A Successful Treated AMI Case with the LM Total Occluded

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2011 ACCF/AHA/SCAI PCIGuideline

- To non-protective LM disease of AMI, Primary PCI should be done immediately.
- If the LM lesion is culprit lesion, TIMI flow is 0 ,or 1, or 2 grade,the blood pressure is not stable, and PCI can open the artery faster than CABG, PCI strategy is of the greatest value.
- If possible, the interventional physician and surgeon should quickly decide the revascularization strategy, usually,this kind of patient's condition is critical and unstable, mortality rate is very high, more than 90%, we have not long time to discuss the treatment method.

2011 ACCF/AHA/SCAI PCIGuideline

- Cardiac shock:
- I:
- 1, in AMI with cardiac shock, patient's condition is adapt to do PCI , we advice to do Primary PCI.(Evidence: B)
- 2, in STEMI patient with cardiac shock, medication cannot improve the condition, we advice to apply IABP.(Evidence:B)

- Cardiac shock is regarded as the first reason to lead to death in STEMI patient in hospital. Immediately revascularization is the only method to lower the mortality rate.
- ECMO maybe useful to lower the mortality rate.

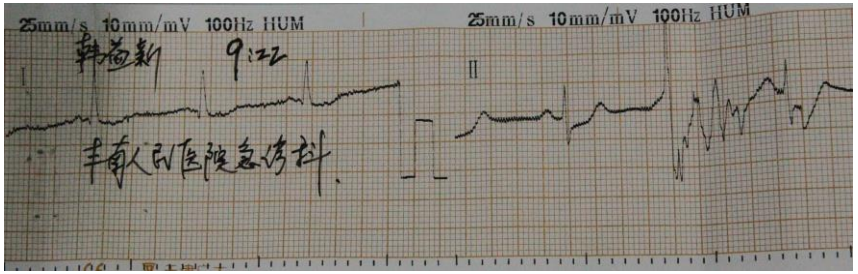
history

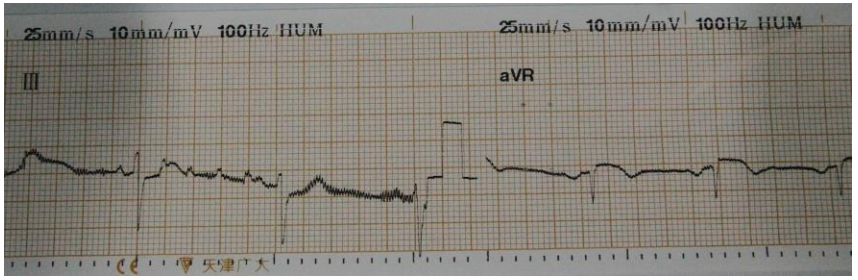
- XXX，male，54 years old，birthday: 26th,Dec,1959
- ID: 130222195912260018，
- Admitted time：12:58 , 12th, May, 2014
- Discharged time：14:00,28th,May, 2014
- Diagnosis：
- Coronary artery disease
- Acute anterior and inferior wall myocardial infarction
- Arrhythmia：Ventricular Tachycardia、Ventricular Fibrillation 、Paroxysmal Atria Fibrillation
- Cardiac Shock
- KILLIP IV
- Pneumonia
-

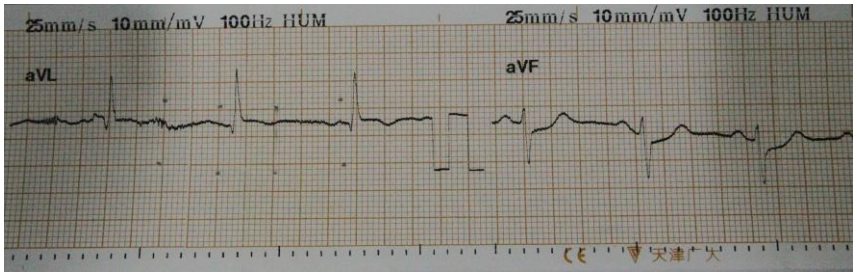
History

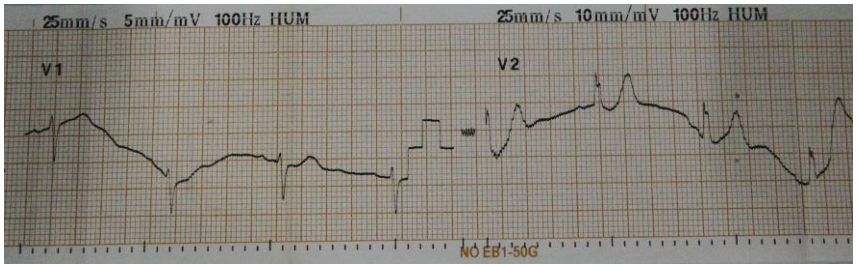
- Chief complaints: Paroxysmal chest pain for 1 year, aggravated for 5 hours.
- 5 hours ago，8:30 am，the patient’s condition worsened, severe chest pain occurred with no reason, in precordial area, sustained, hard to bear, with sweat profusely (hyperhidrosis), go to local county hospital, EKG showed：ST segment elevated in II、III、avF、V1-V6 leads，then the patient lost consciousness, Vf, Doctors gave him defibrillation one time, Aspirin 300 mg and Plavix 300mg were given to him. The patient was transferred to our hospital at 9:48 am.
- Smoke for 30 years，20-40 ciggarrette/day，little alcohol for 30 years。

EKG in ER at county hospital， 9:22, 12th, May, 2014









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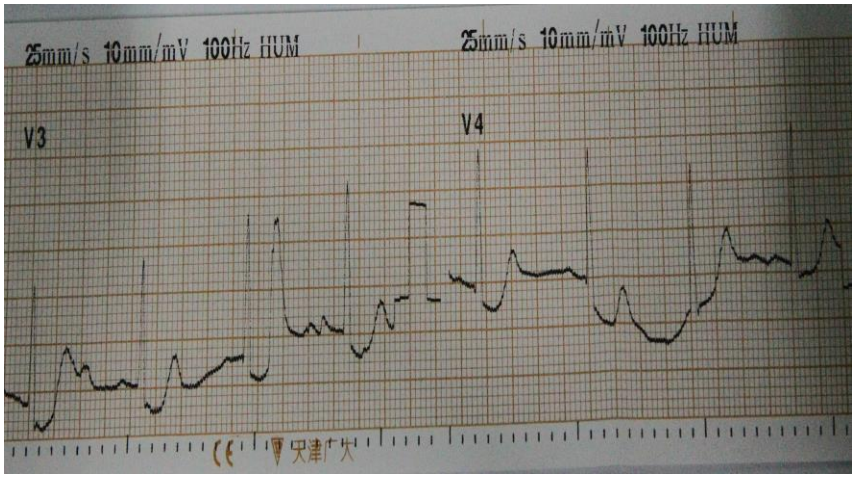
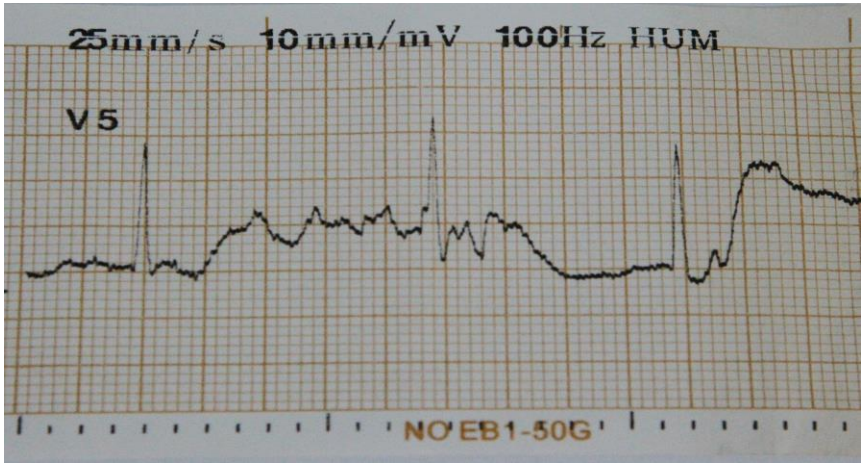
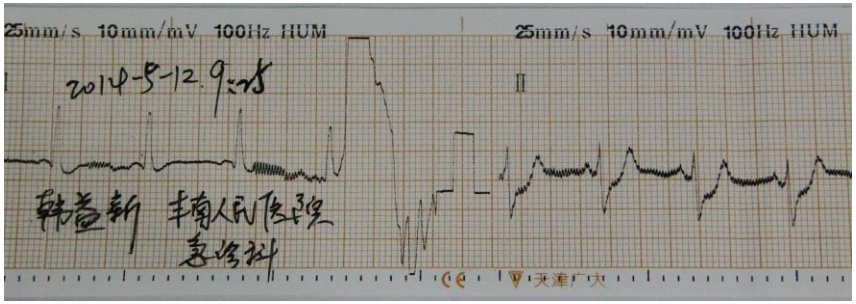
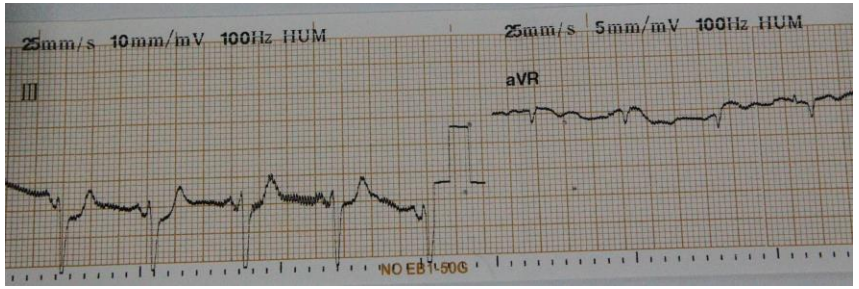
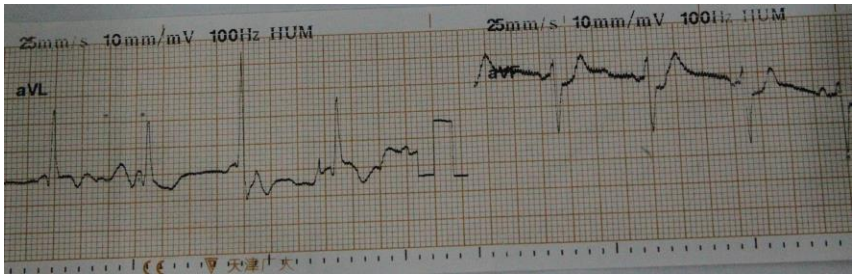


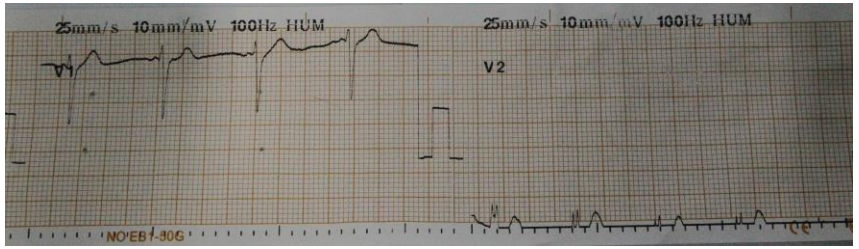


EKG in ER at county hospital， 9:25, 12th, May, 2014









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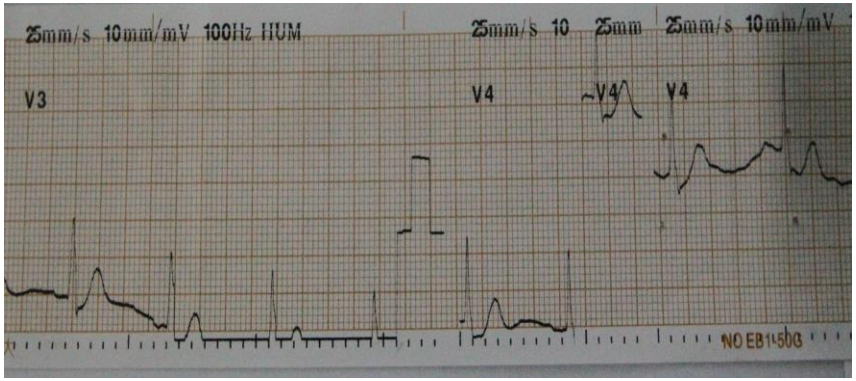
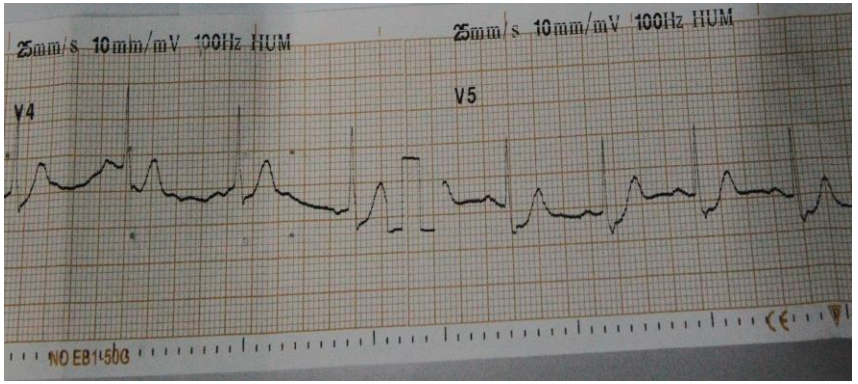
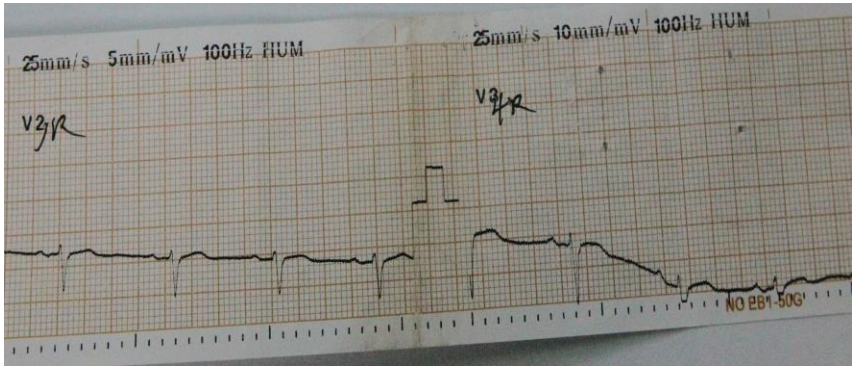
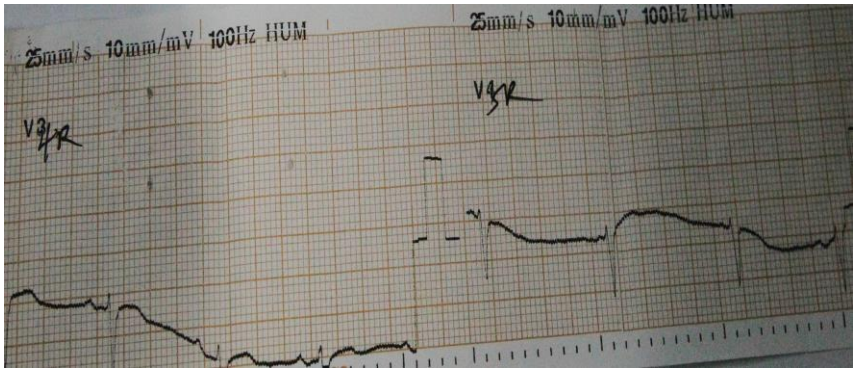
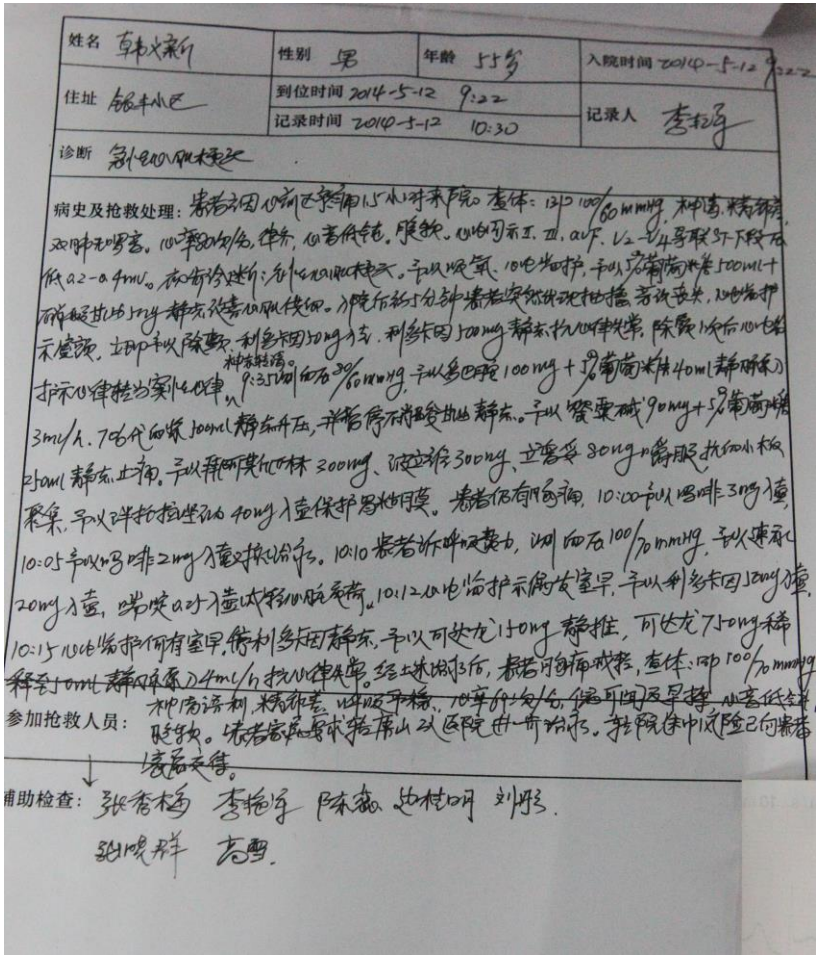








Medical record in ER at county hospital



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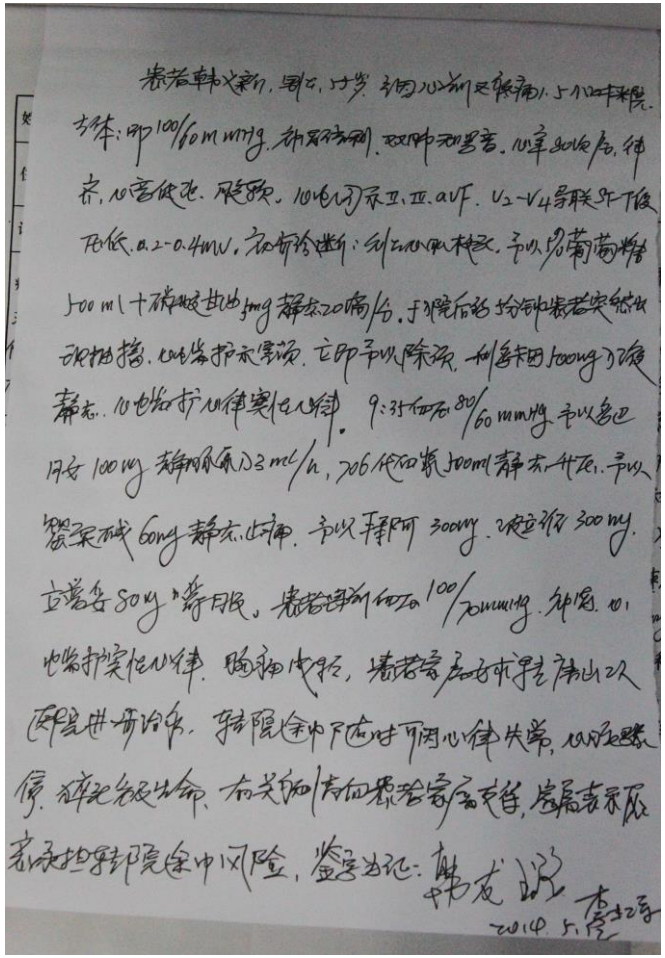
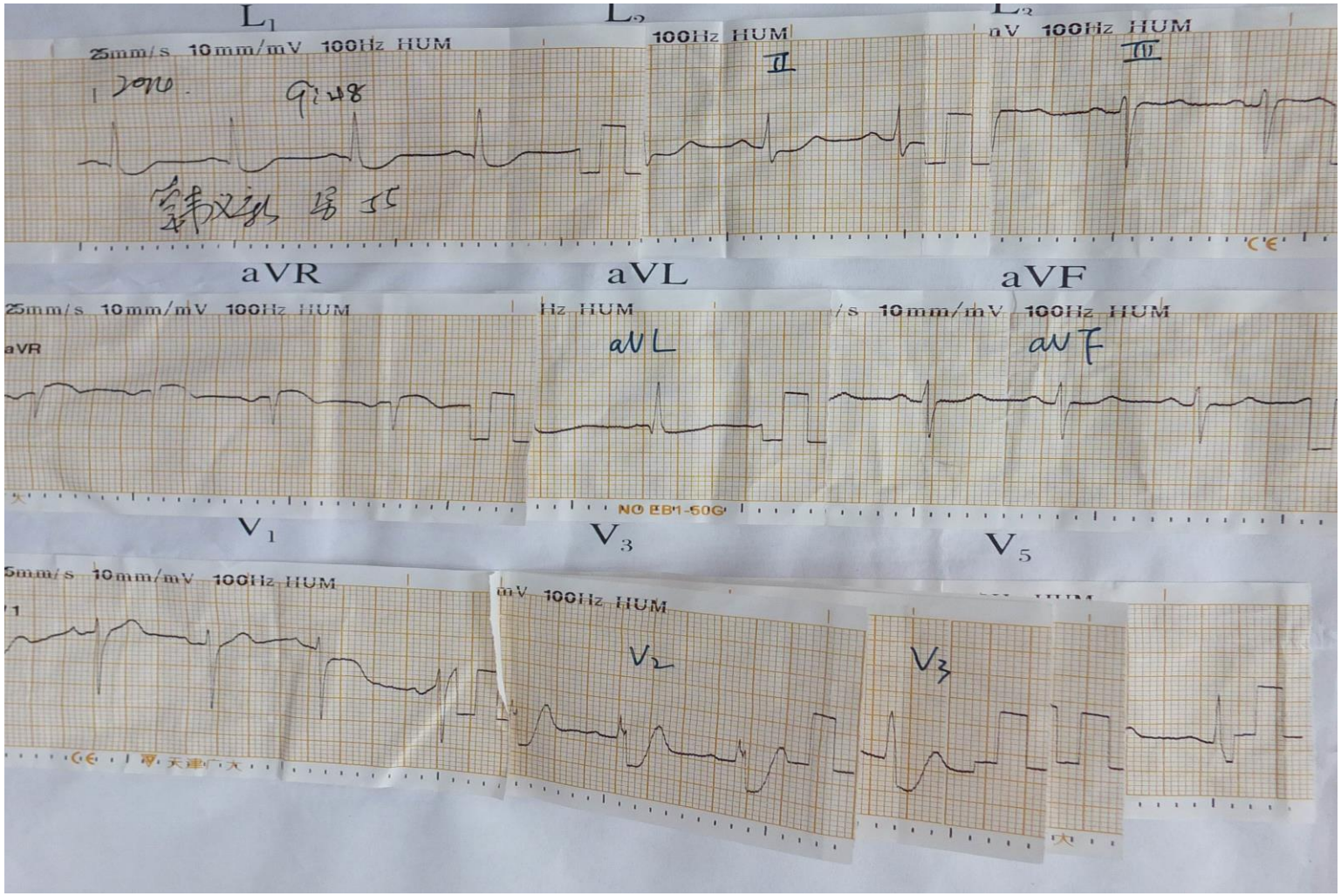


Physical examination

- T 36℃, P 80bpm, R 22bpm, Bp 80/50mmHg.
- Acute severely sick appearance，four limbs were cold，sweat profusely；
- No hear murmur.
- EKG（10:48, 12th,May,2014 in ER at our hospital）：sinus rythm，80bpm，ST segment：elevated 0.1 mV in avR，depressed 0.1-0.6mV in I、avL、II、V2-V5 leads，T wave：low in I、avL leads.

