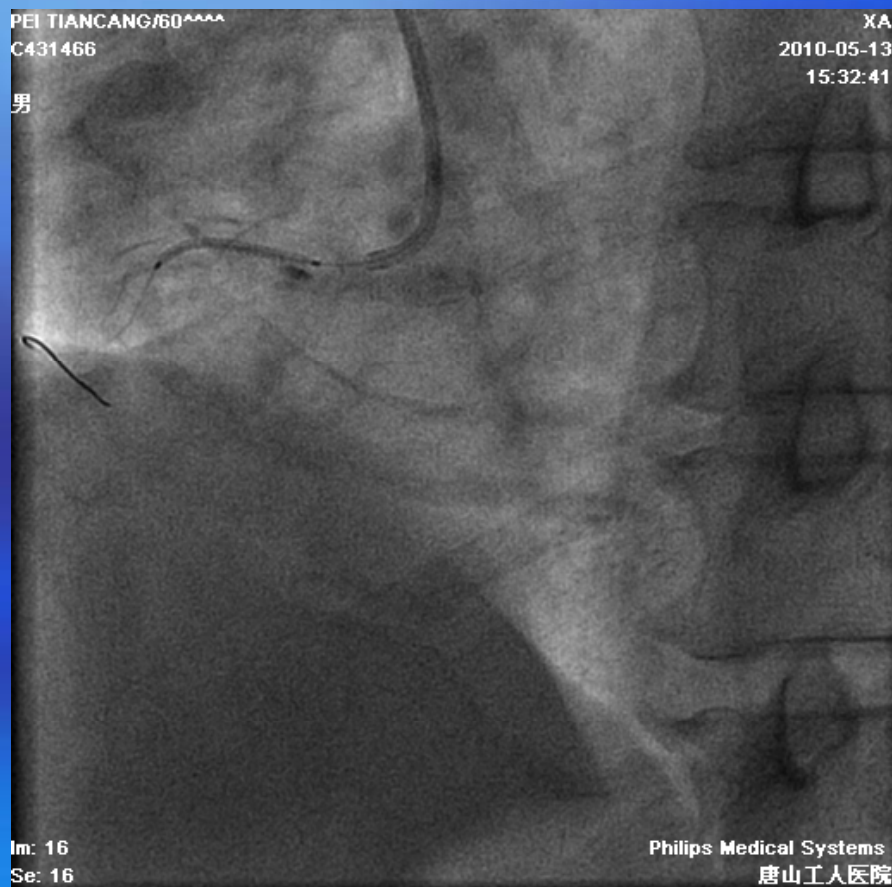
Procedure of PCI



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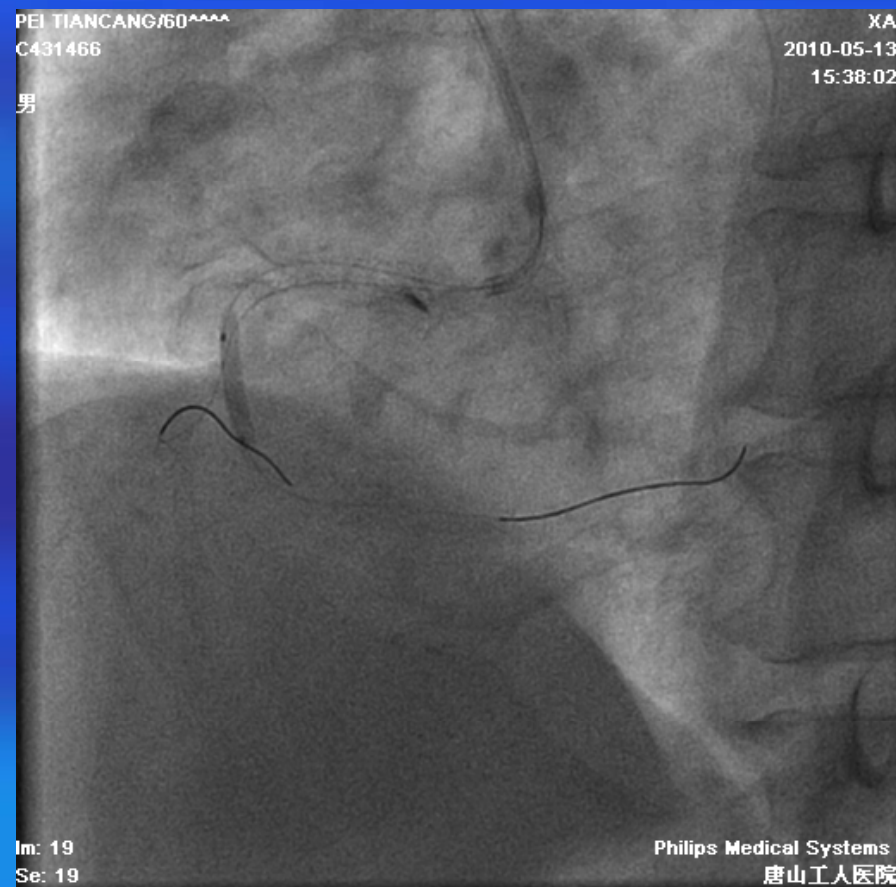
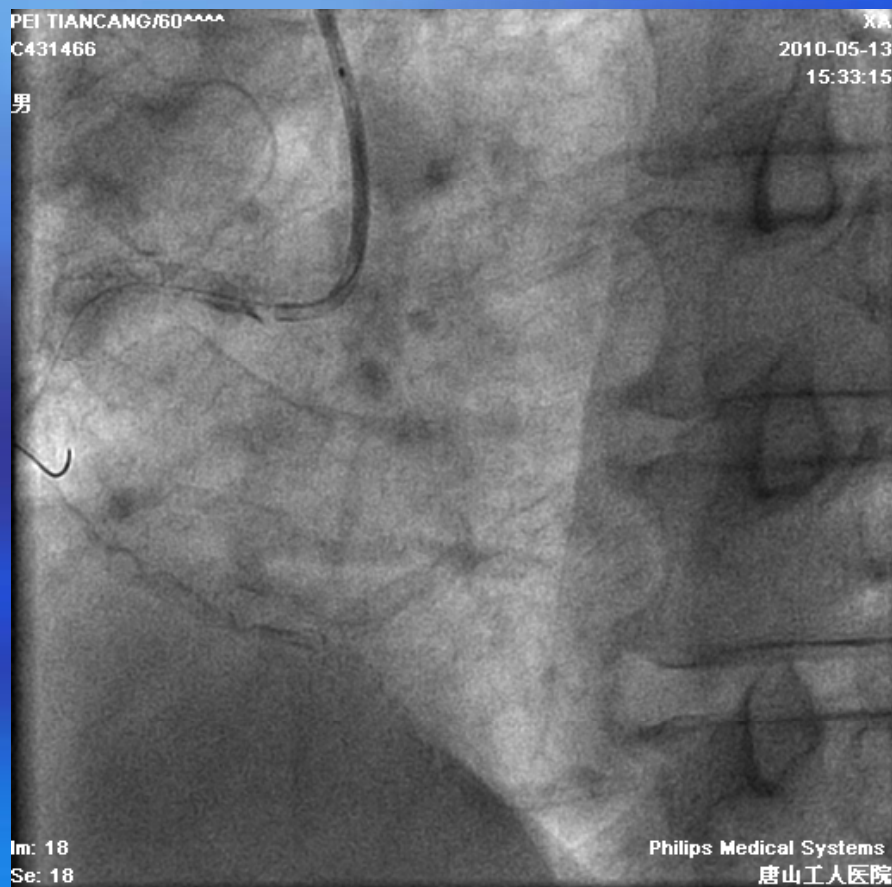
Next step, how to do?