EKG in ER at our hospital， 10:48, 12th, May, 2014



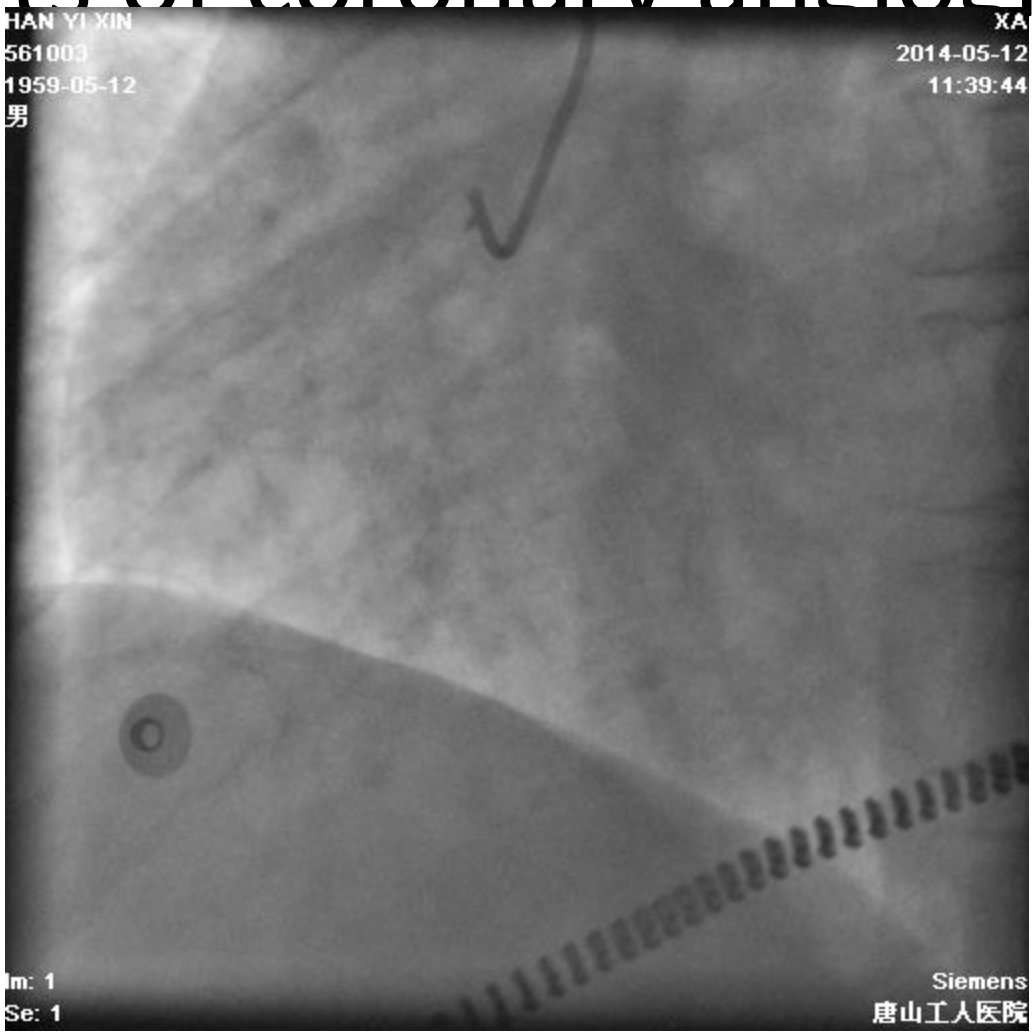
CAG device

- Catheter: 5FTIG
- Route: right radial artery.

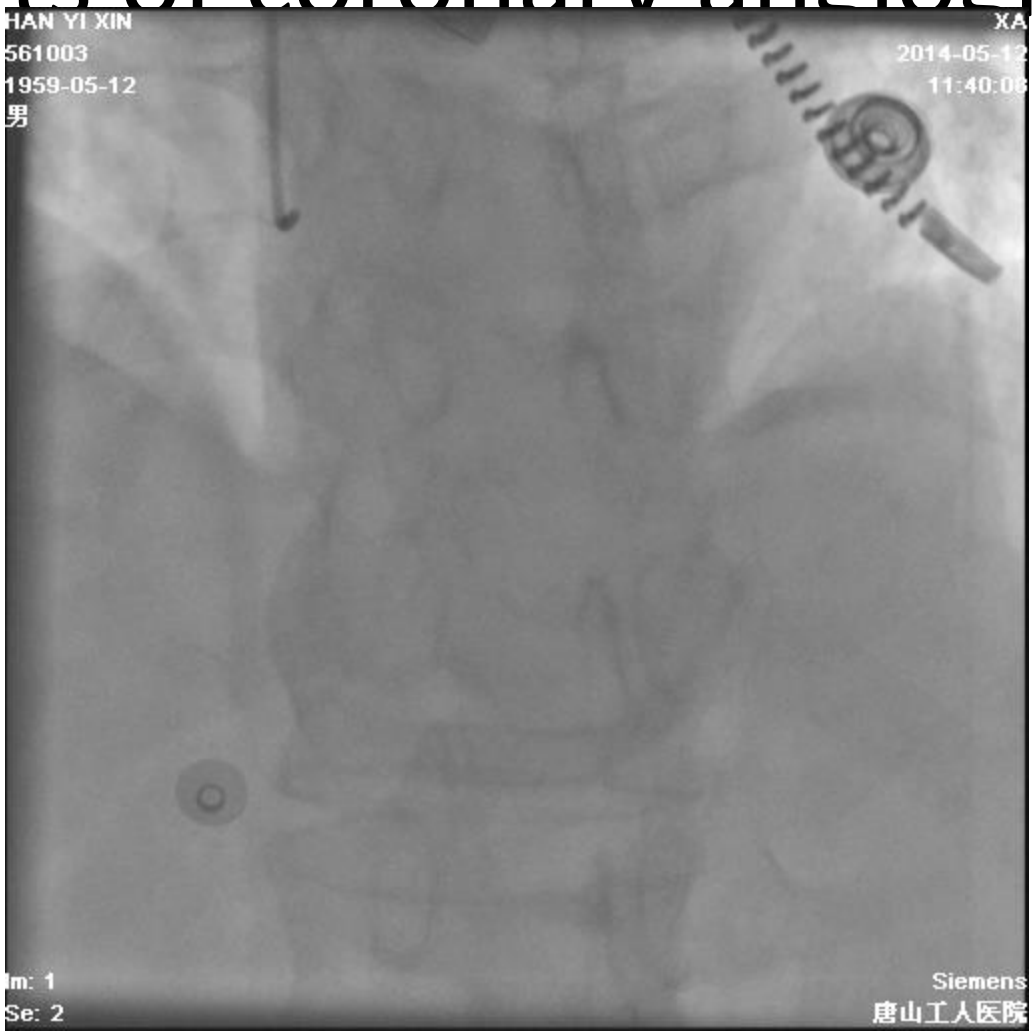
Results of coronary angiography

- LM was occluded 100% with heavy thrombus burden;
- Big RCA， no collateral artery from dRCA- distal LCA.

Results of coronary angiography



Results of coronary angiography



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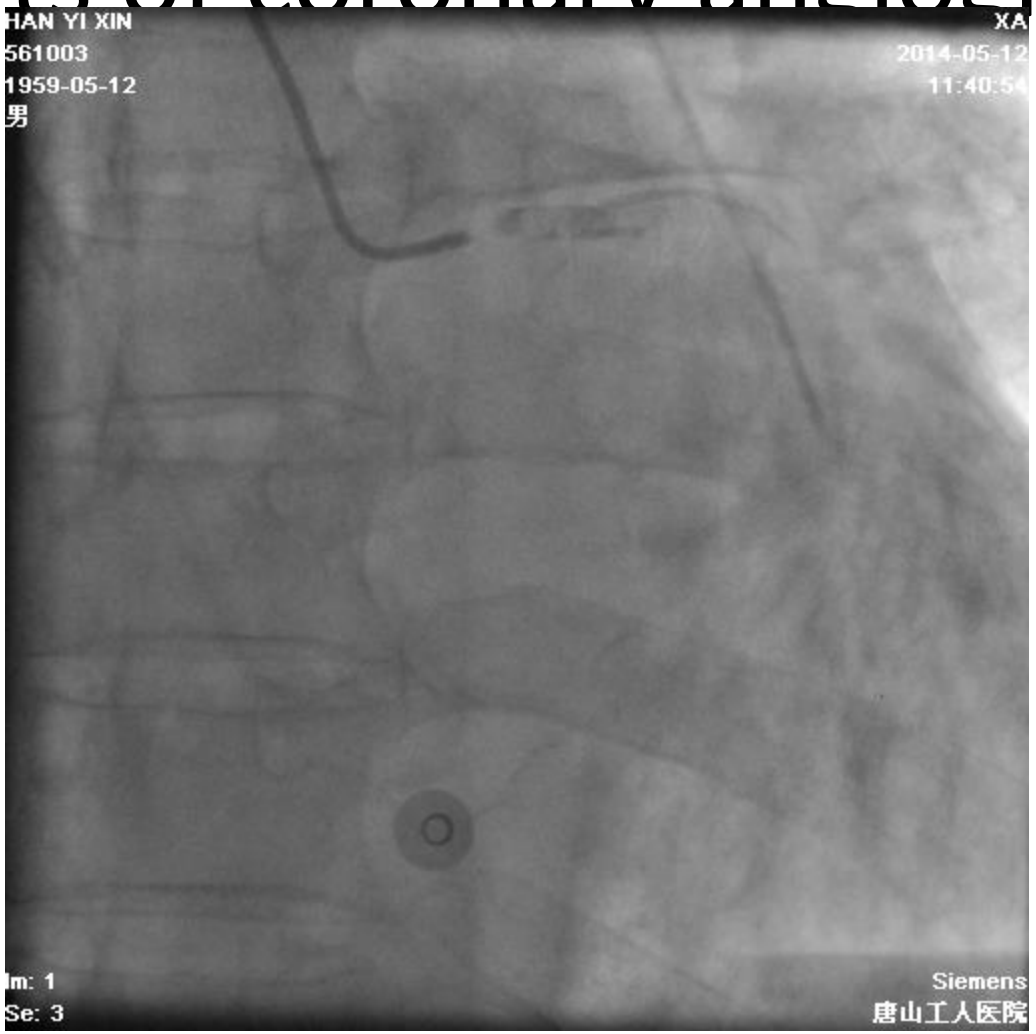
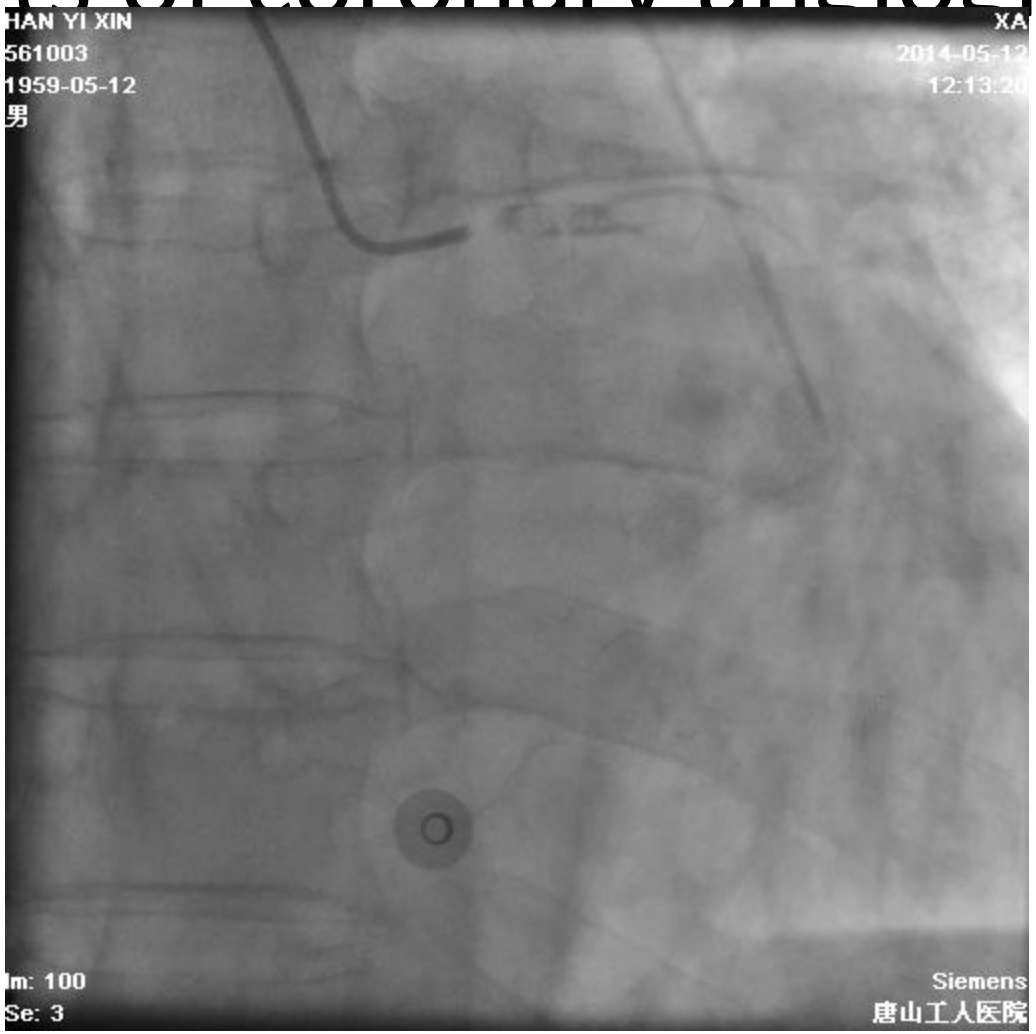


Results of coronary angiography



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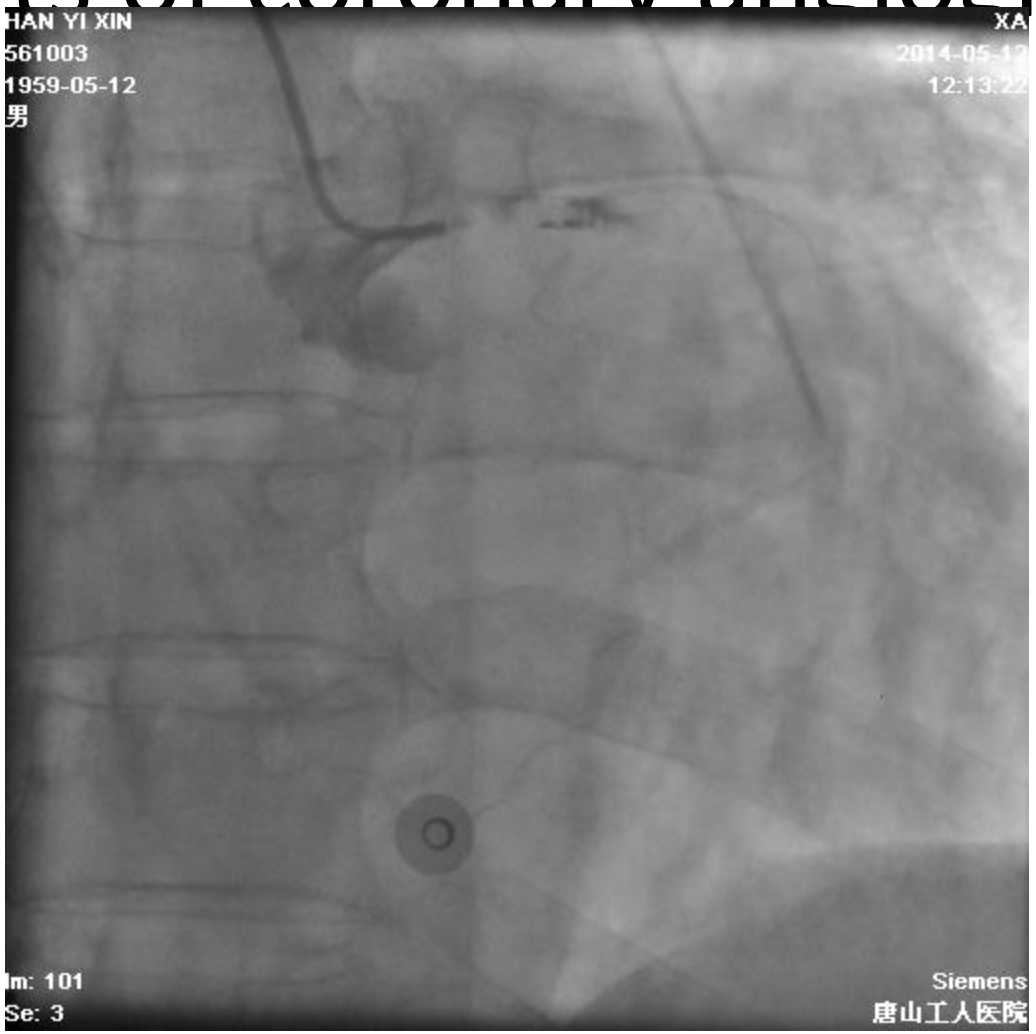

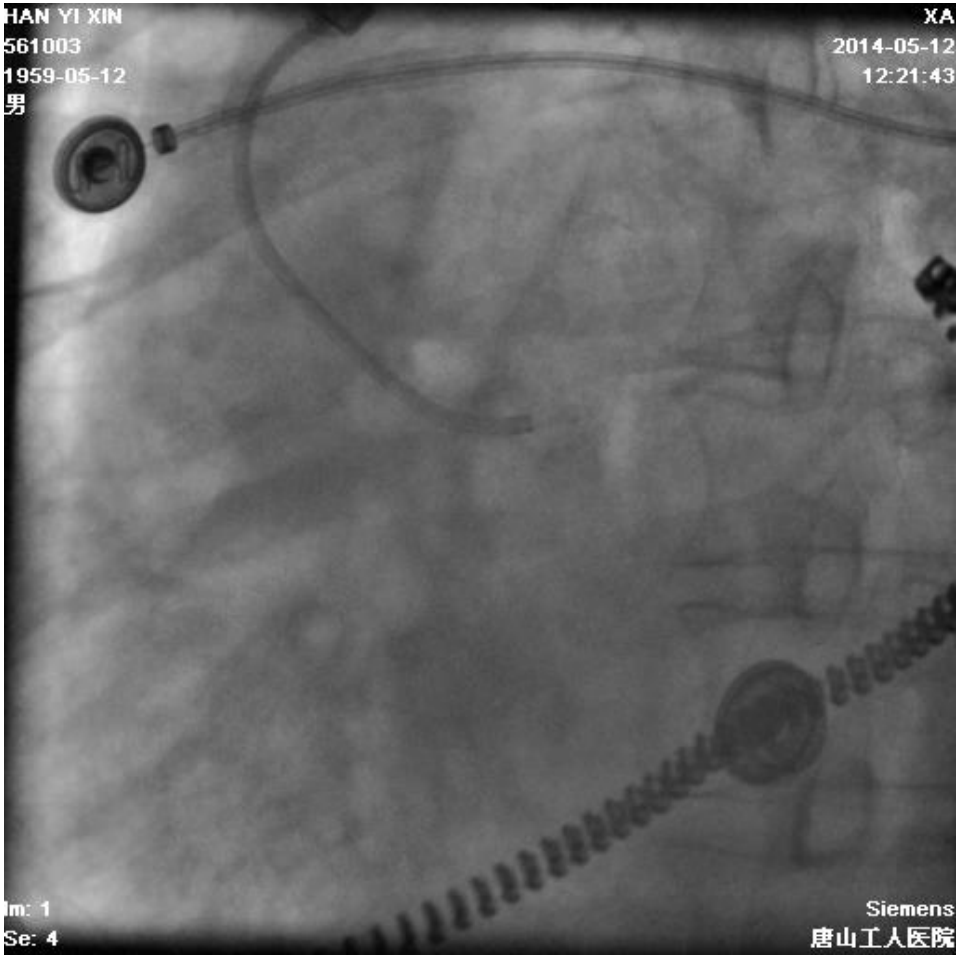
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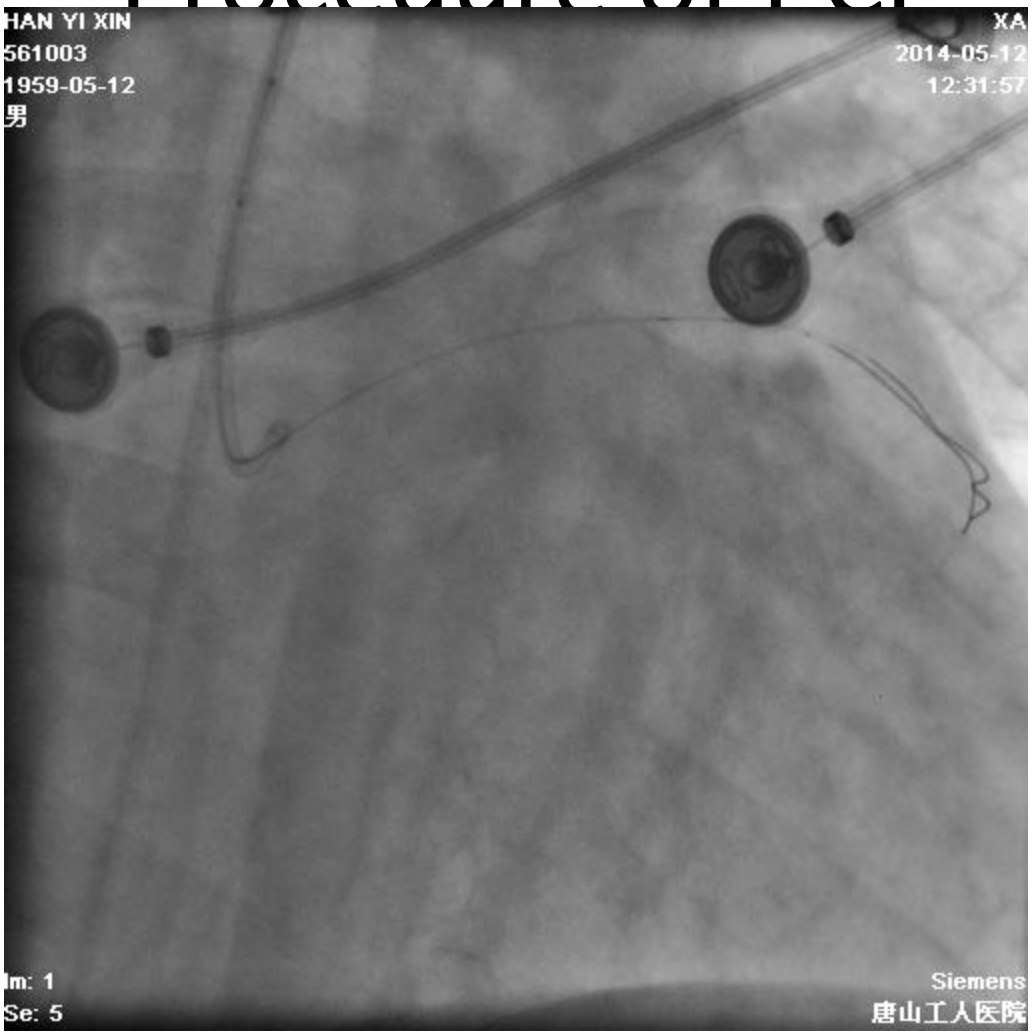
Procedure of PCI

- Catheter: 6FJL4ST、6F JL4
- Wire: BMWx2
- Balloon: Ryujin 2.0/15mm
- Stent: Excel 4.0/28mm
- Other device: IABP balloon of 7.5Fr 40 cm.
- At 10:48,transferred to our ER, with cardia shock, Dobutamine was given to him; At 11:39am, operation began. After coronary angiography, with consent of the family members, IABP balloon was inserted into the aorta. At 12:33, balloon was inflated; at 12:42, the operation finished , It took us 63 minutes.

Procedure of PCI

- During the operation, blood pressure was 80/50mmHg, whole body and limbs were cold, Dubutamine and IABP were used to maintain blood pressure to 100-115/60-70mmHg。
- When PCI finished， the EKG monitor showed Ventricular tachycardia, Amiodarone was given and defibrillation were given to this patient. The heart rhythm was changed to atria fibrillation.

Procedure of PCI



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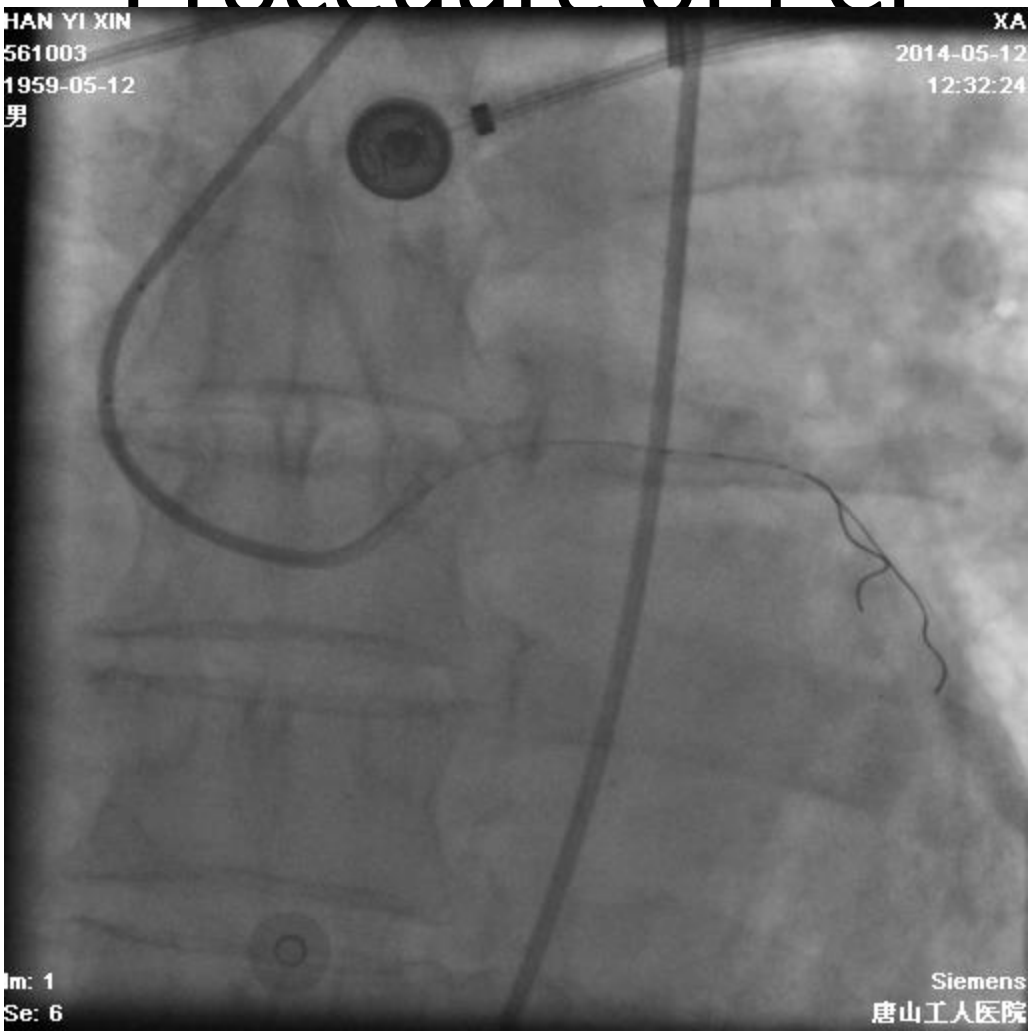

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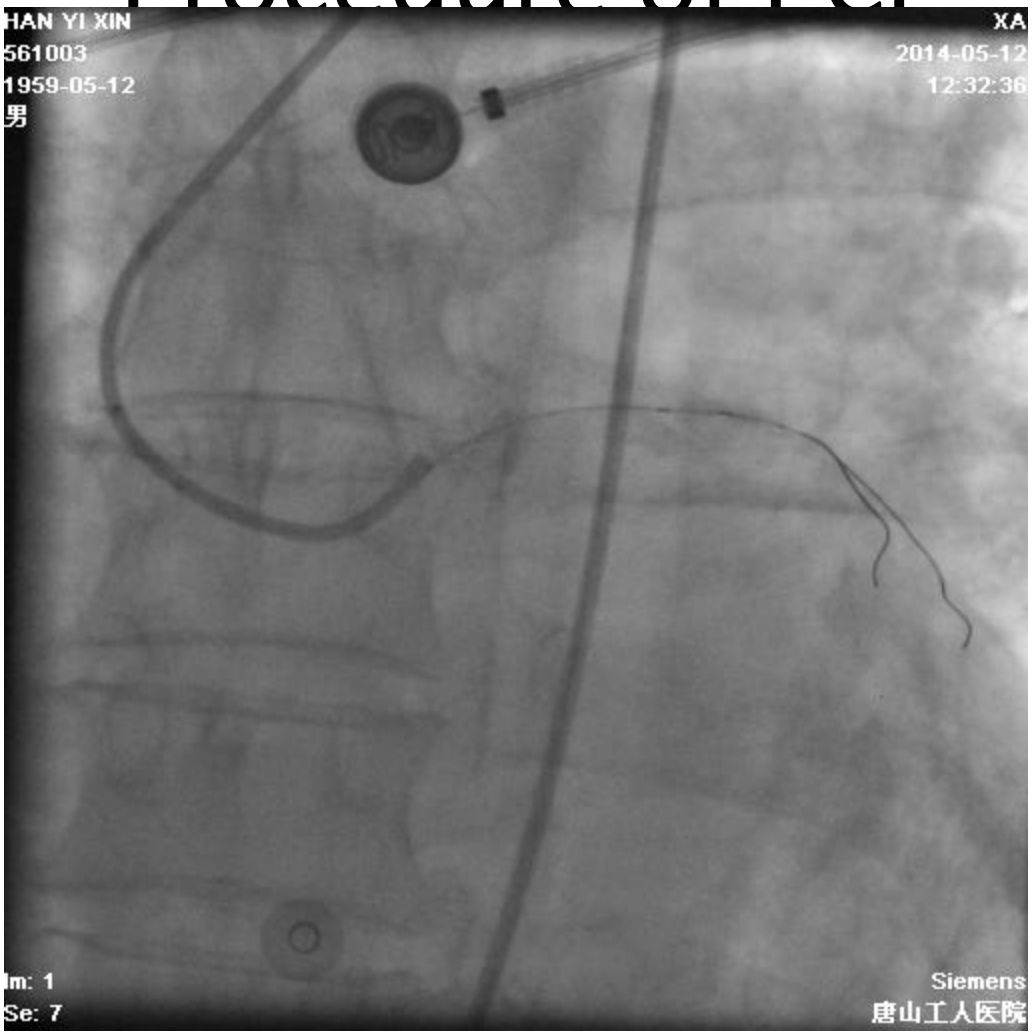

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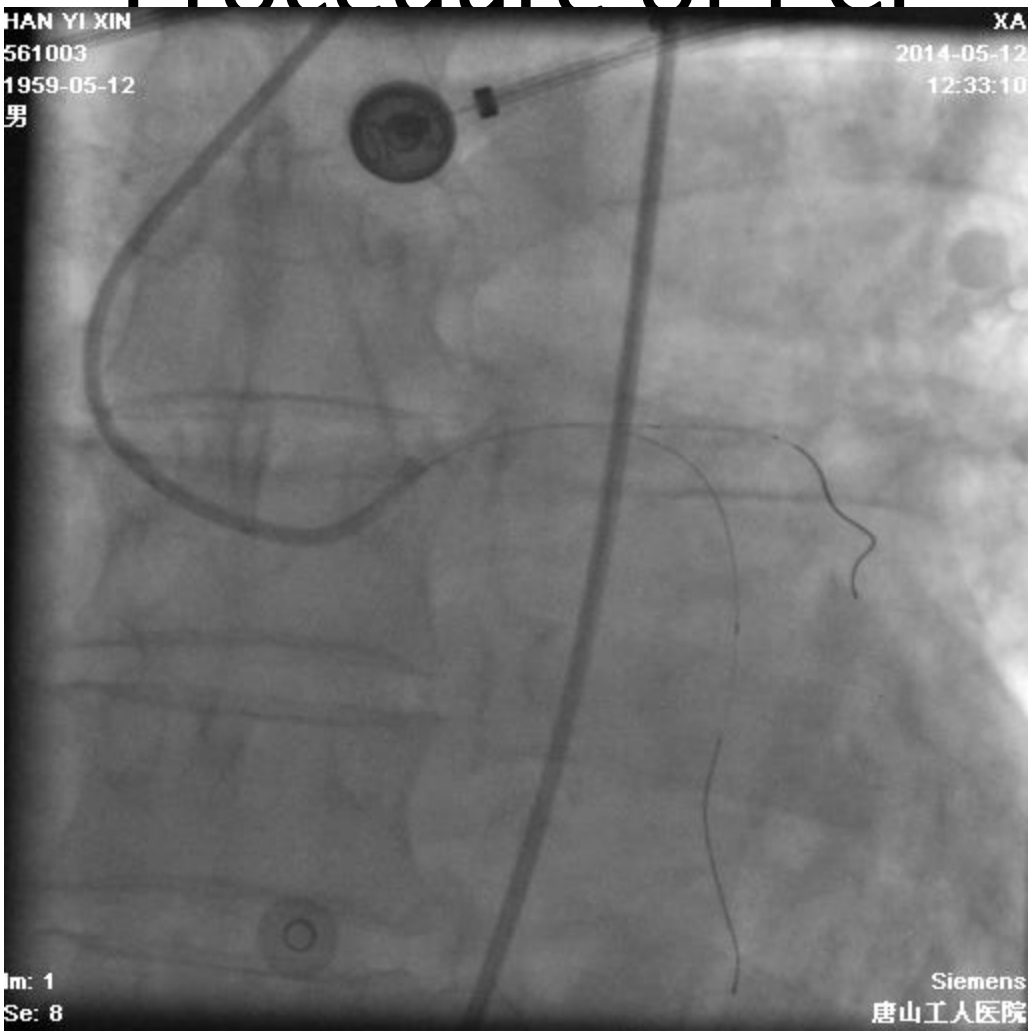

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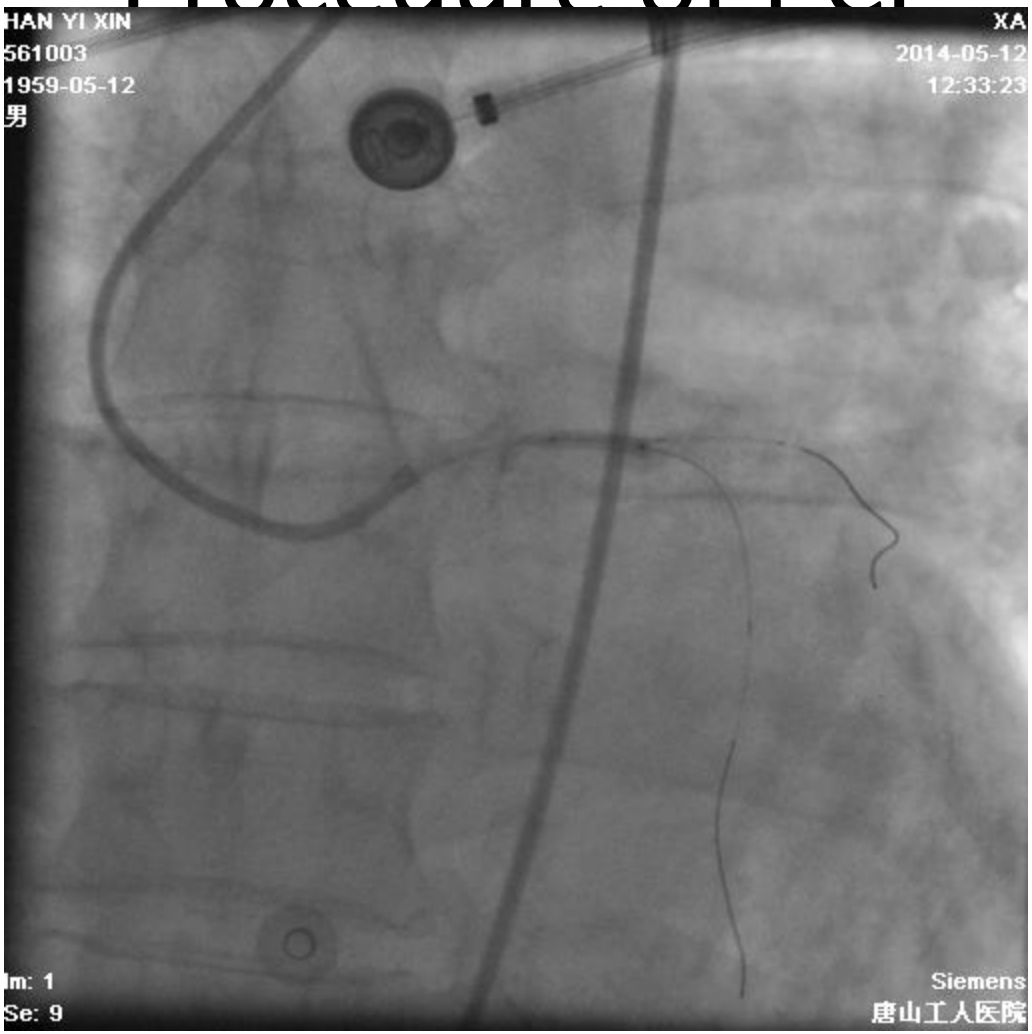

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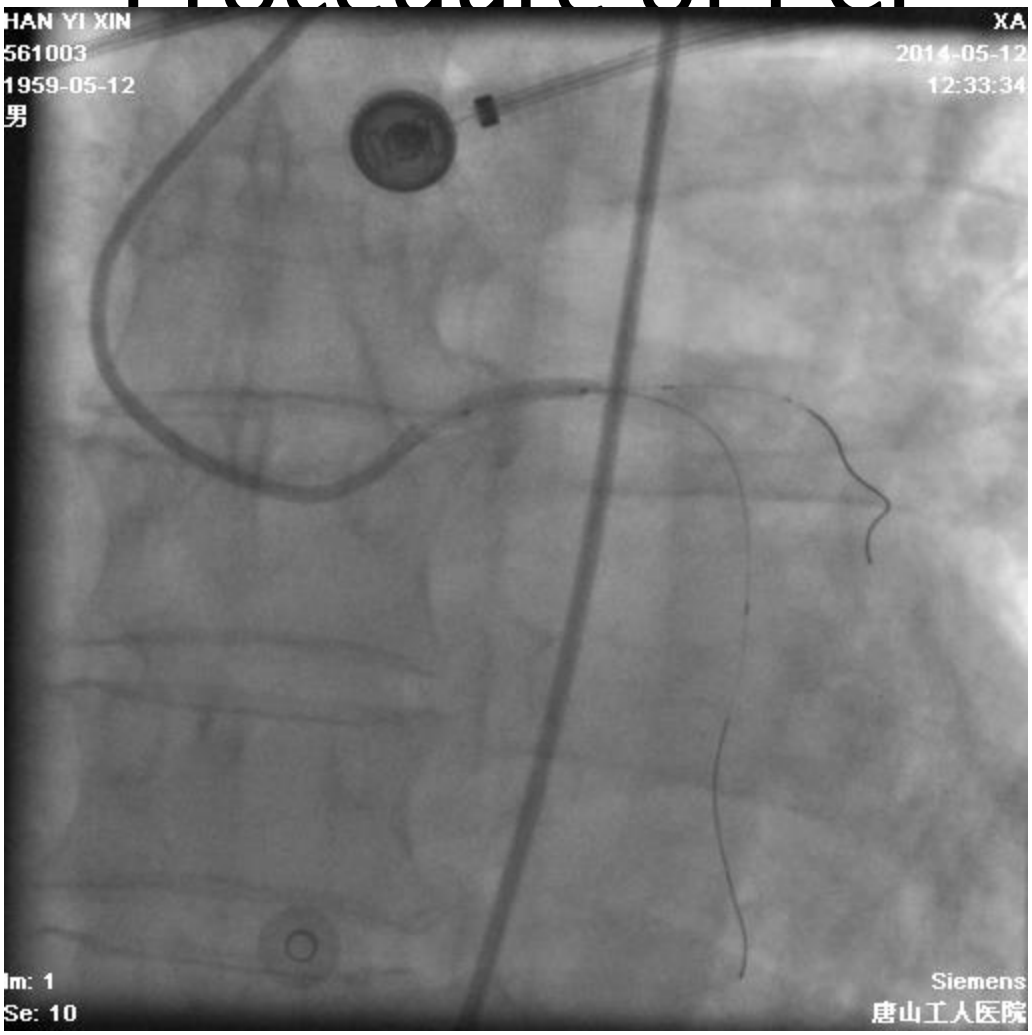