Pull out the first two wires, push the fourth BMW wire into the true lumen. Wire it into mRCA true lumen carefully and softly.

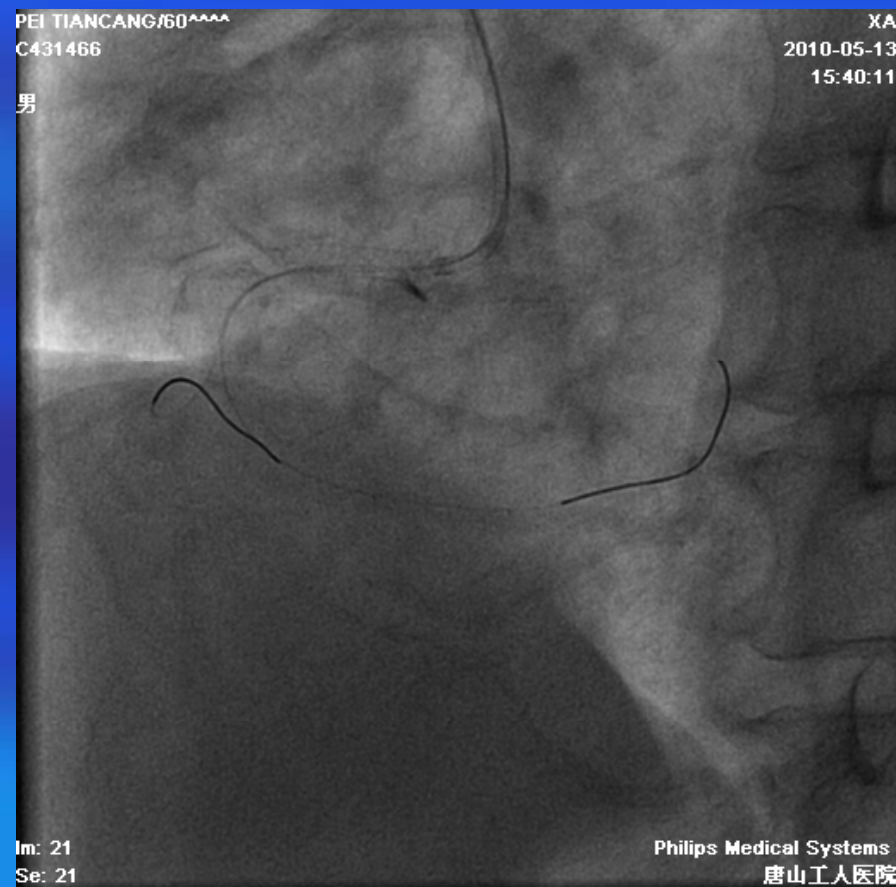
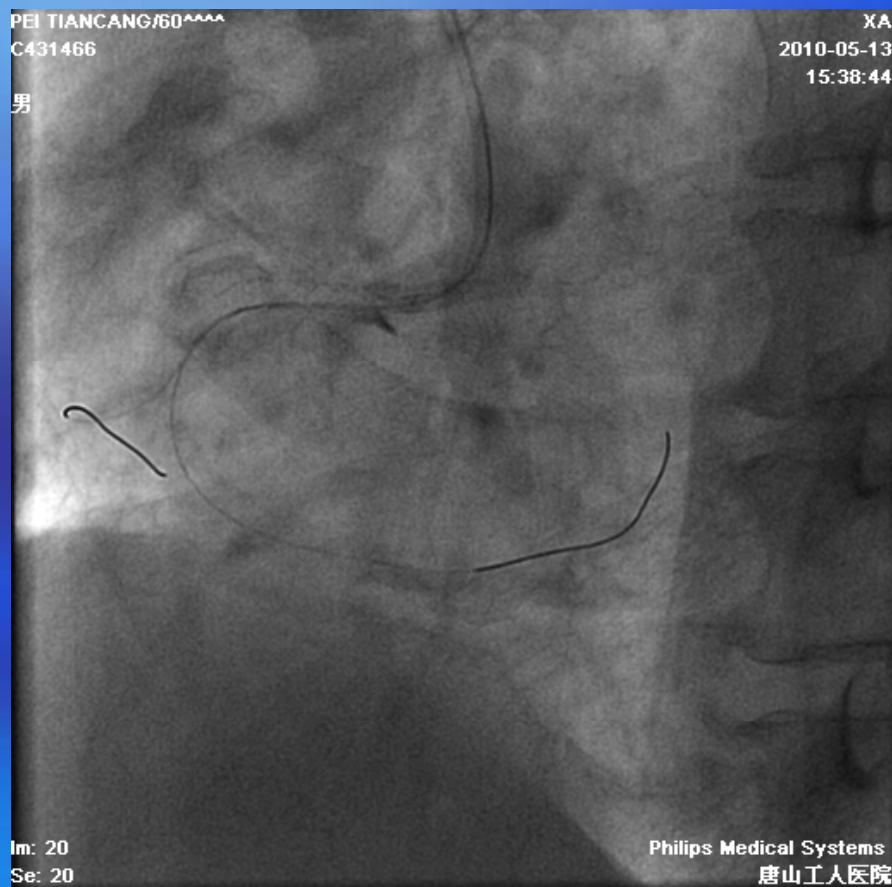
This step is the key to finish the operation successfully.