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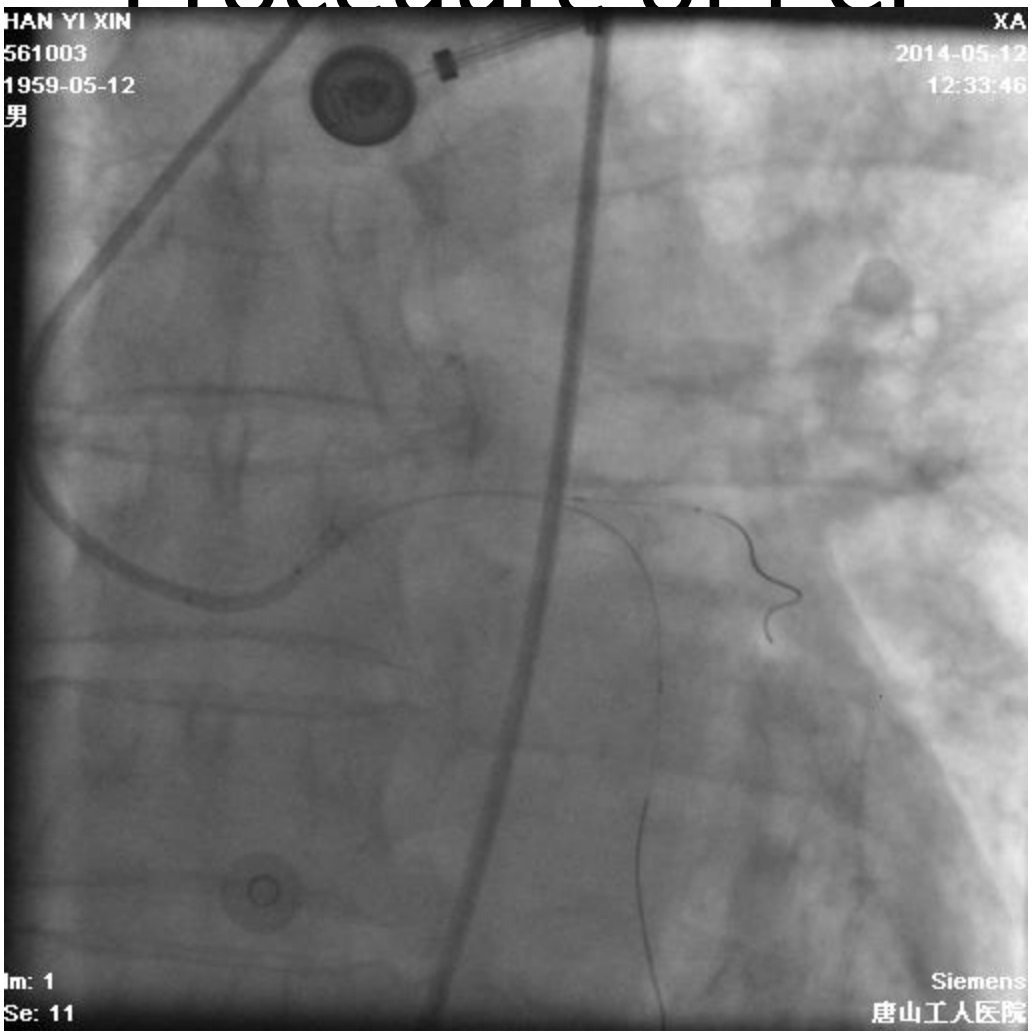

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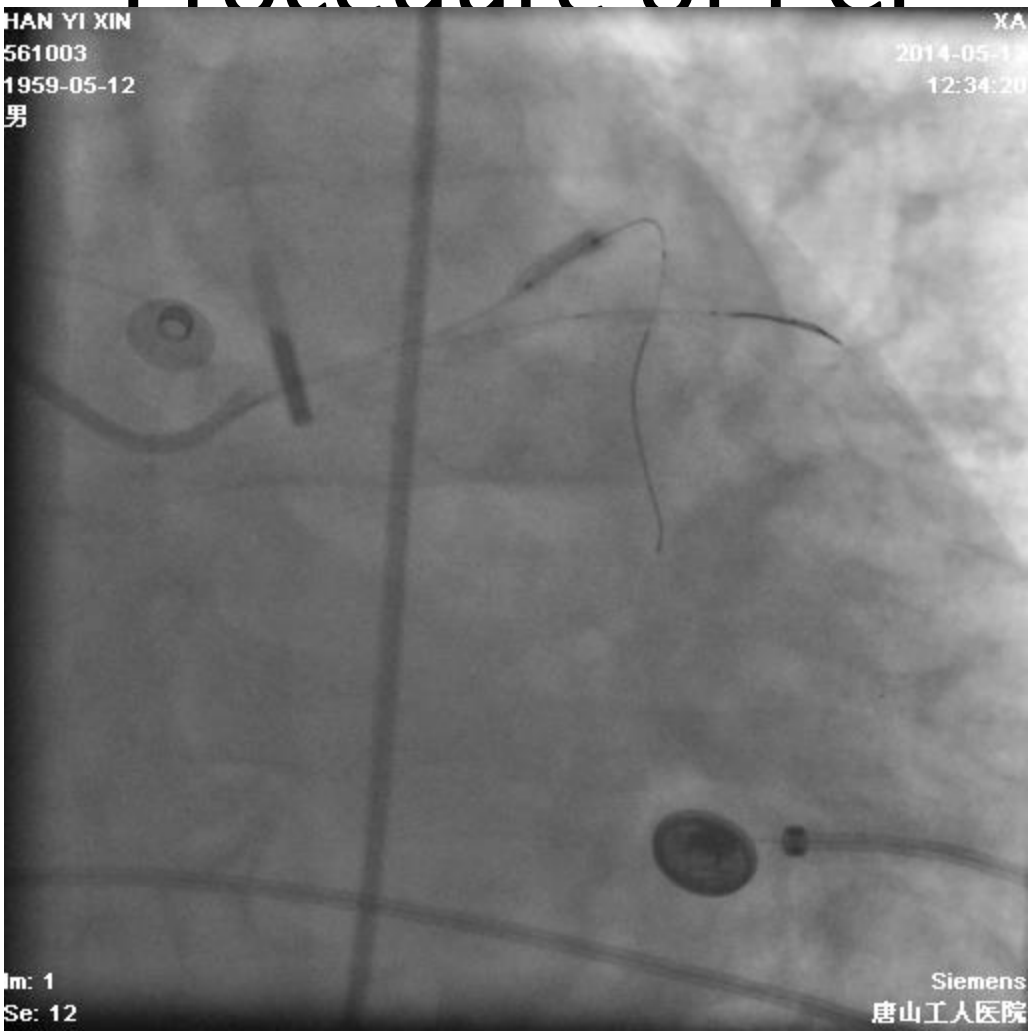

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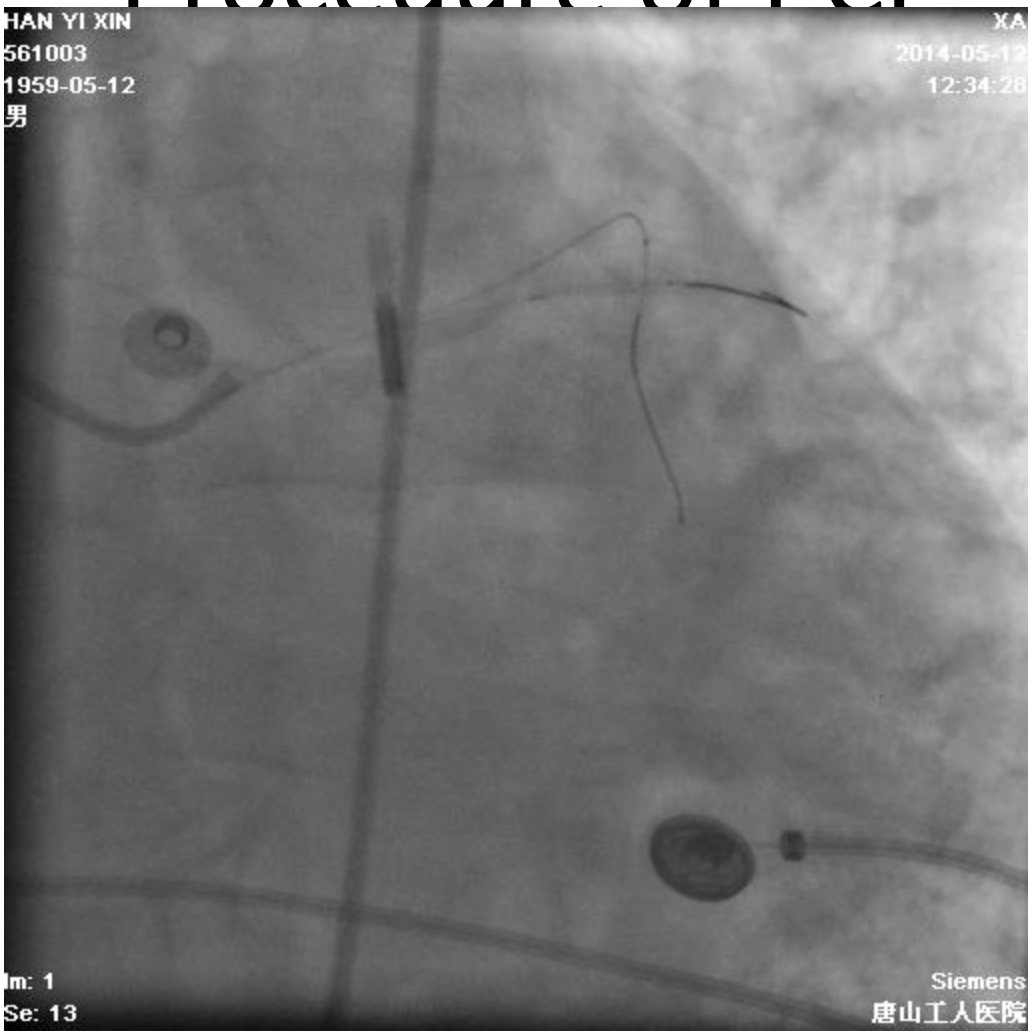

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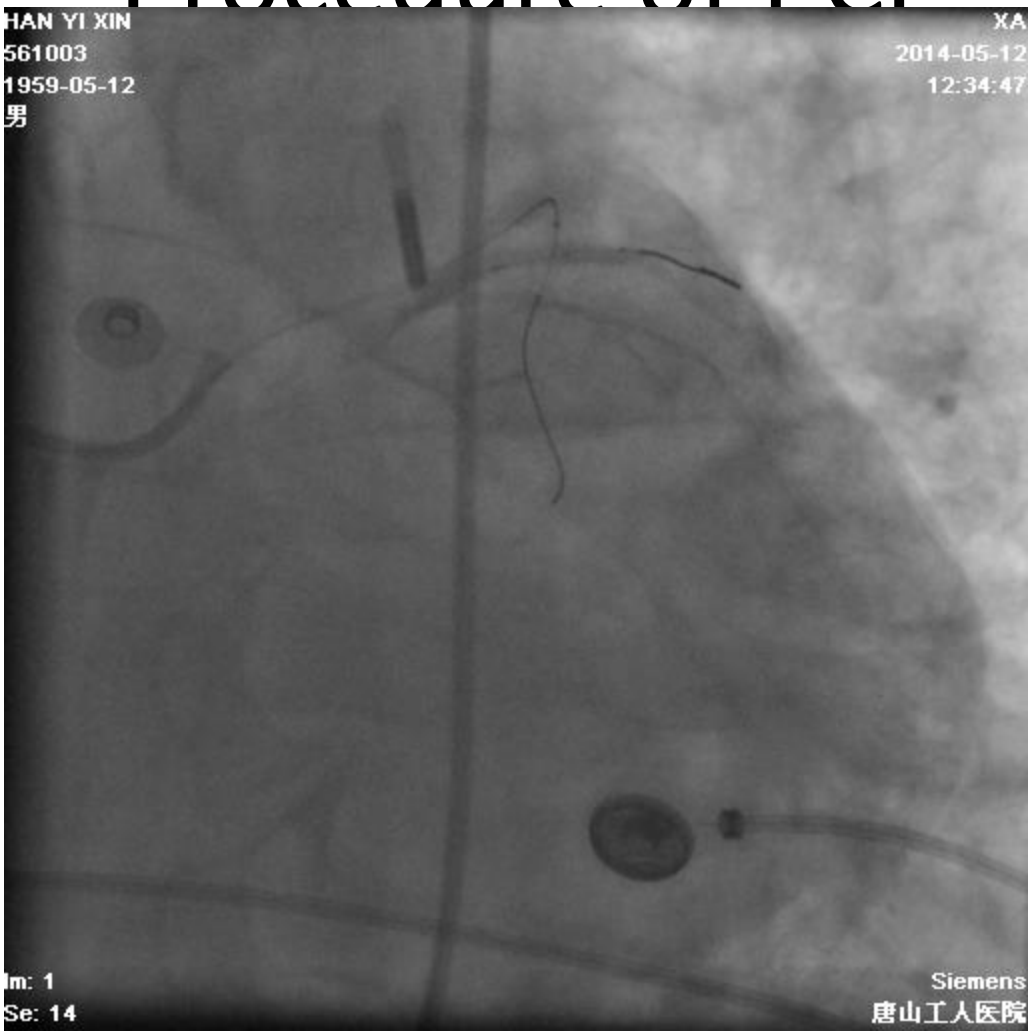

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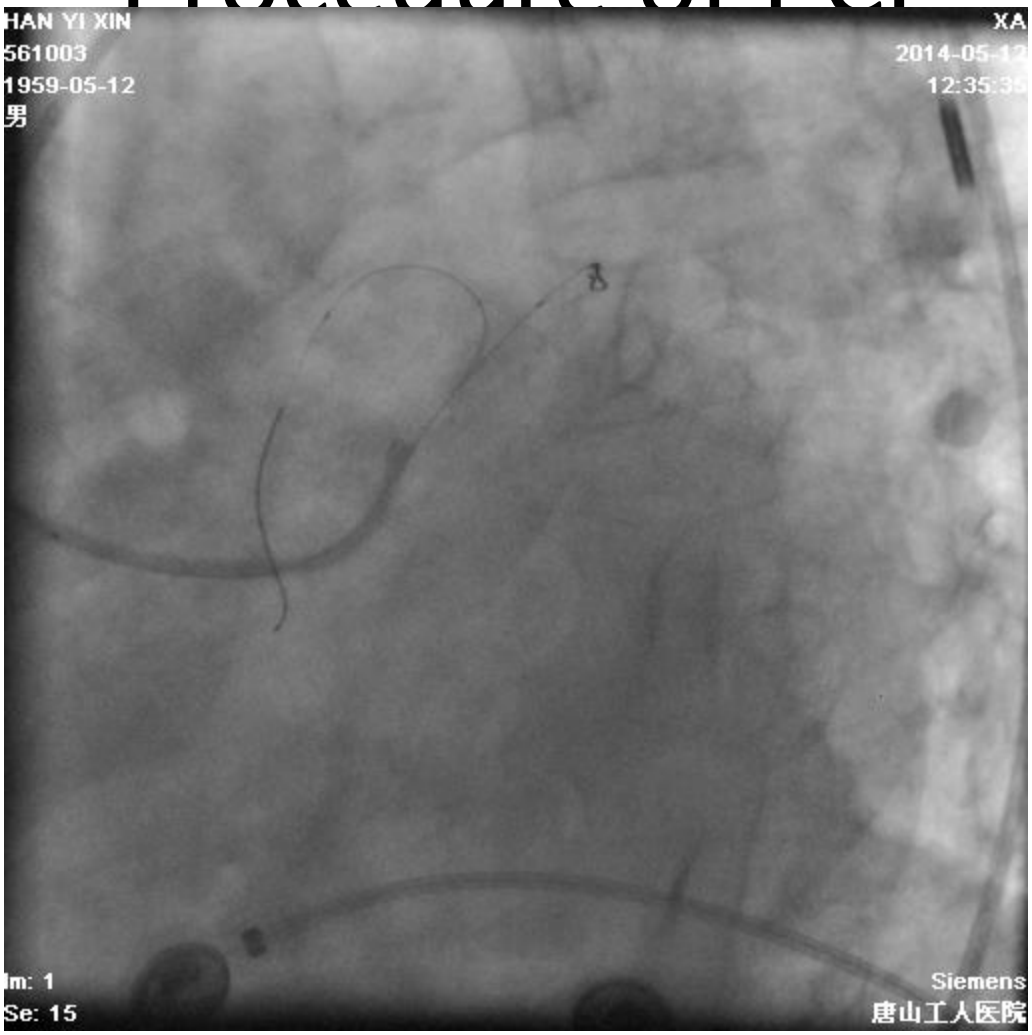

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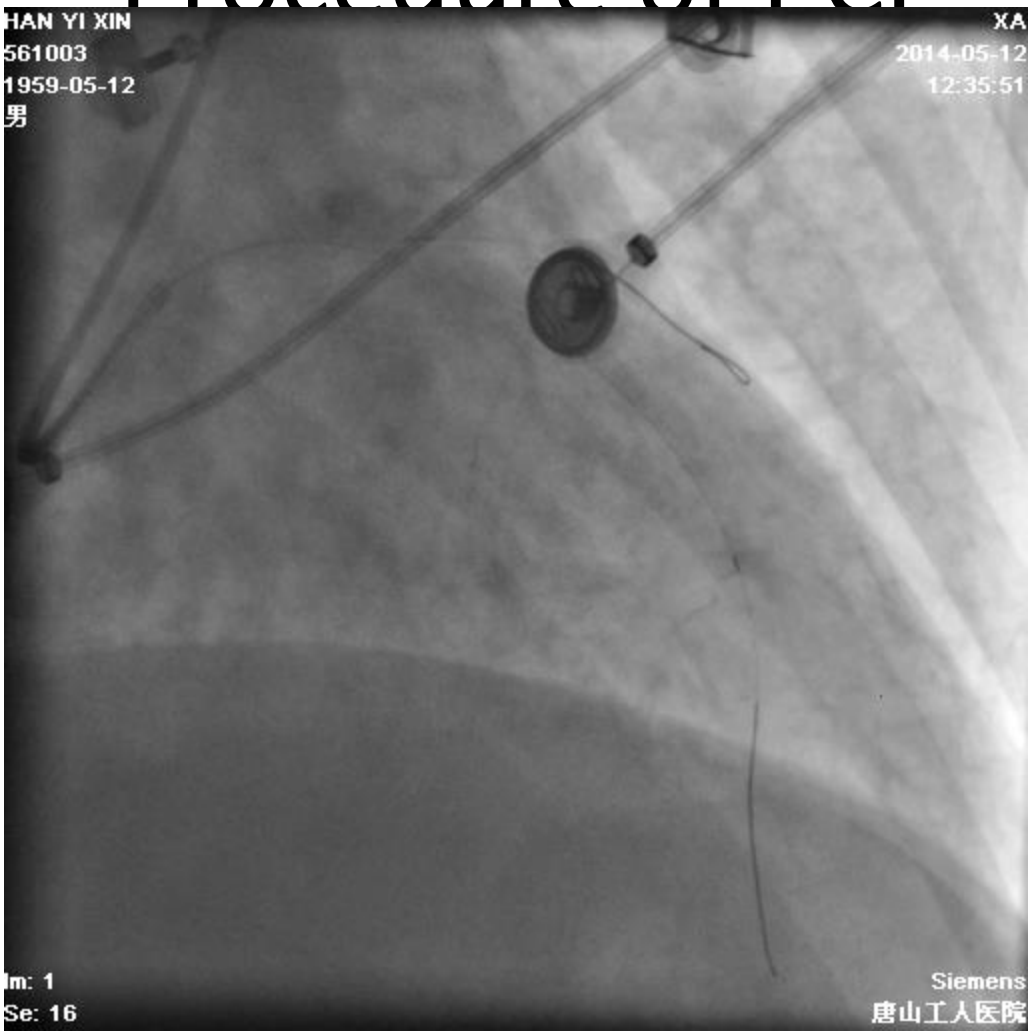

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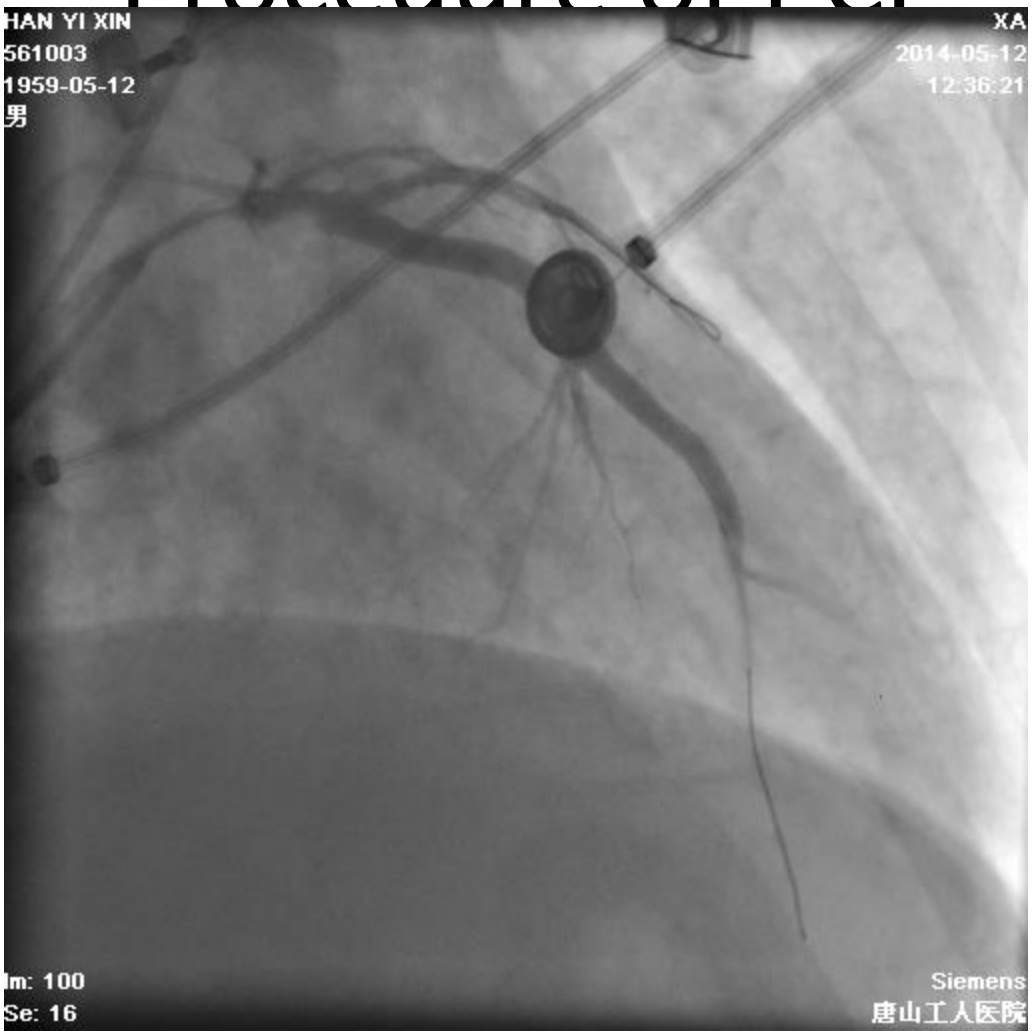

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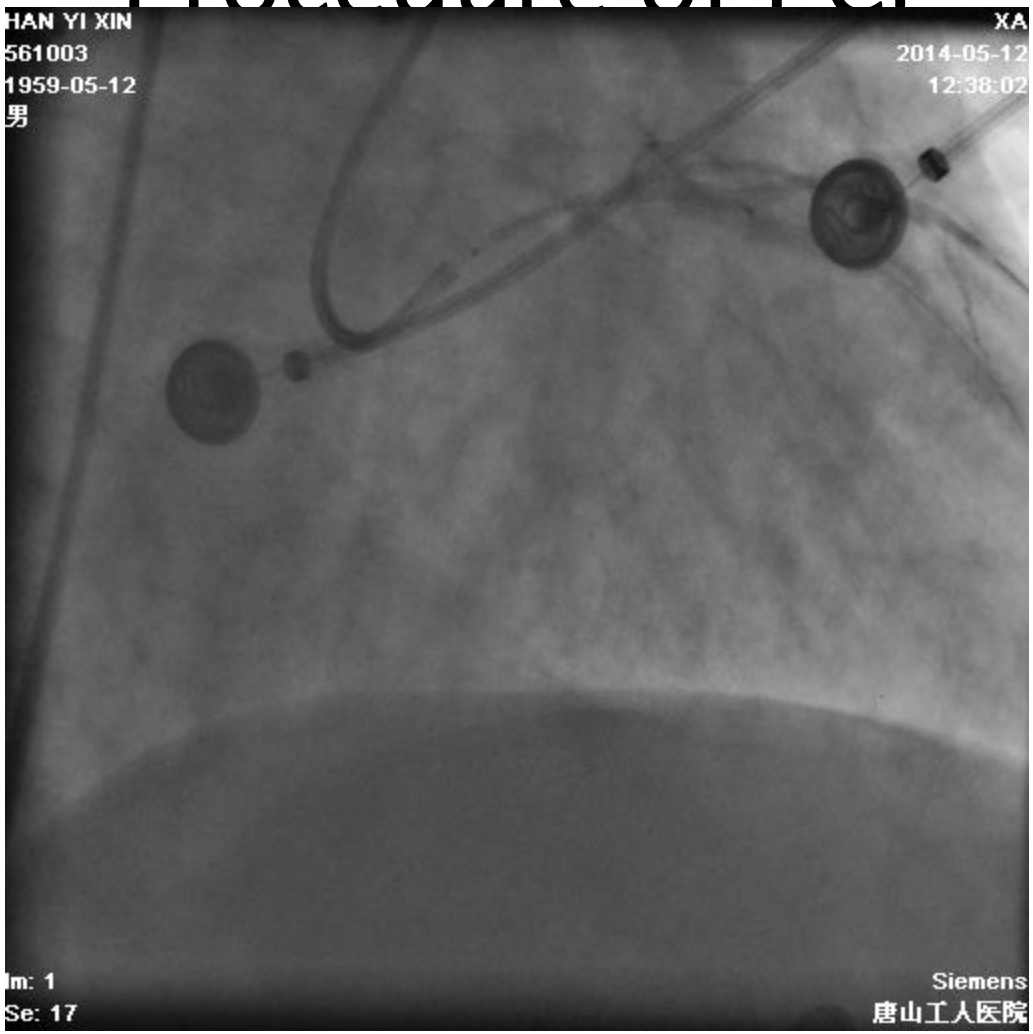

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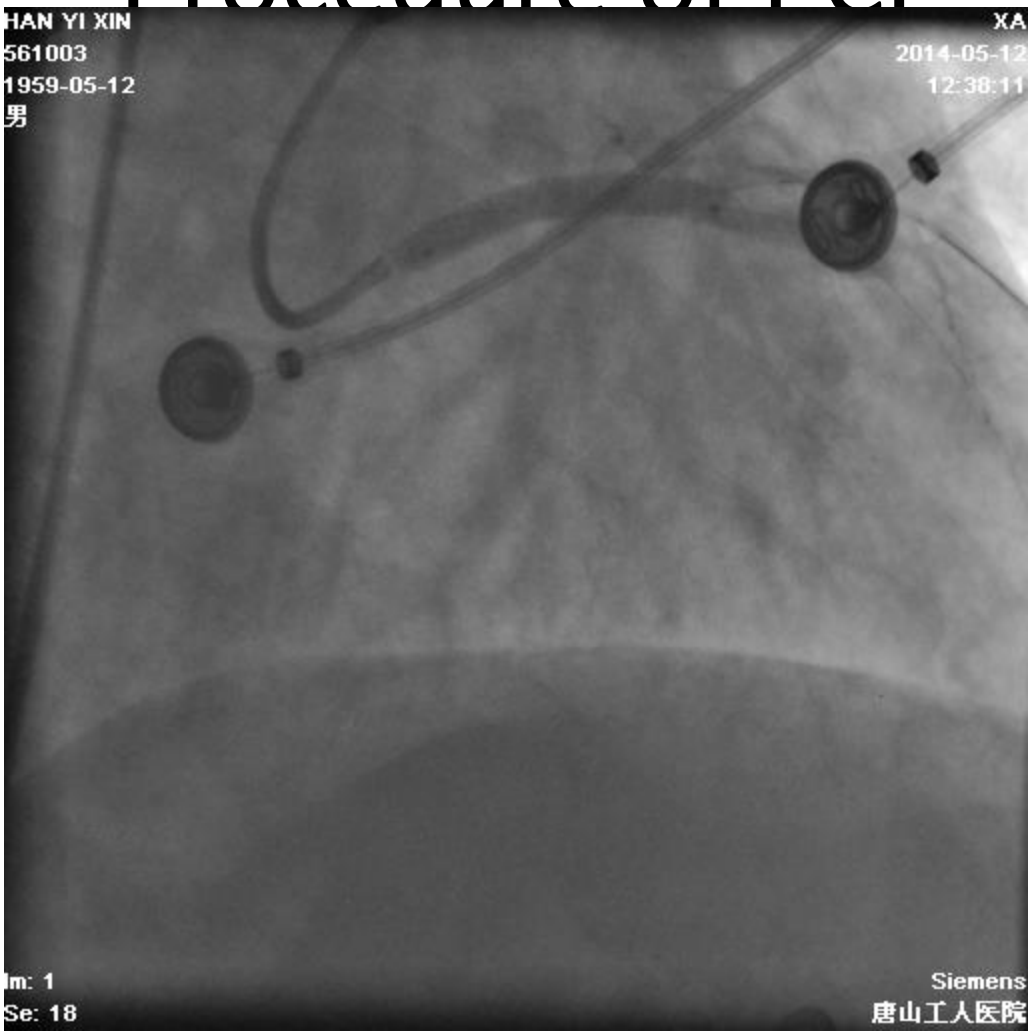

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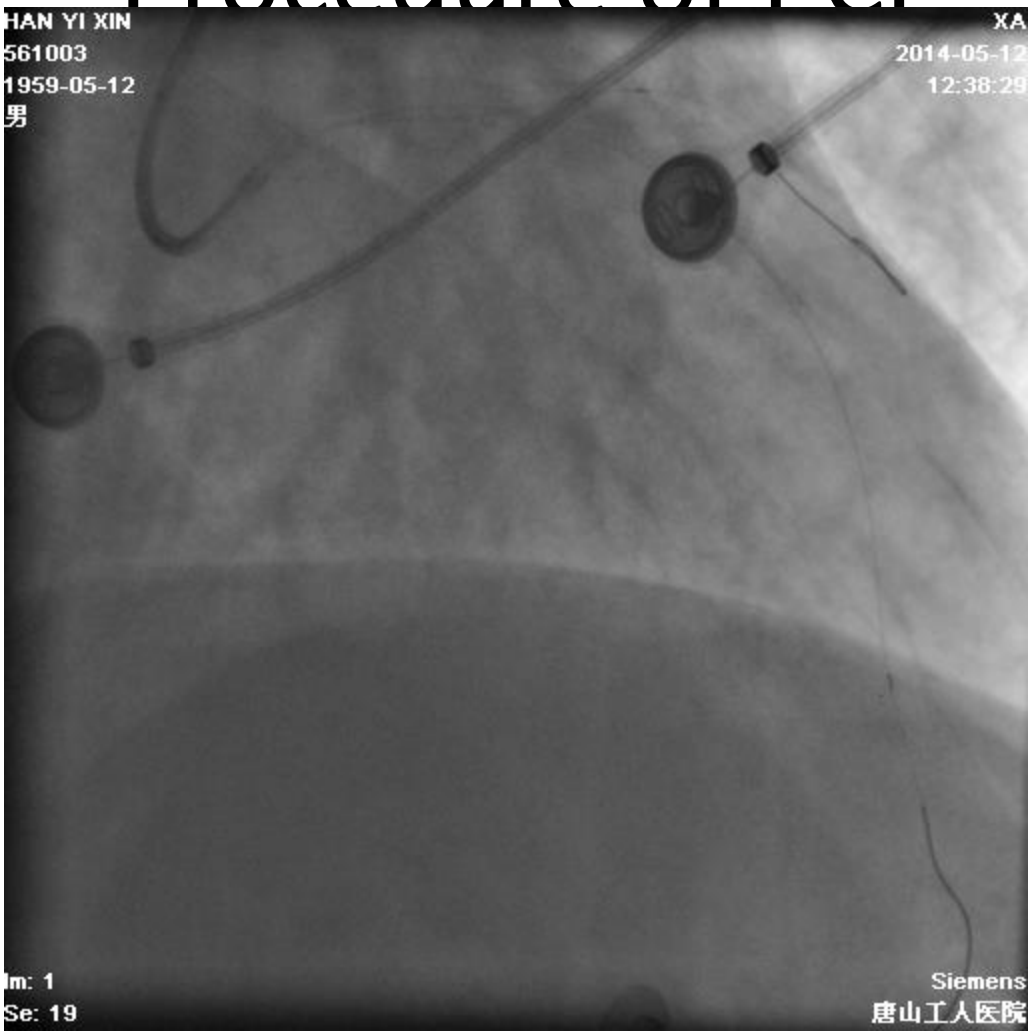

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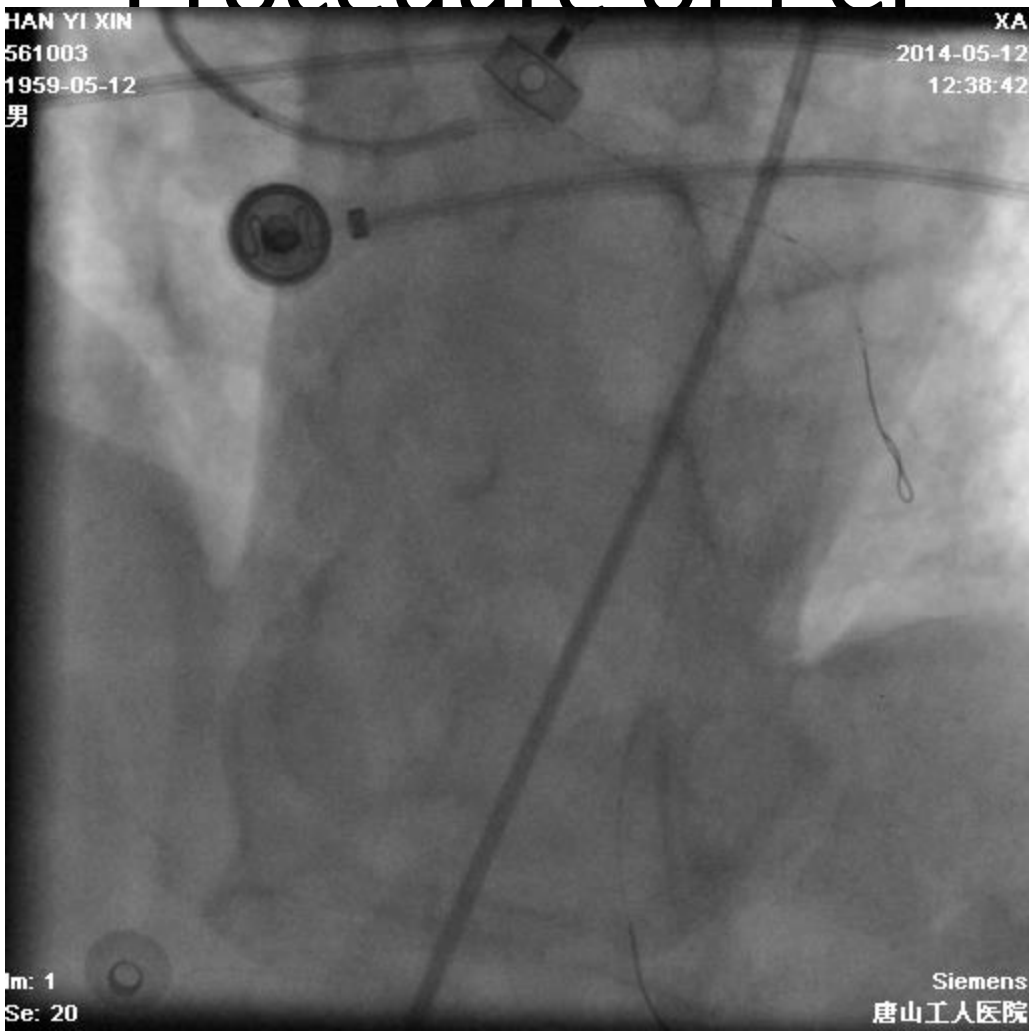

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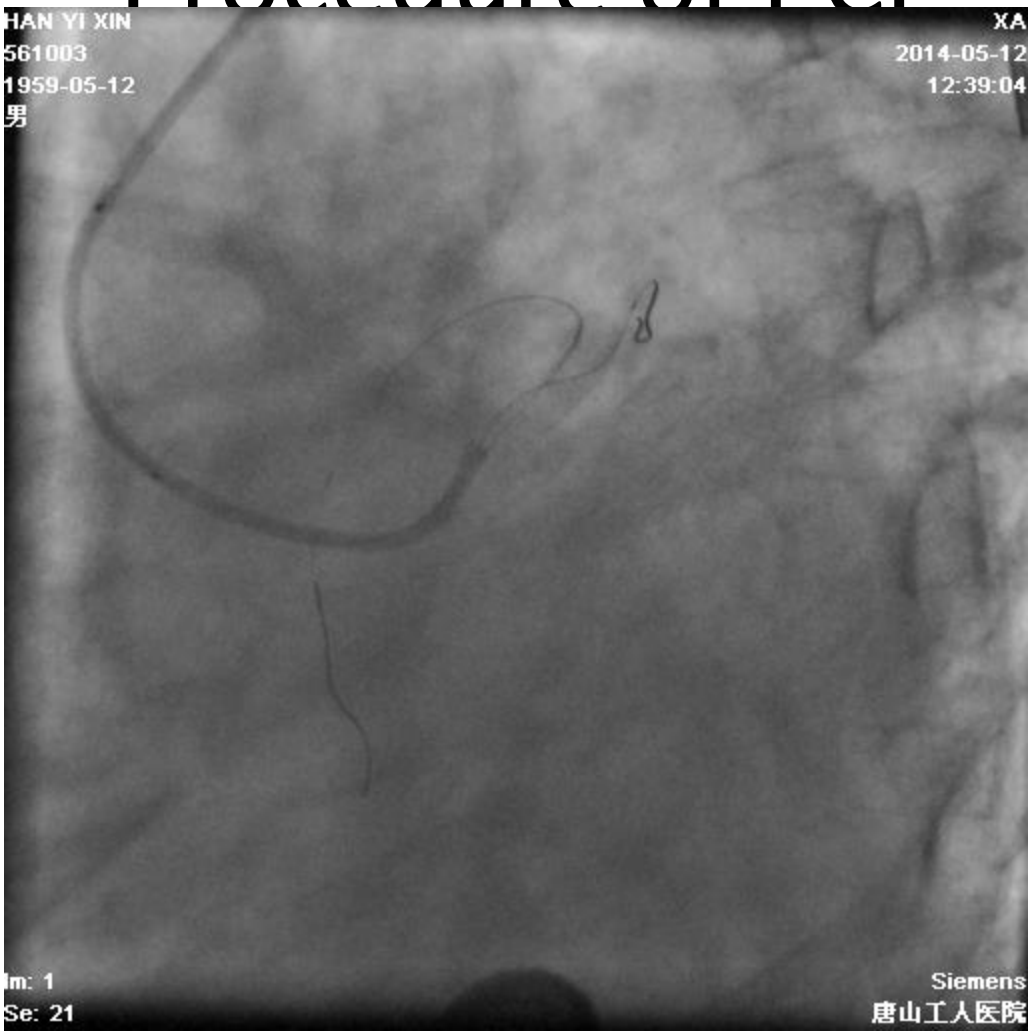

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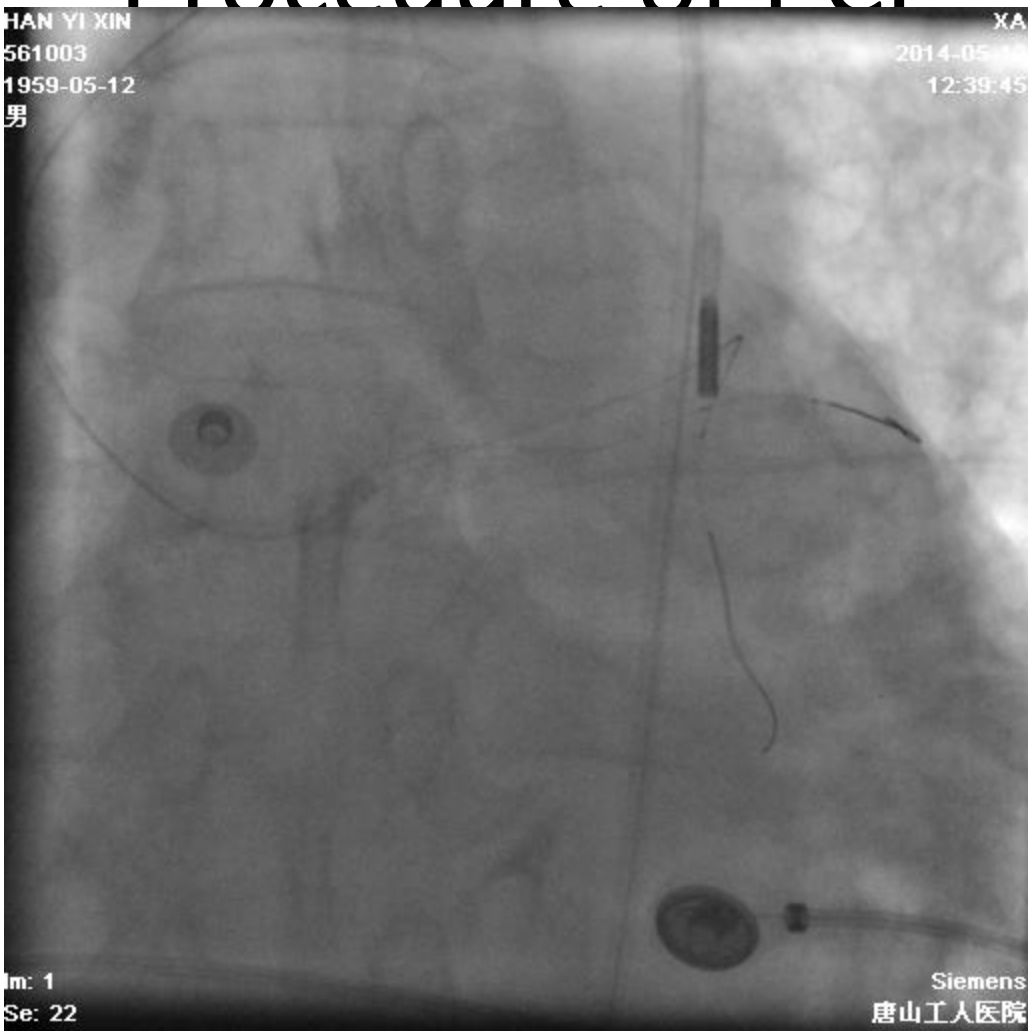