I have the confidence 90%. Go as quickly as I can.

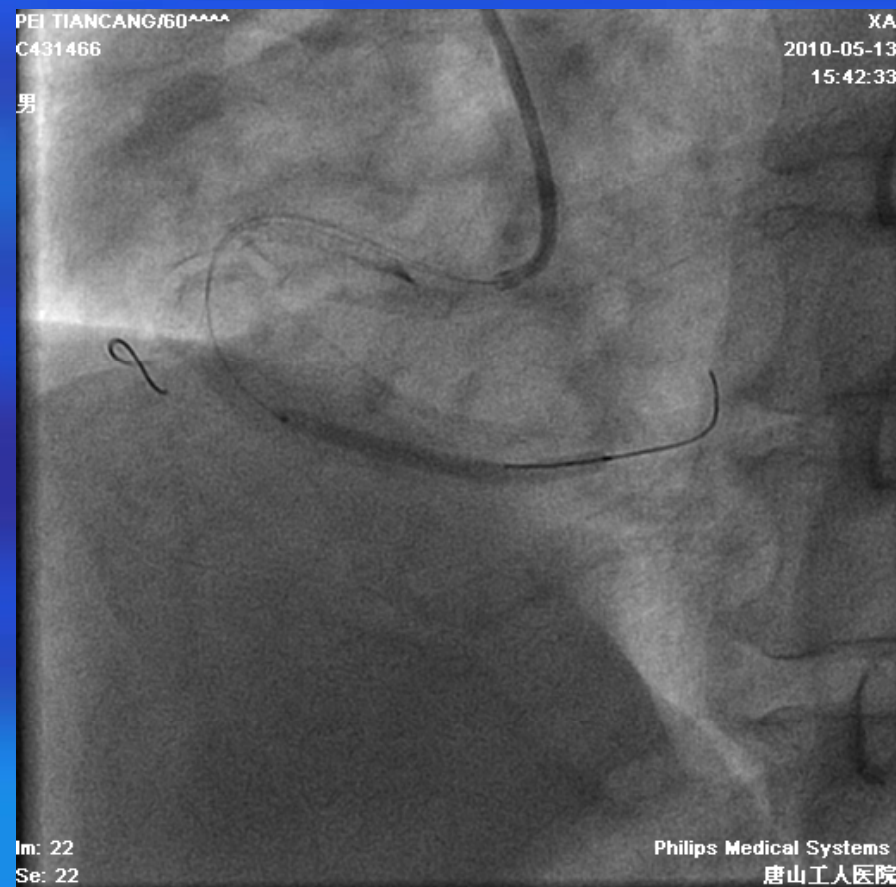
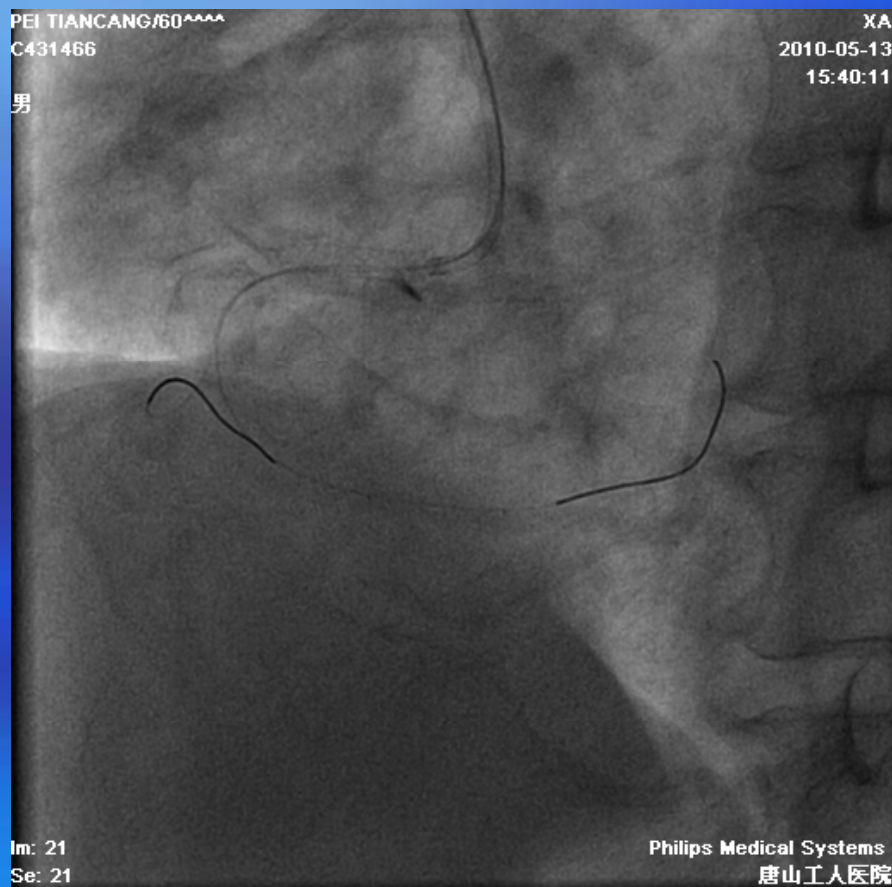