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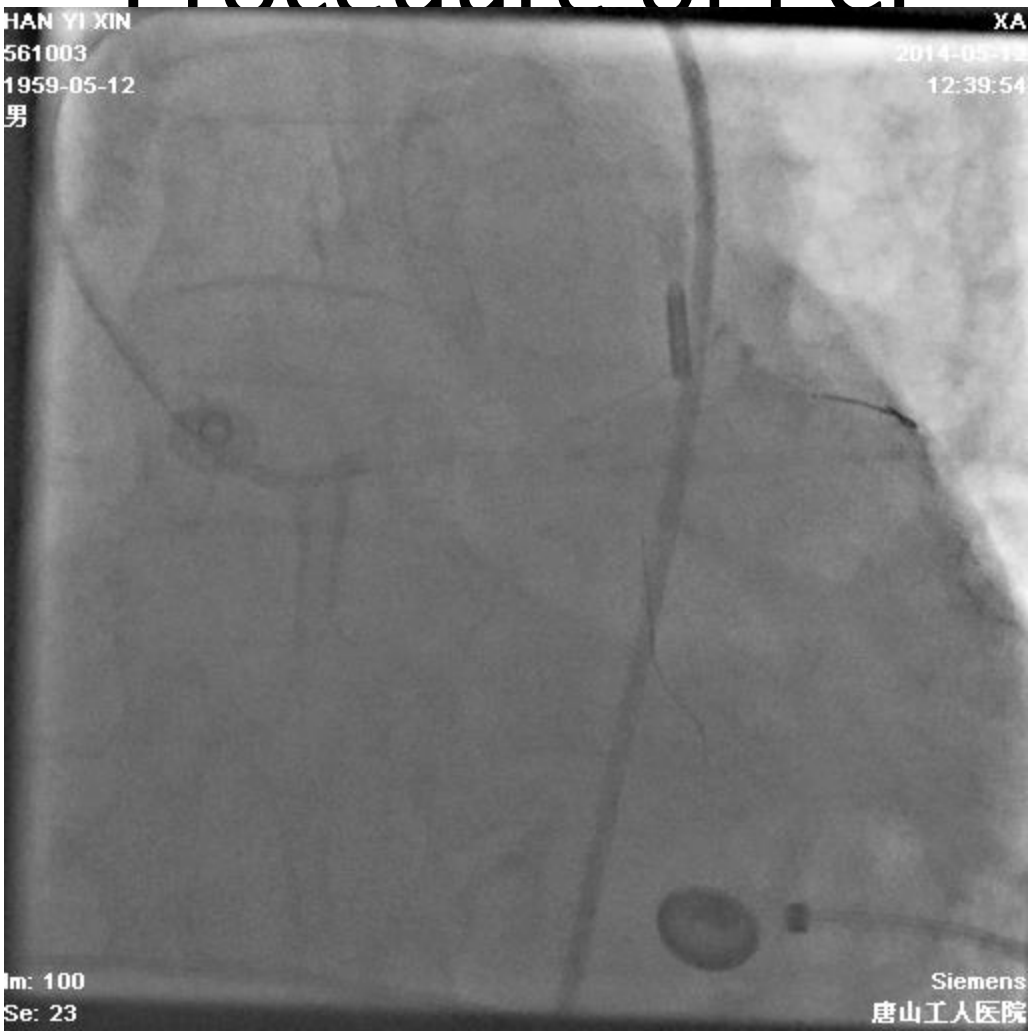

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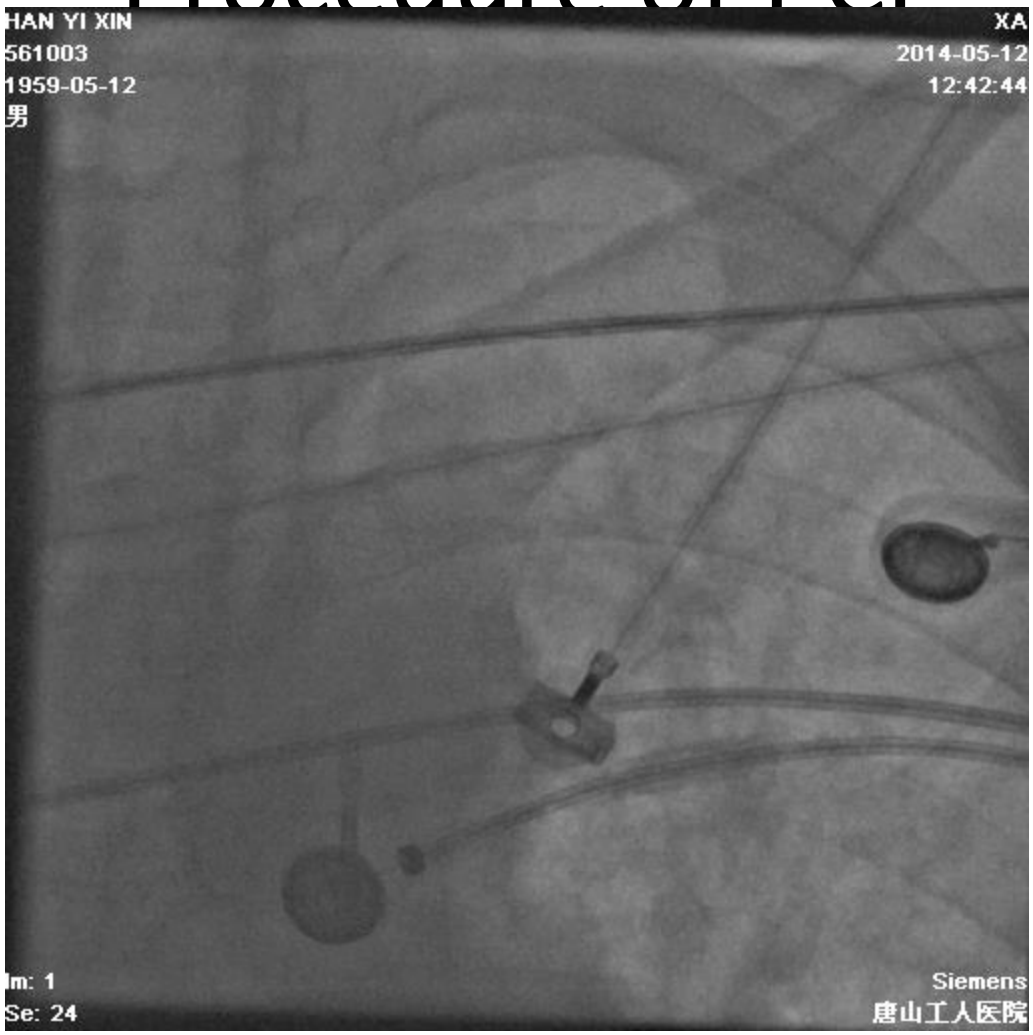
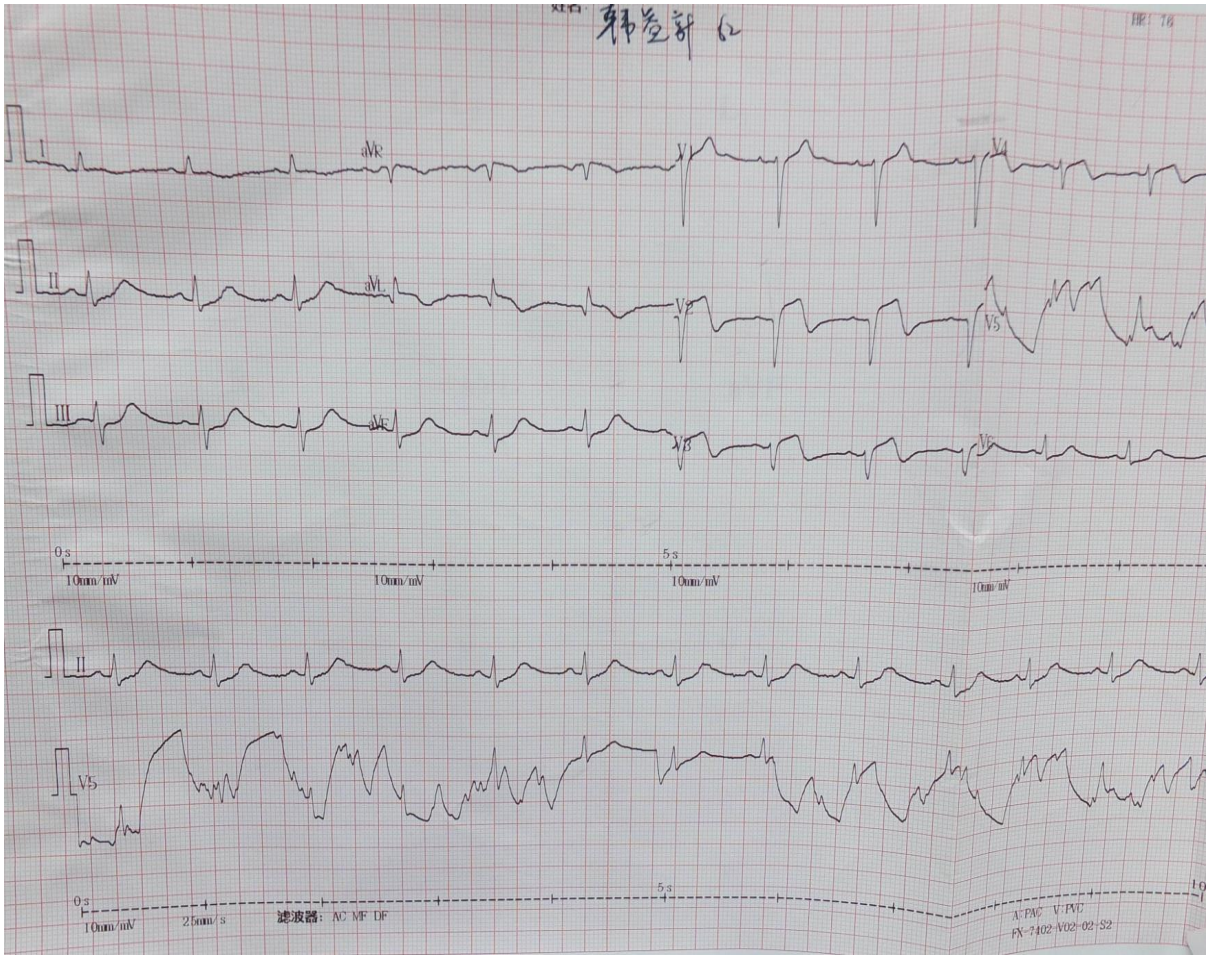
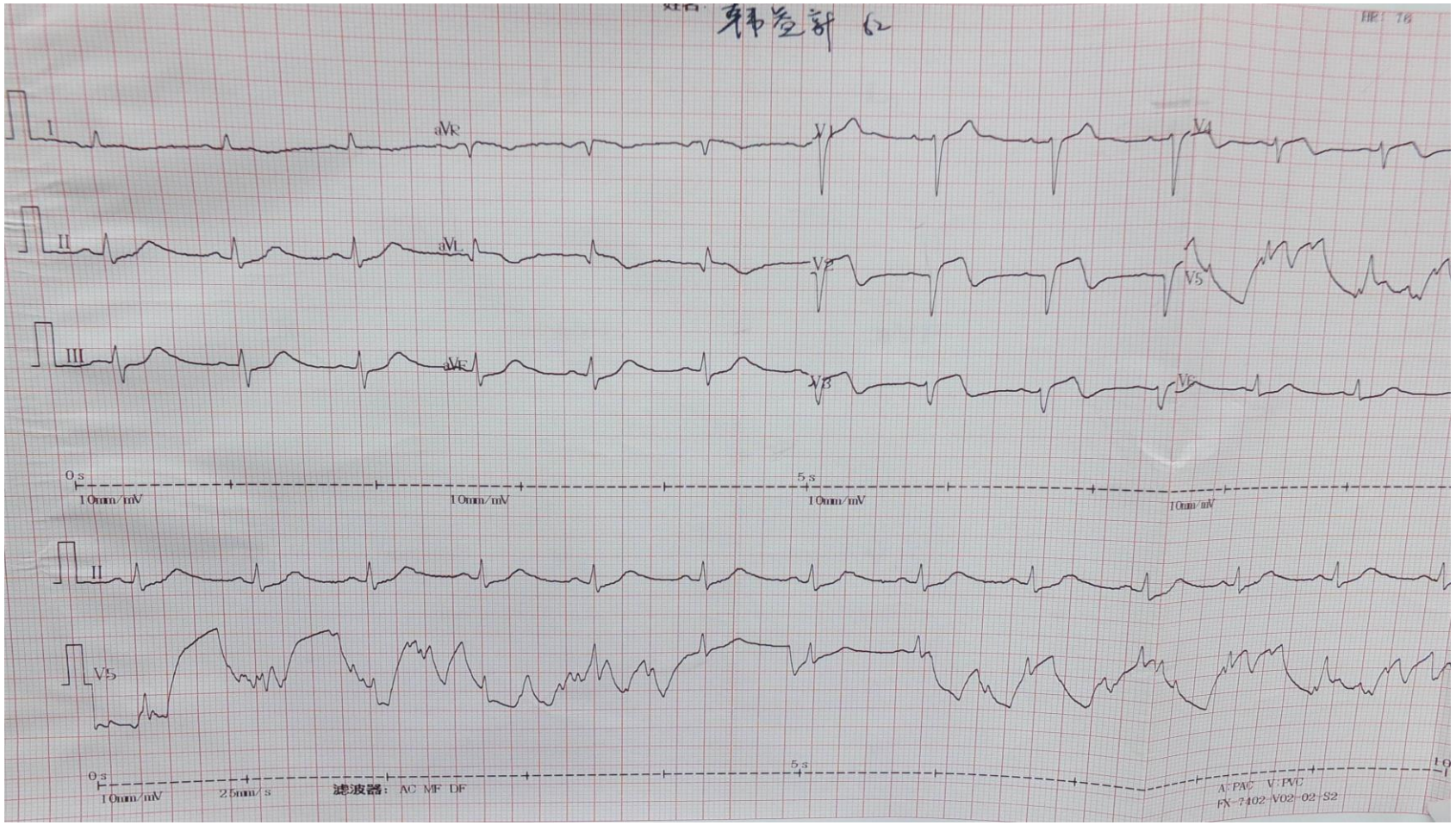


Treatment after PCI

- 12^{th}, May, 2014
- IABP pumped and Dobutamine+ BNP intravenous dripped.
- Tirofiban and heparin were infused.
- EKG monitoring: VP、VT，Amiodarone was infused；
- Blood routine：WBC 17.10x10^9/L,RBC 4.53X10^{12}/L,HGB 153g/L,PLT 258x10^9/L,NEUT 89%,LYMPH 6%;
- TnI 0.083ng/ml,
- NT-proBNP 74ng/L
- Enzyme： LDH589， CK 6394， CK-MB 512， AST 589
- K^+ 3.11， Na^+ 141， Cl^- 106.

EKG right after PCI

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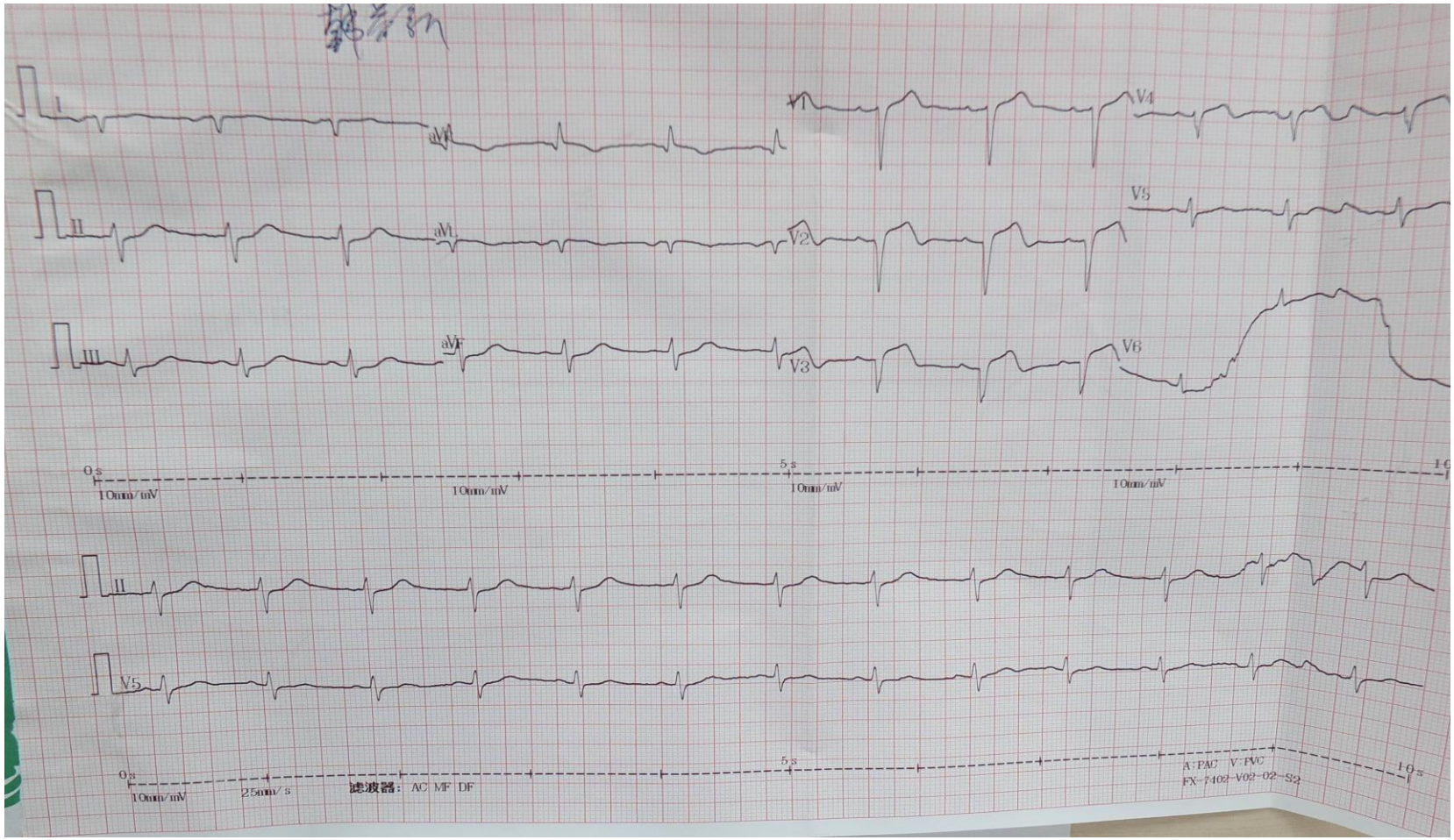
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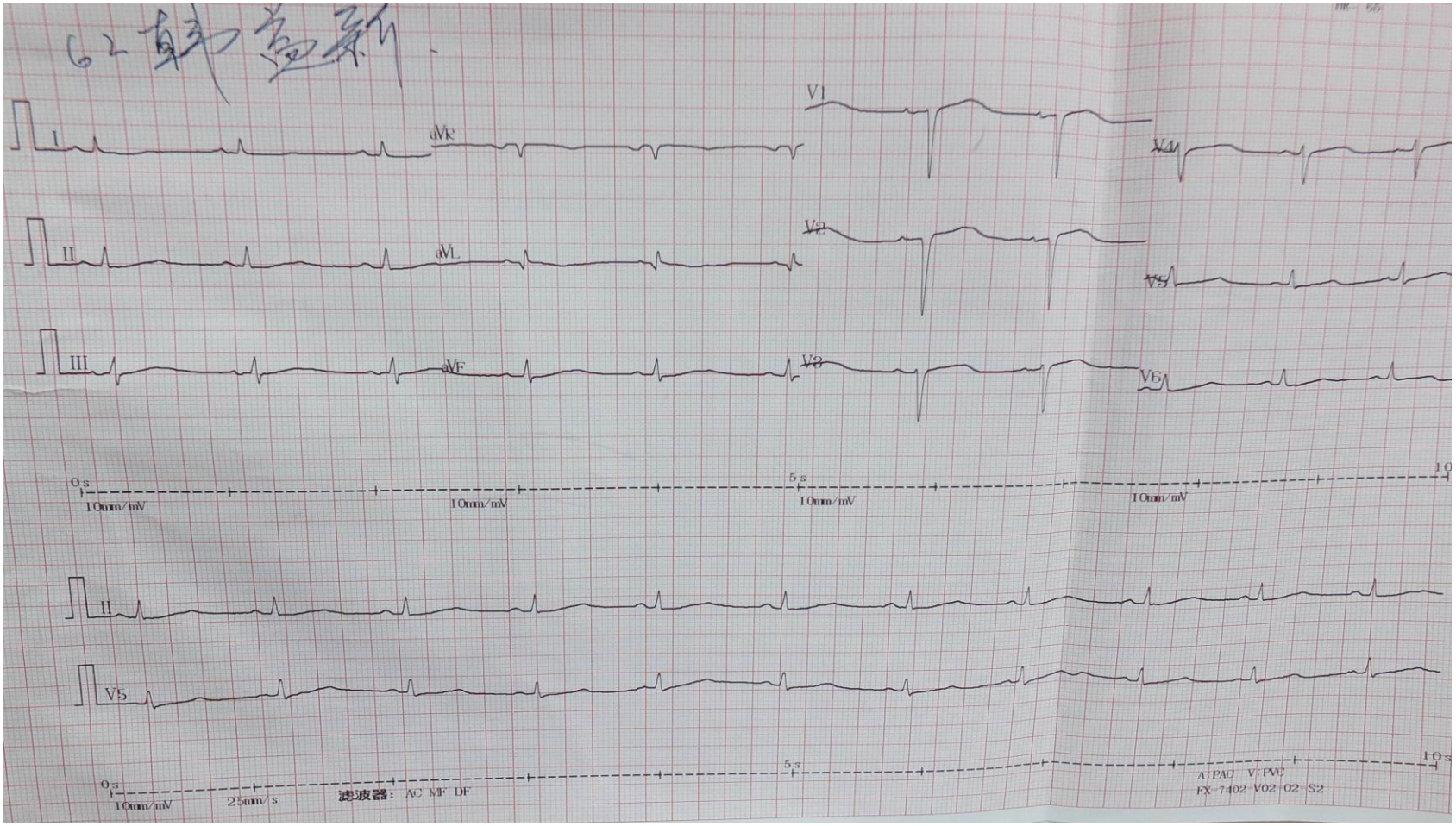
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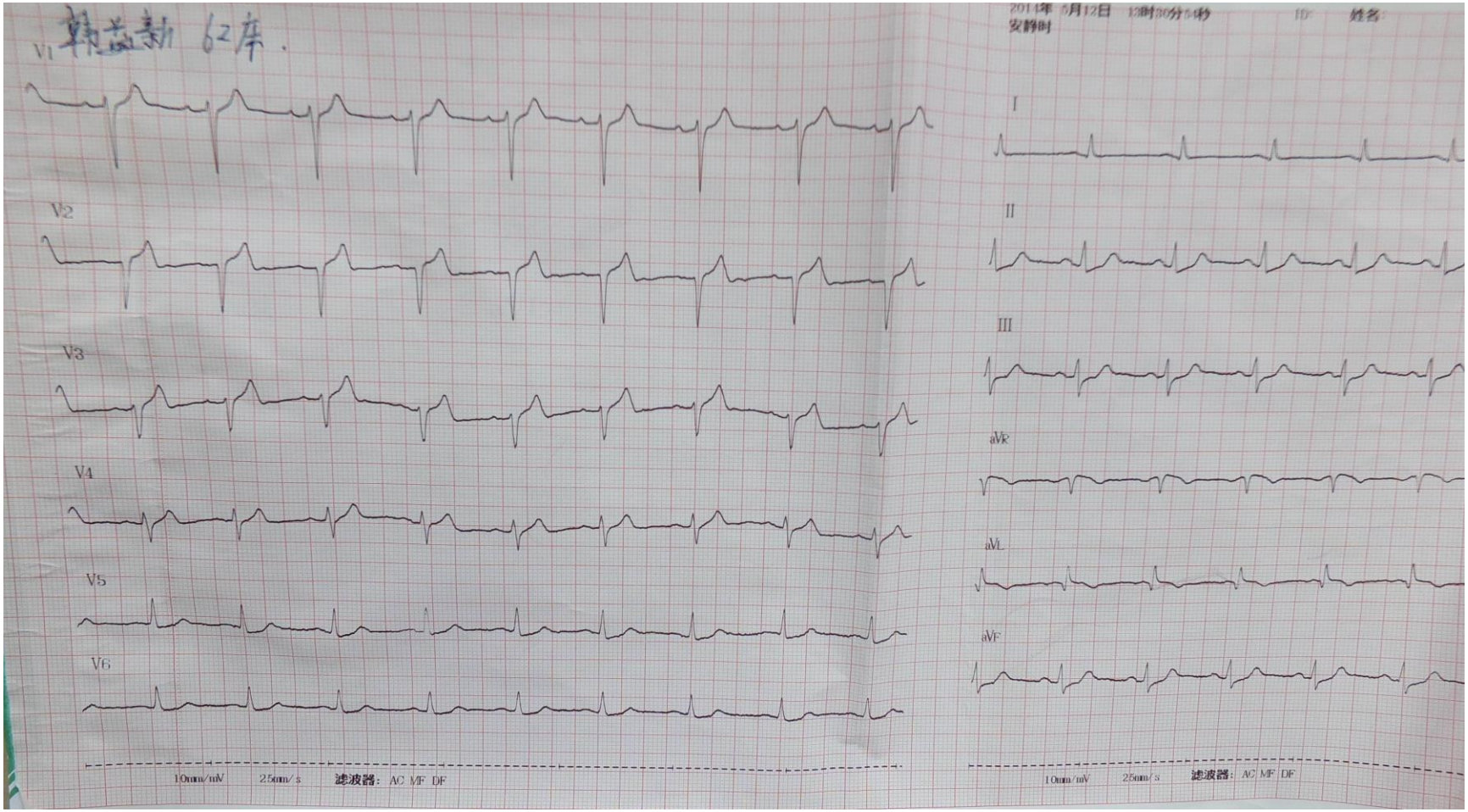
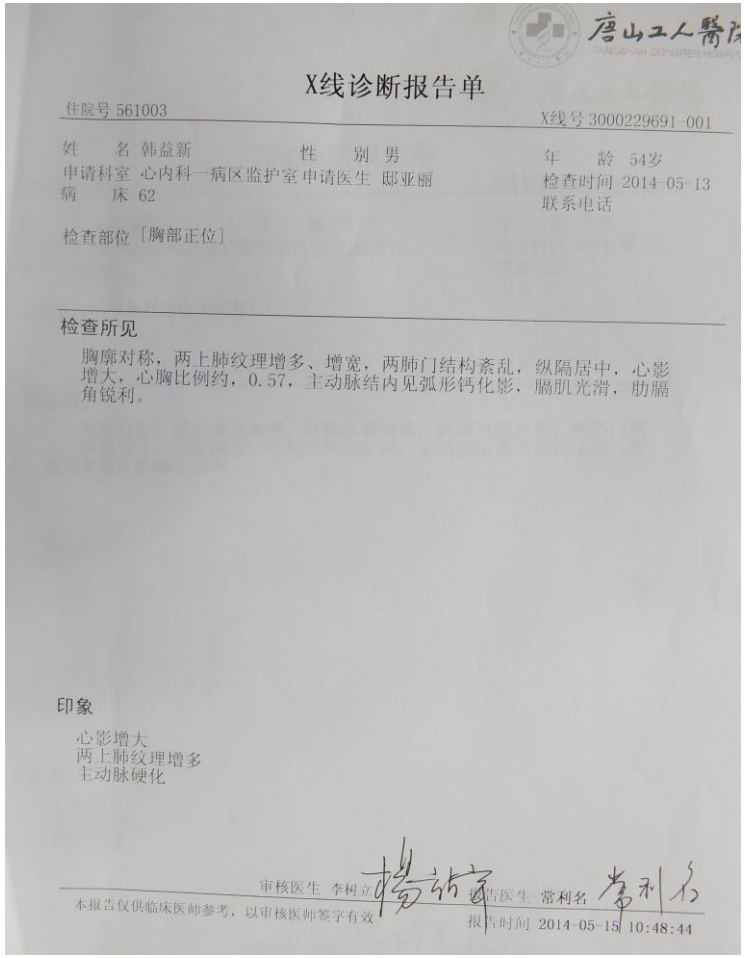
I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
0 s
5 s
10mm/mV
II
V5
25mm/s
濾波器: AC MF DF
A PAC V PVC
FX-7402 V02 02 S2

EKG at 13:30, 12th, May,2014



13th,May,2014, CXR



唐山工人医院

X线诊断报告单

住院号 561003　　X线号 3000229691-001

姓　　名 韩益新　　性　　别 男　　年　　龄 54岁

申请科室 心内科一病区监护室 申请医生 邸亚丽　　检查时间 2014-05-13

病　　床 62　　联系电话

检查部位［胸部正位］

检查所见

胸廓对称，两上肺纹理增多、增宽，两肺门结构紊乱，纵隔居中，心影增大，心胸比例约，0.57，主动脉结内见弧形钙化影，膈肌光滑，肋膈角锐利。

印象

心影增大
两上肺纹理增多
主动脉硬化

审核医生 李树立　　报告医生 常利名

本报告仅供临床医师参考，以审核医师签字有效　　报告时间 2014-05-15 10:48:44

唐山工人医

TANGSHAN GONGREN HOS

X线诊断报告单

住院号 561003　　X线号 3000229691-002

姓　　名 韩益新　　性　　别 男　　年　　龄 54岁

申请科室 心内科一病区监护室 申请医生 安浩君　　检查时间 2014-05-15

病　　床 62　　联系电话

检查部位［胸部前后位（床旁）］

检查所见

胸廓对称，肋骨未见异常，两肺纹理增多，两肺见絮状影，两肺门增大，纵隔居中，心影增大，心胸比例约0.64，主动脉结见弧形钙化影，两膈肌光滑，肋膈角锐利。

印象

心影增大
主动脉硬化
两肺炎症

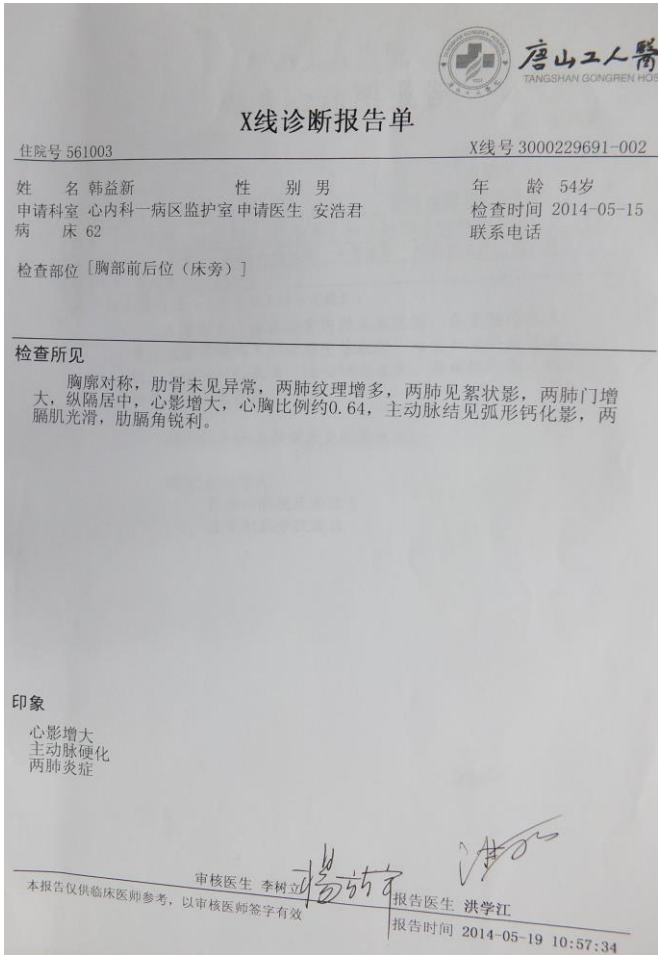
审核医生 李树立

本报告仅供临床医师参考，以审核医师签字有效

报告医生 洪学江

报告时间 2014-05-19 10:57:34

15th, May,2014， CXR showed enlargement of heart,two lungs neumonia.



唐山工人医院
TANGSHAN GONGREN HOSPITAL

X线诊断报告单

住院号 561003　　X线号 3000229691-002

姓　　名 韩益新　　性　　别 男　　年　　龄 54岁
申请科室 心内科一病区监护室 申请医生 安浩君　　检查时间 2014-05-15
病　　床 62　　联系电话

检查部位［胸部前后位（床旁）］

检查所见

胸廓对称，肋骨未见异常，两肺纹理增多，两肺见絮状影，两肺门增大，纵隔居中，心影增大，心胸比例约0.64，主动脉结见弧形钙化影，两膈肌光滑，肋膈角锐利。

印象

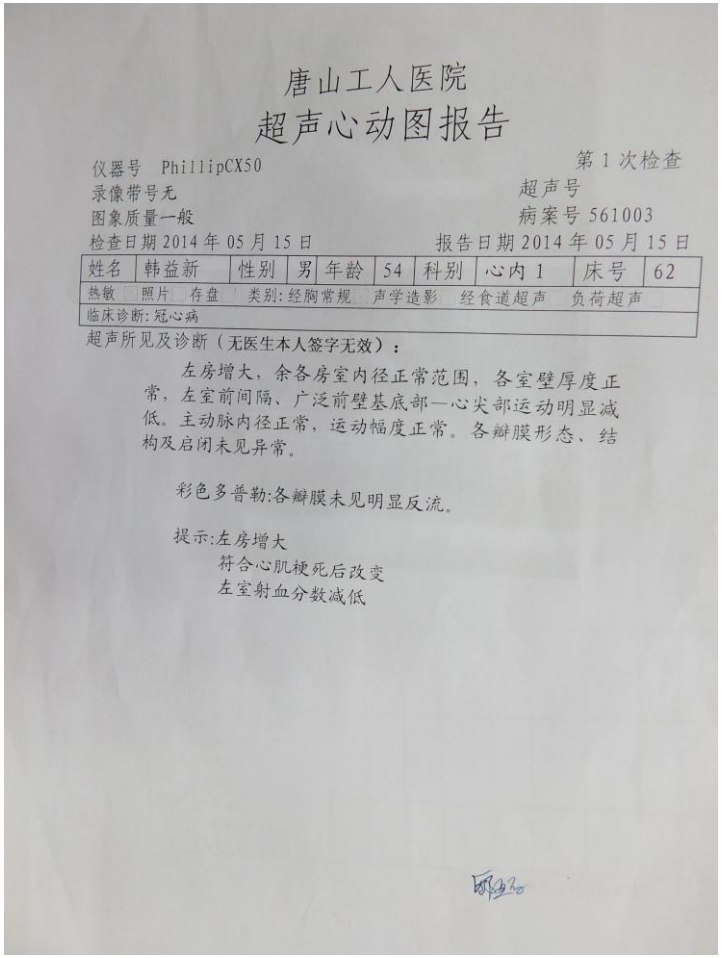
心影增大
主动脉硬化
两肺炎症

审核医生 李树立

本报告仅供临床医师参考，以审核医师签字有效

报告医生 洪学江
报告时间 2014-05-19 10:57:34

Cardiac ultrasonography, 15th, May,2014



唐山工人医院

超声心动图报告

仪器号 PhillipCX50　　第 1 次检查

录像带号无　　超声号

图象质量一般　　病案号 561003

检查日期 2014 年 05 月 15 日　　报告日期 2014 年 05 月 15 日

姓名	韩益新	性别	男	年龄	54	科别	心内 1	床号	62
热敏 □ 照片 □ 存盘		类别: 经胸常规		声学造影		经食道超声		负荷超声	
临床诊断: 冠心病									

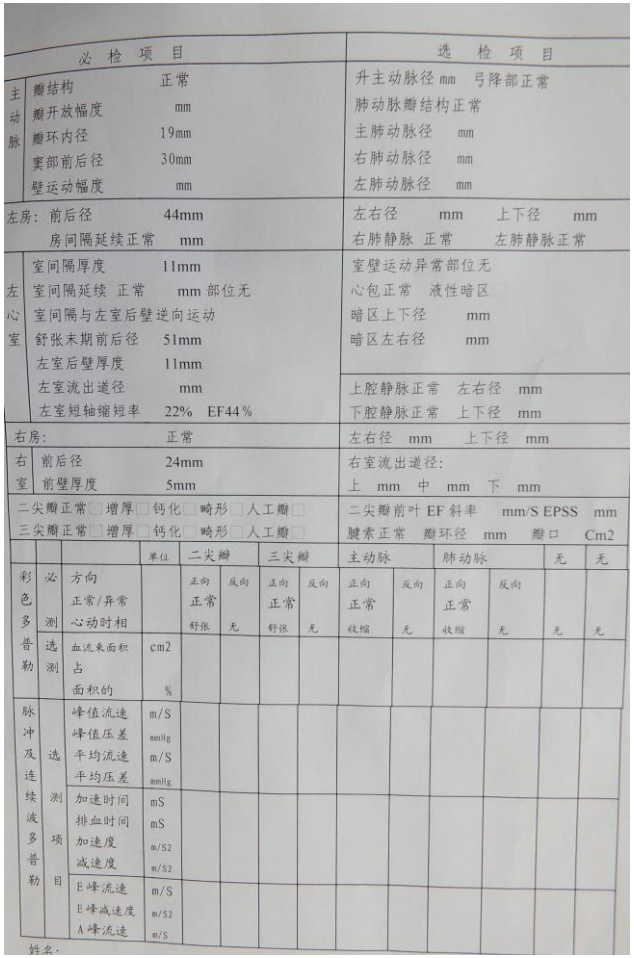
超声所见及诊断（无医生本人签字无效）：

左房增大，余各房室内径正常范围，各室壁厚度正常，左室前间隔、广泛前壁基底部—心尖部运动明显减低。主动脉内径正常，运动幅度正常。各瓣膜形态、结构及启闭未见异常。

彩色多普勒:各瓣膜未见明显反流。

提示:左房增大
符合心肌梗死后改变
左室射血分数减低

Cardiac ultrasonography, 15th, May,2014

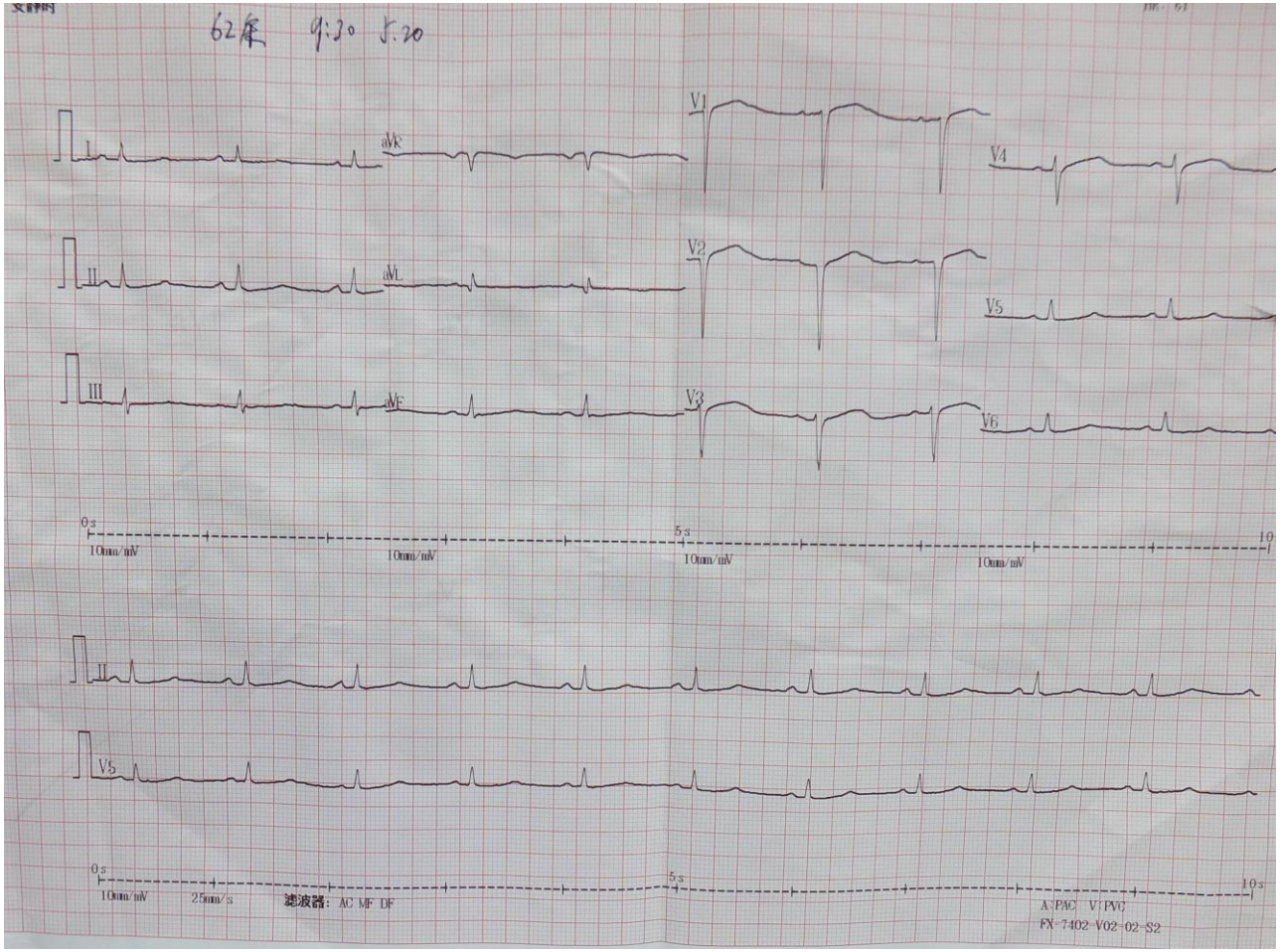


必检项目			选检项目
主动脉	瓣结构	正常	升主动脉径 mm 弓降部正常
	瓣开放幅度	mm	肺动脉瓣结构正常
	瓣环内径	19mm	主肺动脉径 mm
	窦部前后径	30mm	右肺动脉径 mm
	壁运动幅度	mm	左肺动脉径 mm
左房:	前后径	44mm	左右径 mm 上下径 mm
	房间隔延续正常	mm	右肺静脉 正常 左肺静脉正常
左心室	室间隔厚度	11mm	室壁运动异常部位无
	室间隔延续 正常	mm 部位无	心包正常 液性暗区
	室间隔与左室后壁逆向运动		暗区上下径 mm
	舒张末期前后径	51mm	暗区左右径 mm
	左室后壁厚度	11mm	
	左室流出道径	mm	上腔静脉正常 左右径 mm
	左室短轴缩短率	22% EF44%	下腔静脉正常 上下径 mm
右房:		正常	左右径 mm 上下径 mm
右室	前后径	24mm	右室流出道径:
	前壁厚度	5mm	上 mm 中 mm 下 mm
二尖瓣正常□增厚□钙化□畸形□人工瓣□			二尖瓣前叶 EF 斜率 mm/S EPSS mm
三尖瓣正常□增厚□钙化□畸形□人工瓣□			腱索正常 瓣环径 mm 瓣口 Cm2