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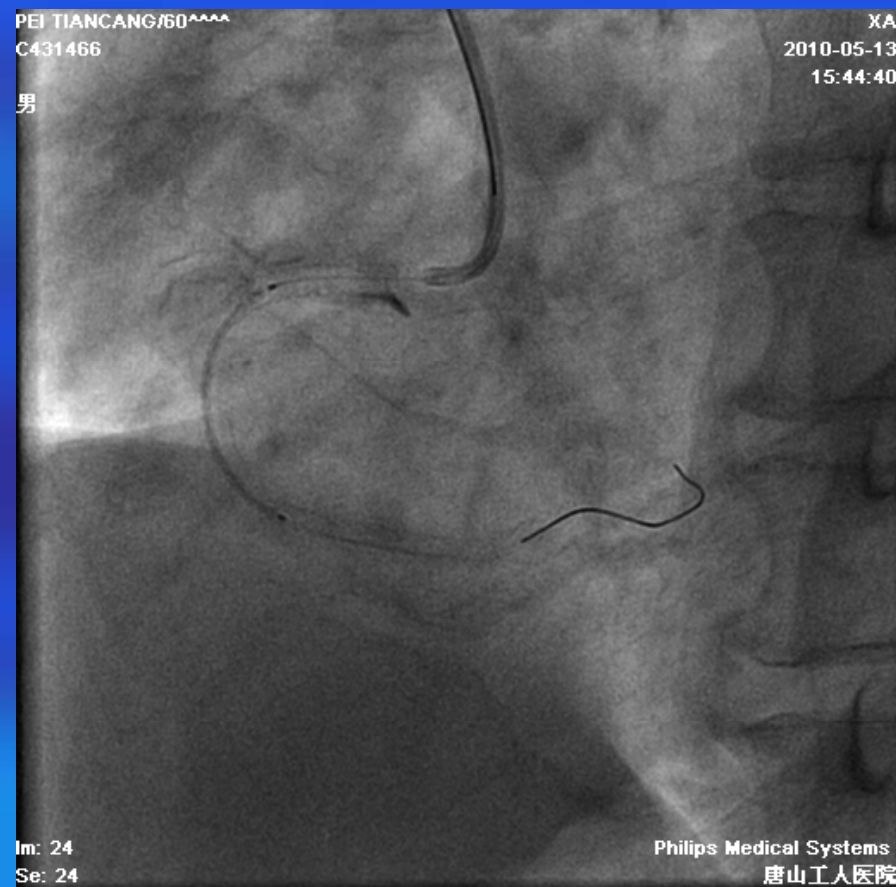
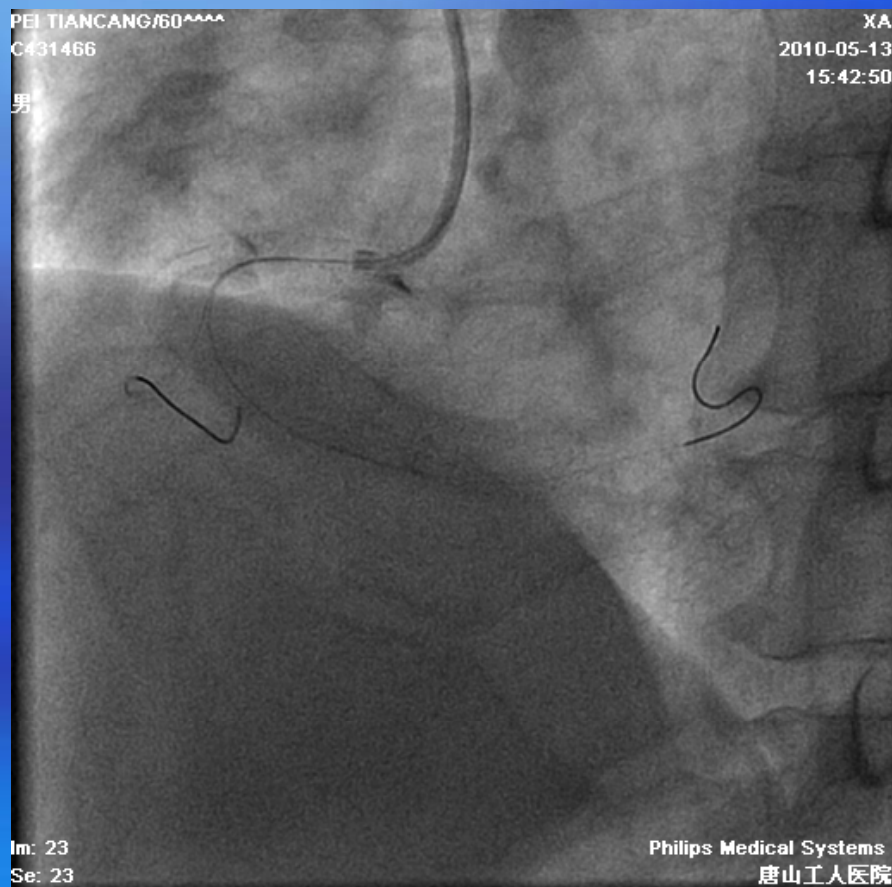


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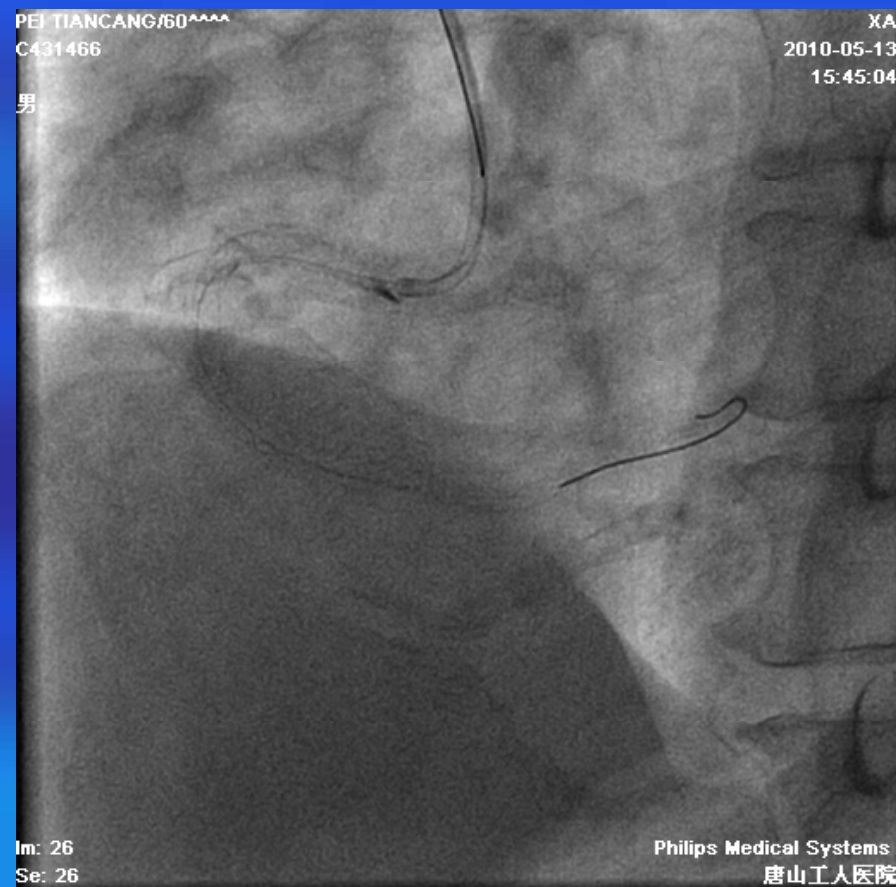
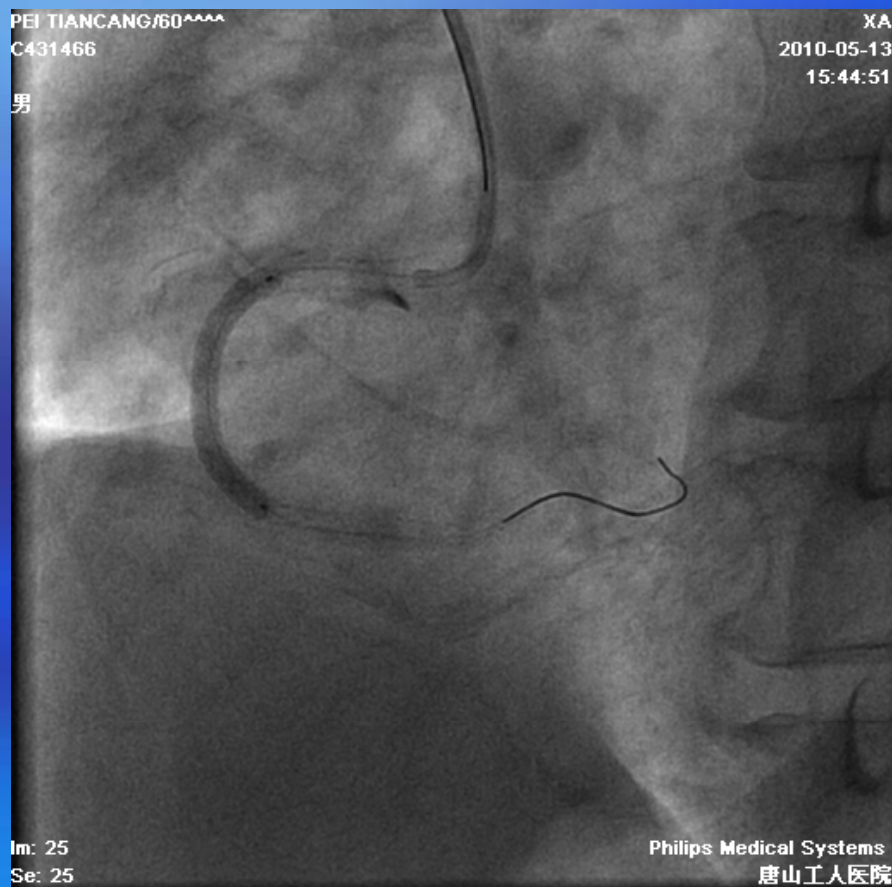