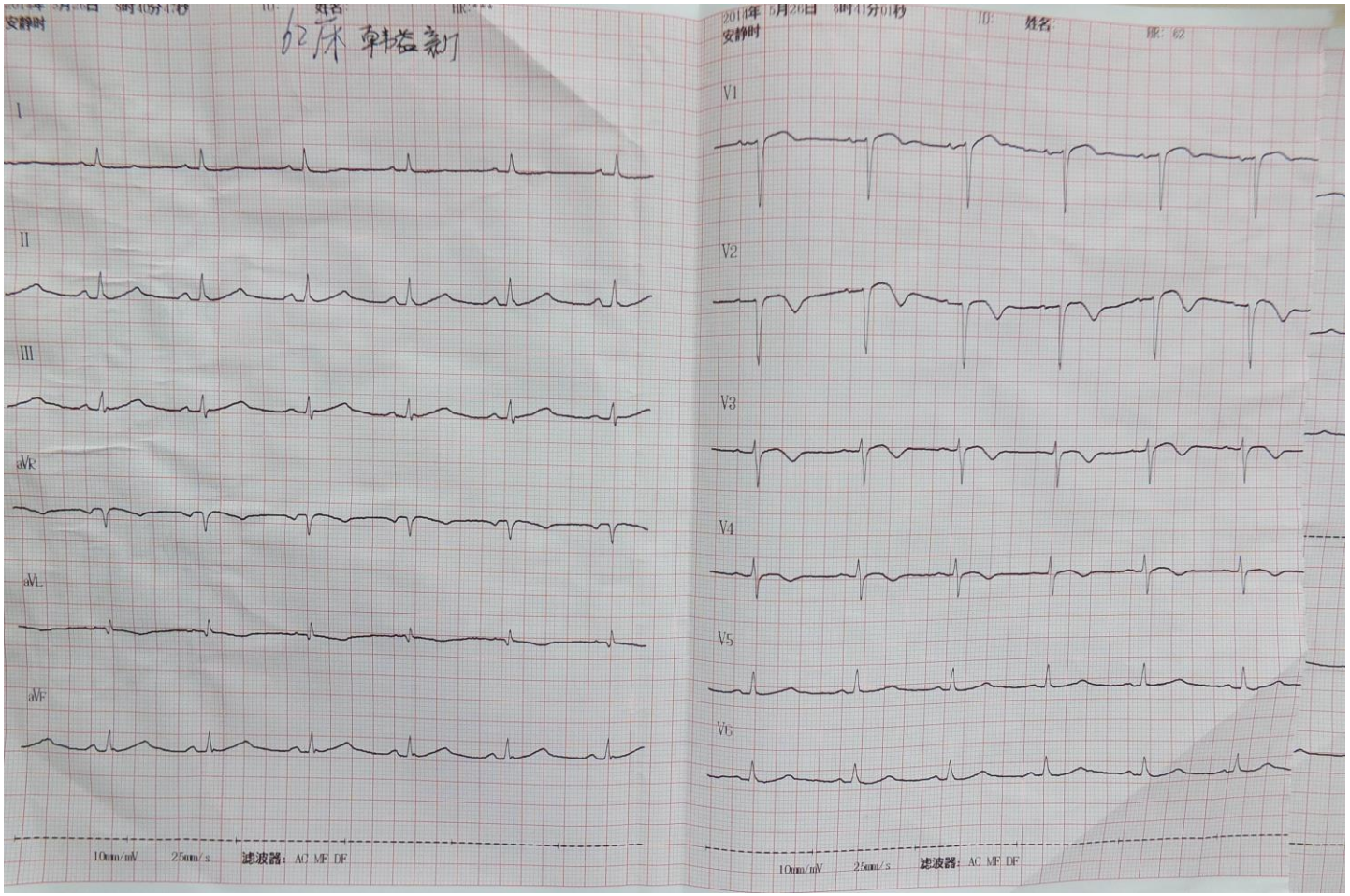
			单位	二尖瓣		三尖瓣		主动脉		肺动脉		无	无
彩色多普勒	必测	方向		正向	反向	正向	反向	正向	反向	正向	反向		
		正常/异常		正常		正常		正常		正常			
		心动时相		舒张	无	舒张	无	收缩	无	收缩	无	无	无
	选测	血流束面积	cm2										
		占面积的	%										
脉冲及连续波多普勒	选测项目	峰值流速	m/S										
		峰值压差	mmHg										
		平均流速	m/S										
		平均压差	mmHg										
		加速时间	mS										
		排血时间	mS										
		加速度	m/S2										
		减速度	m/S2										
		E峰流速	m/S										
		E峰减速度	m/S2										
		A峰流速	m/S										

姓名:

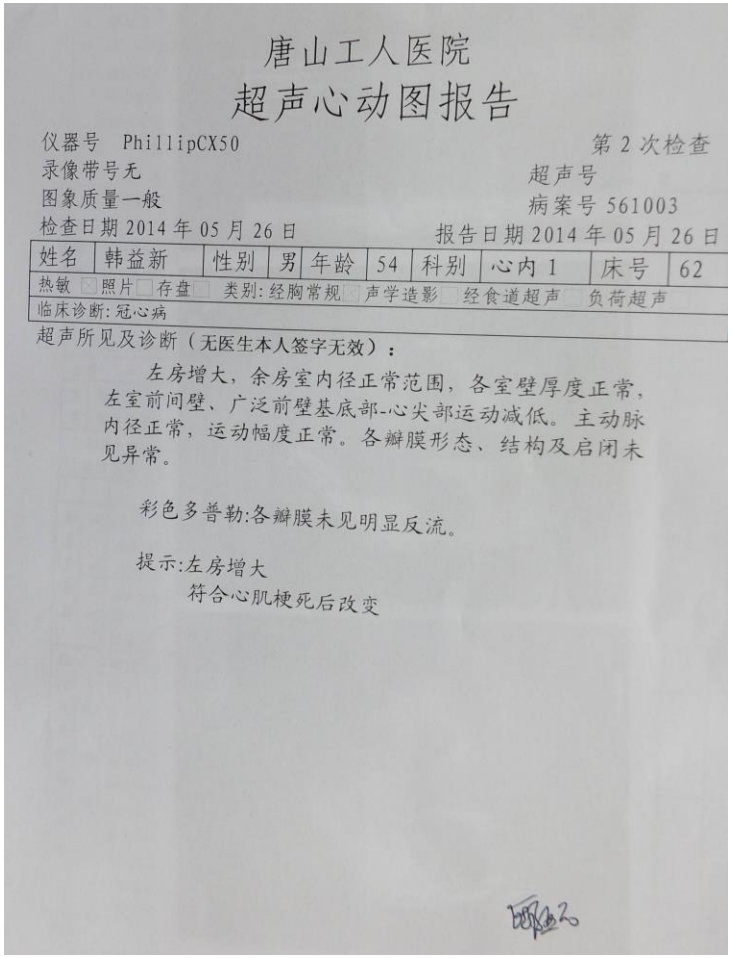
EKG on 20th, May,2014



EKG on 26th, May,2014



UCG on 26th, May,2014



唐山工人医院

超声心动图报告

仪器号 PhillipCX50　　第 2 次检查

录像带号无　　超声号

图象质量一般　　病案号 561003

检查日期 2014 年 05 月 26 日　　报告日期 2014 年 05 月 26 日

姓名	韩益新	性别	男	年龄	54	科别	心内 1	床号	62

热敏 □ 照片 □ 存盘　　类别: 经胸常规 ☑ 声学造影 □ 经食道超声 □ 负荷超声

临床诊断: 冠心病

超声所见及诊断（无医生本人签字无效）：

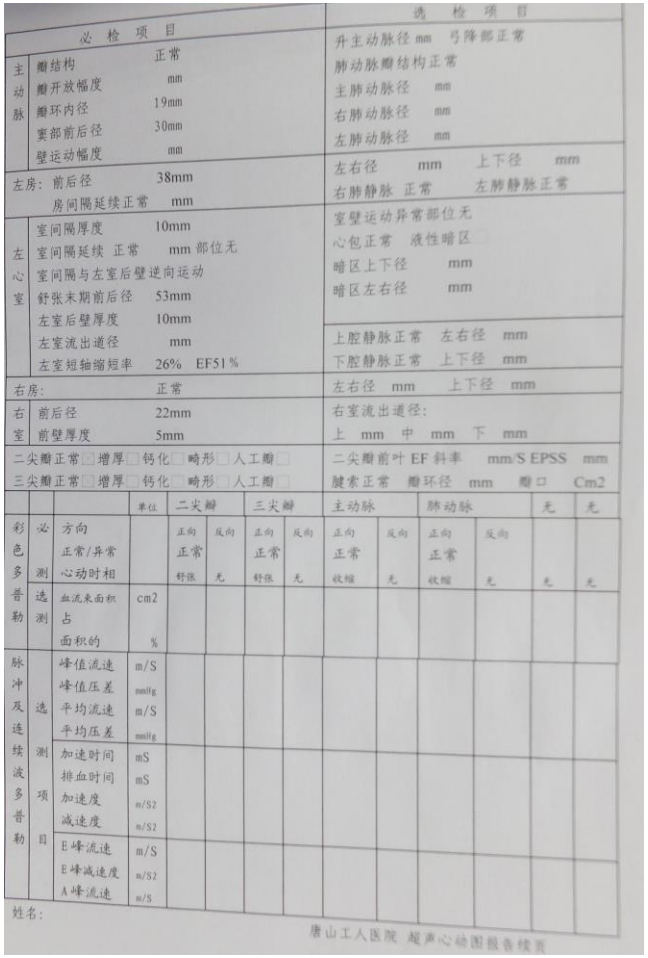
左房增大，余房室内径正常范围，各室壁厚度正常，左室前间壁、广泛前壁基底部-心尖部运动减低。主动脉内径正常，运动幅度正常。各瓣膜形态、结构及启闭未见异常。

彩色多普勒:各瓣膜未见明显反流。

提示:左房增大

符合心肌梗死后改变

UCG on 26th, May,2014



必检项目

主动脉
瓣结构 正常
瓣开放幅度 mm
瓣环内径 19mm
窦部前后径 30mm
壁运动幅度 mm

左房：前后径 38mm
房间隔延续正常 mm

左心室
室间隔厚度 10mm
室间隔延续 正常 mm 部位无
室间隔与左室后壁逆向运动
舒张末期前后径 53mm
左室后壁厚度 10mm
左室流出道径 mm
左室短轴缩短率 26% EF51%

右房：正常

右室
前后径 22mm
前壁厚度 5mm

二尖瓣正常 增厚 钙化 畸形 人工瓣
三尖瓣正常 增厚 钙化 畸形 人工瓣

选检项目

升主动脉径 mm 弓降部正常
肺动脉瓣结构正常
主肺动脉径 mm
右肺动脉径 mm
左肺动脉径 mm

左右径 mm 上下径 mm
右肺静脉 正常 左肺静脉正常

室壁运动异常部位无
心包正常 液性暗区
暗区上下径 mm
暗区左右径 mm

上腔静脉正常 左右径 mm
下腔静脉正常 上下径 mm

左右径 mm 上下径 mm

右室流出道径：
上 mm 中 mm 下 mm

二尖瓣前叶 EF 斜率 mm/S EPSS mm
腱索正常 瓣环径 mm 瓣口 Cm2

			单位	二尖瓣		三尖瓣		主动脉		肺动脉		无	无
彩色多普勒	必测	方向		正向	反向	正向	反向	正向	反向	正向	反向		
		正常/异常		正常		正常		正常		正常			
		心动时相		舒张	无	舒张	无	收缩	无	收缩	无	无	无
	选测	血流束面积	cm2										
		占											
		面积的	%										
脉冲及连续波多普勒	选测项目	峰值流速	m/S										
		峰值压差	mmHg										
		平均流速	m/S										
		平均压差	mmHg										
		加速时间	mS										
		排血时间	mS										
		加速度	m/S2										
		减速度	m/S2										
		E峰流速	m/S										
		E峰减速度	m/S2										
		A峰流速	m/S										

姓名：

唐山工人医院 超声心动图报告续页

second day

- 13th, May, 2014
- TnI 16ng/ml
- NT-proBNP 2230ng/L
- Enzyme： LDH 1038, CK 6394, AST589
- Liver function： ALT 83， AST 433， GGT 34
- Glucose： 6.42mmol/L
- Lipoprotein： TC 6.54mmol/L, TG 0.9, HDL-C 1.05, LDL-C 4.29mmol/L.

The third day

- 14th, May, 2014
- 21:51 patient suddenly lost consciousness, EKG monitored VT, 202bpm, 200J defibrillation，changed to sinus rythm， 89bpm,Bp 130/60 mmHg, amiodarone 300 mg was given, Betaloc was given 25 mg ,twice a day. Potassium was given. K^+3.45mmol/L.

the forth day

- 15th, May,2014
- A little rales in the bottom of two lungs；
- Cardiac ultrasonography：LA，44mm；movement of anterior wall decreased . LVEF44%.
- Plavix stopped, changed to 90mg, bid.

the fifth day

- 16th, May, 2014
- Chest stuffy and short of breath occurred in the morning. Some blood in sputum.
- 24 hours infusion was 3456ml， output was 2800ml；
- Middle volume of sweat rales in two lungs； Hear rate. 70bpm, no heart murmur.

- Blood routine: WBC 12.01x10^9/L, RBC 4.7x10^{12}/L,HGB 157g/L, PLT 179x10^9/L,NEUT83%,LYMPH6%;
- Enzyme： LDH 925， CK 200， CK-MB 16，AST 68
- K 4.03， Na 134， Cl 103
- CXR： neumonia in two lungs.
- CVP：20.5 cm H2O
- Furosemide、Lanatoside、Nitropruside； Antibiotics.

the six day

- 17th, May, 2014
- Feel better, no short of breath；
- 72bpm, no heart murmur；
- 24 hours infusion was 2551ml，output3600ml;
- IABP+Dobutamine 12ug/kg.min+Nitroprusside 20ug/min
- CVP 8cm H2O.

The seventh day

- 18th,May,2014
- CVP 5.5 cm H2O；
- 24 hours infusion was 2210ml， output was 2700ml；
- Bp 110/65mmHg, IABP+Dobutamine 12ug/kg.min+Nitroprusside .10ug/min；
-

The eighth day

- 19th, May, 2014
- No chest stuffy, no cough, no blood sputum.
- 24 hours infusion 2171ml, output was 2300ml。
- BP 123/68mmHg, IABP+Dobutamine 11ug/kg.min
- No rales；
- CVP3.5 cm H2O；
- Albumine , infusion；

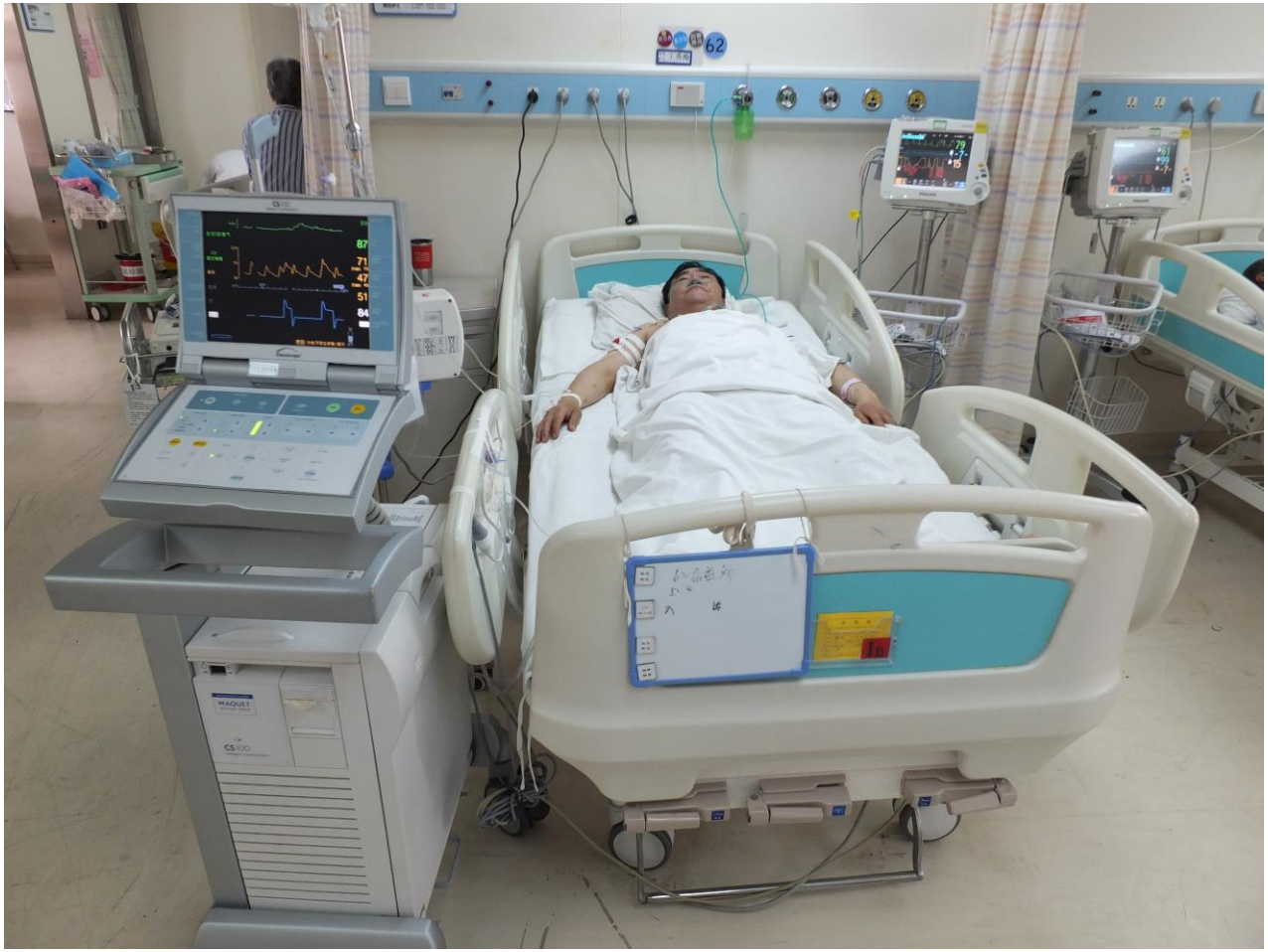
the ninth day

- 20th, May, 2014.
- No symptoms；
- No rales；
- 24 hours infusion 3236ml， output was 3300ml;
- BP114/62mmHg,
- IABP 1:1 changed to 2:1
- Dobutamine was 11ug/kg.min
- CVP 17 cm H2O， Furosemide injection；
-

the tenth day

- 21th, May, 2014.
- No symptoms；
- 24 hours infusion 1552ml, output was 2550ml；
- BP 124/77mmHg， HR 71bpm；
- IABP was pulled out；
- Dobutamine sustained；

Photoes of the patient in CCU on 21th,May,2014



Photoes of the patient in CCU on 21th,May,2014

Photoes of the patient in CCU on 21th,May,2014

Photoes of the patient in CCU on 21th,May,2014

Photoes of the patient in CCU on 21th,May,2014

Photoes of the patient in CCU on 21th,May,2014

Photoes of the patient and his wife in CCU on 21th,May,2014

Photoes of the patient in CCU on 21th,May,2014

Photoes of patient in ordinary Ward on 28th, May, 2014

Photoes of patient in ordinary Ward on 28th, May, 2014

Photoes of patient in ordinary Ward on 28th, May, 2014

Photoes of patient in ordinary Ward on 28th, May, 2014

Photoes of patient in ordinary Ward on 28th, May, 2014

Photoes of patient in ordinary Ward on 28th, May, 2014

Discharge medication

- Aspirin 100mg，QD
- Ticagrelor 90mg，Bid
- Liptor 20mg，QD
- betaloc 12.5mg，Bid
- Benazepril 5mg, QD

Take home message

- AMI patient dued to LM totally occluded is very severe and unstable, especially complicated with cardiac shock.
- We should do immediately primary PCI to open the occluded LM artery.
- IABP should be inserted into the aorta to support the blood pressure and to relieve the after-load.
- BNP and dobutamine are necessary to prevent and treat the heart failure, they should be used early.