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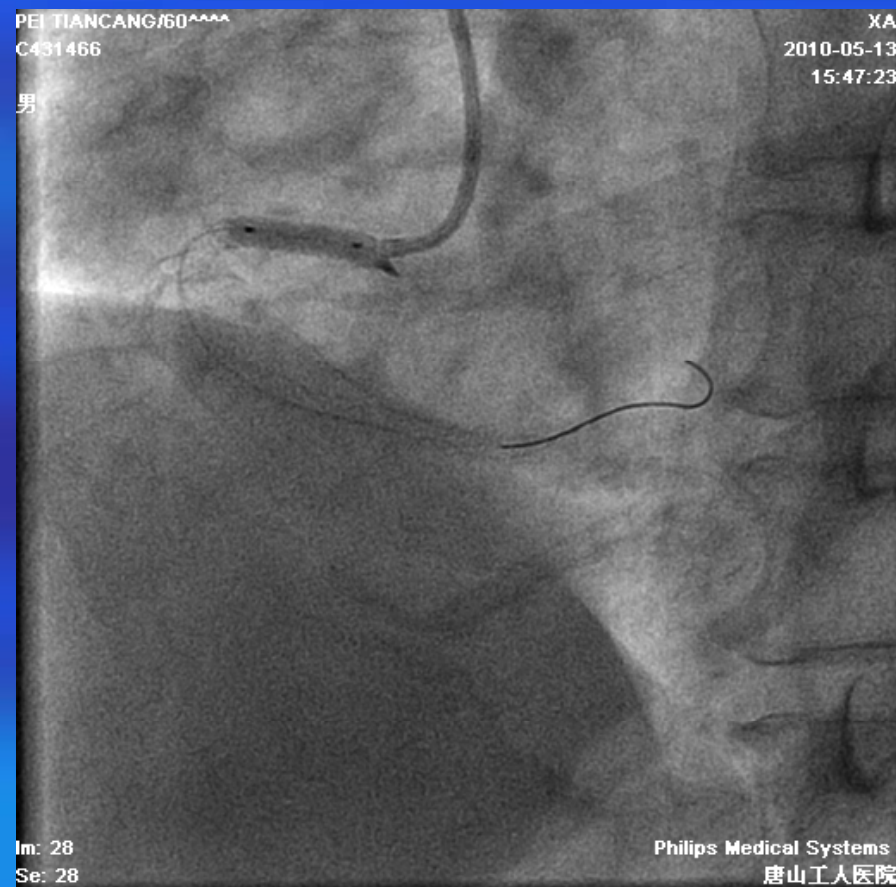
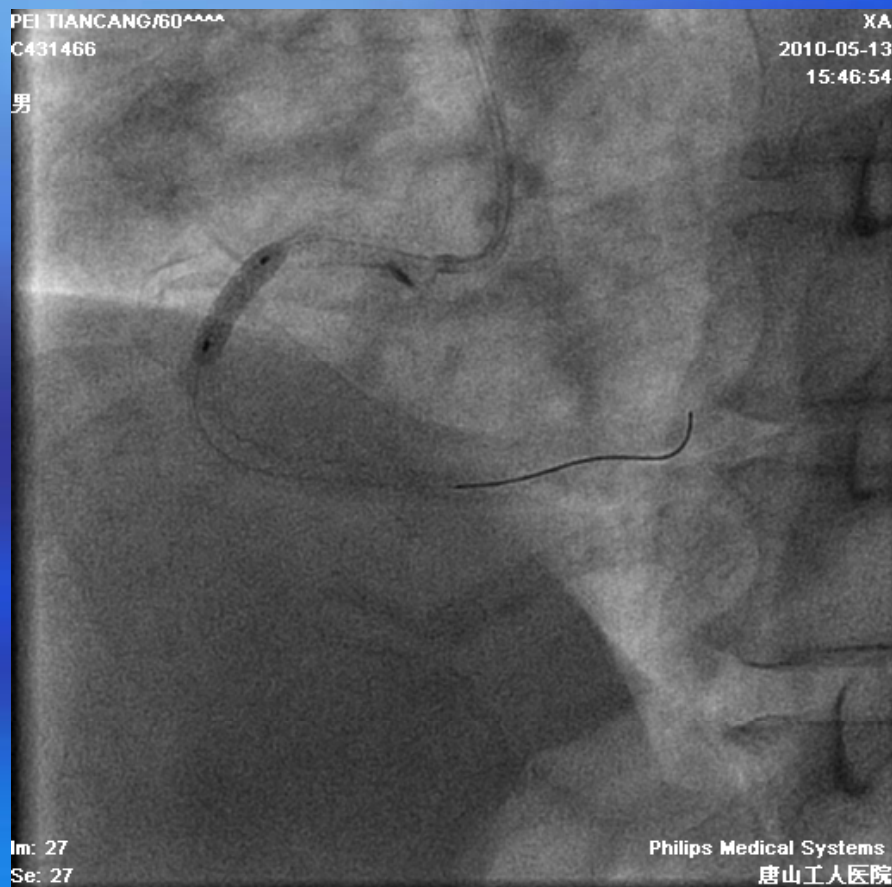




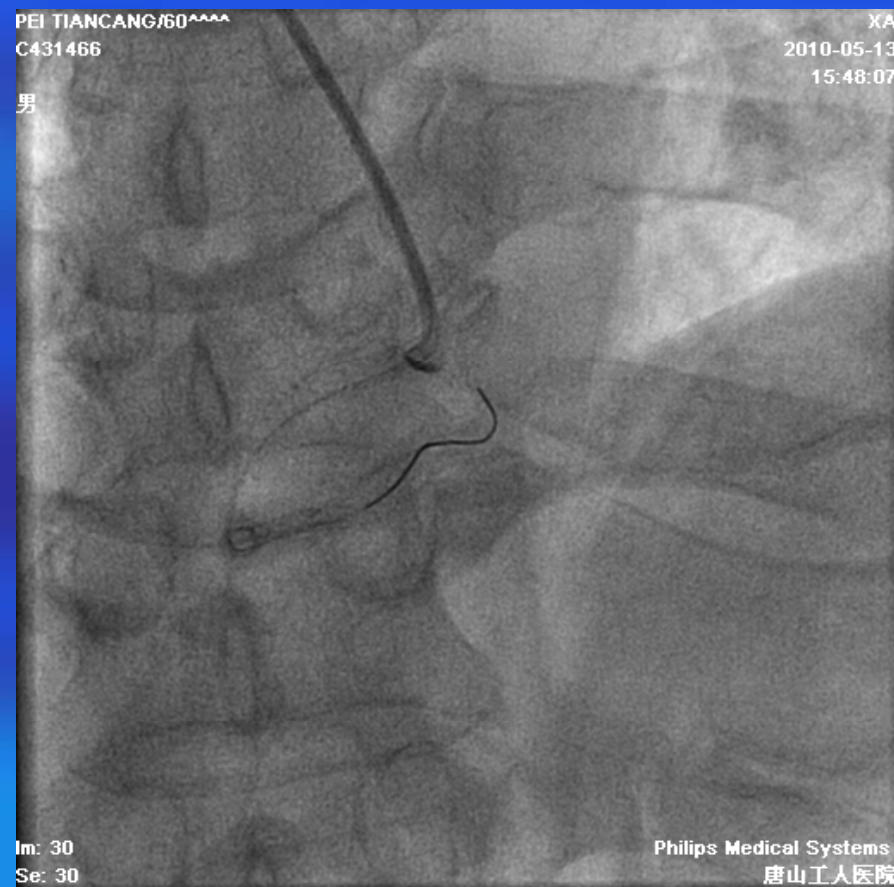
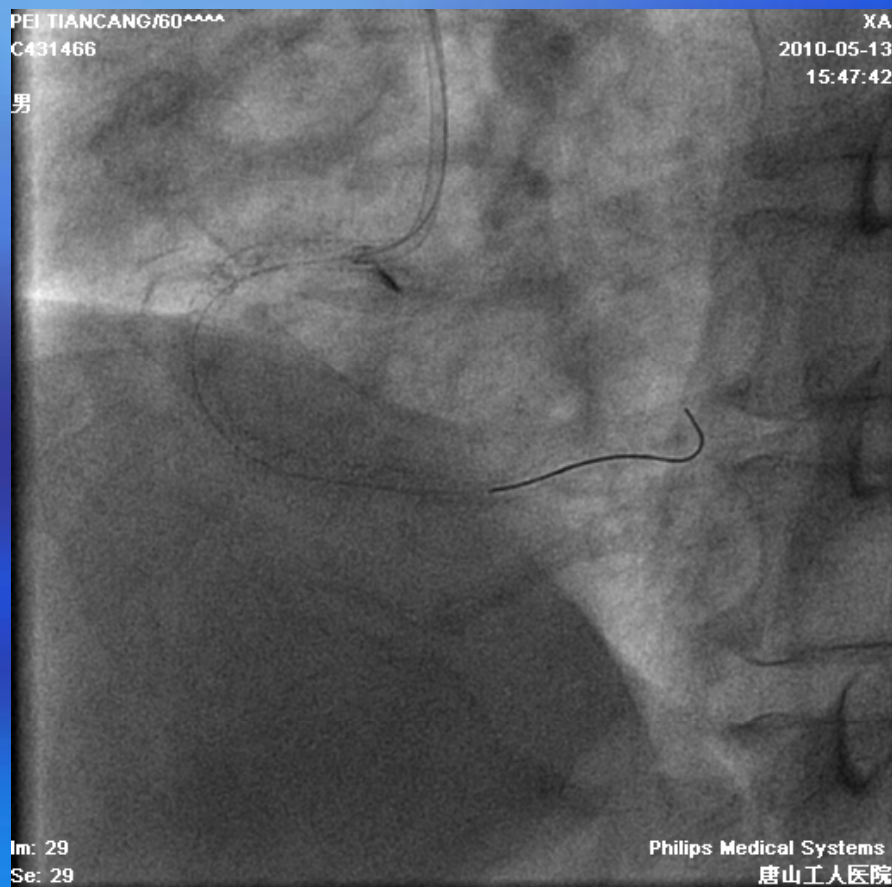
Procedure of PCI



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Procedure of PCI

CAG beginning of time: 14:49:17

CAG finish time: 14:57:09

CAG duration time: 8 minutes

PCI beginning of time: 15:13:34

PCI finish time: 15:48:07

PCI duration time: 35 minutes

Contrast and dose: 150ml



Intrrospection 反思!!!

- **God save me!!!** The patient is safe, my heart calm down!
- Anatomy cause: pRCA calcified with severe eccentric stenosis.
- In procedure of CAG, 5FJR4 make contrast agent to be detained slightly at RCA ostium
- The dissection teared further by the tension of JR guiding catheter.
- The cardiac interventionist is always in high dangerous work status, his mental is tension. Which lesion is the bomb? If the lesion is looked as safe and simple why does the disaster occur? What's the procedure strategy of the PCI as the disaster occurred? What 's the outcome of the operation and the patient?



Strategy of treatment for the dissection

Experience:

Because of the GW1 (PILOT 50) and GW2(BMW) were inserted into pseudocoale, we tried to insert GW3(BMW) into side branch of mRCA and to assure the GW3 was in true lumen. Therefore, we deployed an EXCEL 3.5*24mm drug eluting stent at o-pRCA through GW3, in order to seal the ostium of dissection. Then the true lumen of mRCA appeared. We inserted GW4(BMW) to dRCA, and deployed a second EXCEL 2.5*36mm at dRCA, a third 3.0*36mm stent at mRCA, respectively. The RCA flow was regained.



Strategy of treatment for the dissection

In this case, I named the method:

《side branch guided to find out the true lumen》

Maybe it will be helpful in future occurred similar cases.



Discharge

- Date: 2010-5-20, 9: 00
- Time in hospital:7 days.
- Symptoms on discharge: no discomfort
- Discharge drugs:
 - ASP 0.3QN;
 - Plavix 75mgQD;
 - Isosorbide Dinitrate 10mgTID;
 - Rosuvastatin 10mgQN;
 - Amlodipine 2.5mgQD



NHLBI Classification for Coronary Artery Dissection

- A、 Minor radiolucent areas in the lumen without impairment of flow or persistent dye staining after contrast runoff ;
- B、 Luminal flap that is radiolucent and that runs parallel to the vessel wall with contrast injection but without impairment of flow or persistent dye staining after contrast runoff ;
- C、 Contrast appears outside of the vessel lumen as an “extraluminal cap”. The staining appears even after contrast clears the lumen;
- D、 Spiral radiolucent luminal filling defects. Often persistent staining after contrast clears from the vessel;
- E、 New and persistent filling defects in the vessel lumen;
- F、 Lesions that progress to impaired flow or total occlusion



Main Points in Dissection Treatment

1. If the GW had been in true lumen, made the GW and GC stable to avoid dislocated.
2. If the dissection has occurred which made proximal coronary occluded completely before insertion of the GW, try your best to find true lumen immediately. But the operation is very difficult.
3. Use softer GW to find out the true lumen. If the GW be inserted into the side branch, we can consider the proximal segment of this side branch was true lumen, and a stent should be deployed to seal the ostium of dissection. But it is not adapt to use in CTO lesion.