

# Case report

## Lead extraction in a patient with long QT syndrome

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# Case report

A 23 year- old female with a history of :

- Congenital long QT syndrome
- A DDDR pacemaker implantation at the age of 10 (2002)
- A dual coil ICD implantation at the age of 15 (2007)
- An ICD replacement at the age of 21 (2013)

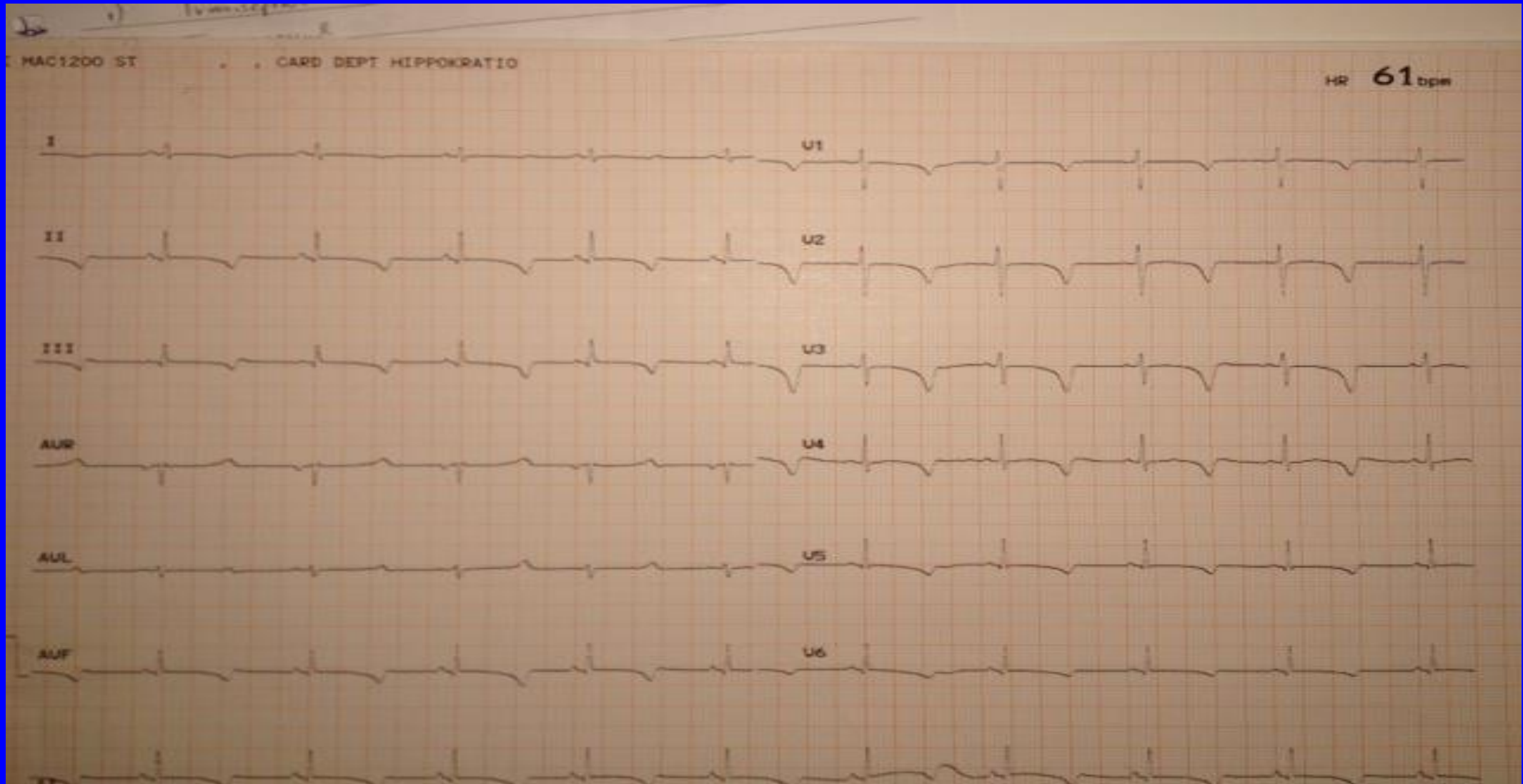
# Family History

- The patient had a family history of congenital long QT syndrome
- Two of her three sisters (the older ones) suffered sudden cardiac arrest and died at the age of 15 and 16 respectively.
- Both our patient and her younger sister were diagnosed with long QT syndrome after the death of their sisters.

# Case report

- The patient admitted to our department for a scheduled lead and pacemaker device extraction due to pocket infection and malfunctioning pacemaker and ICD leads.
- The patient was asymptomatic, never had any arrhythmic episodes and the ICD device had never delivered any shock.

# ECG – long QT syndrome

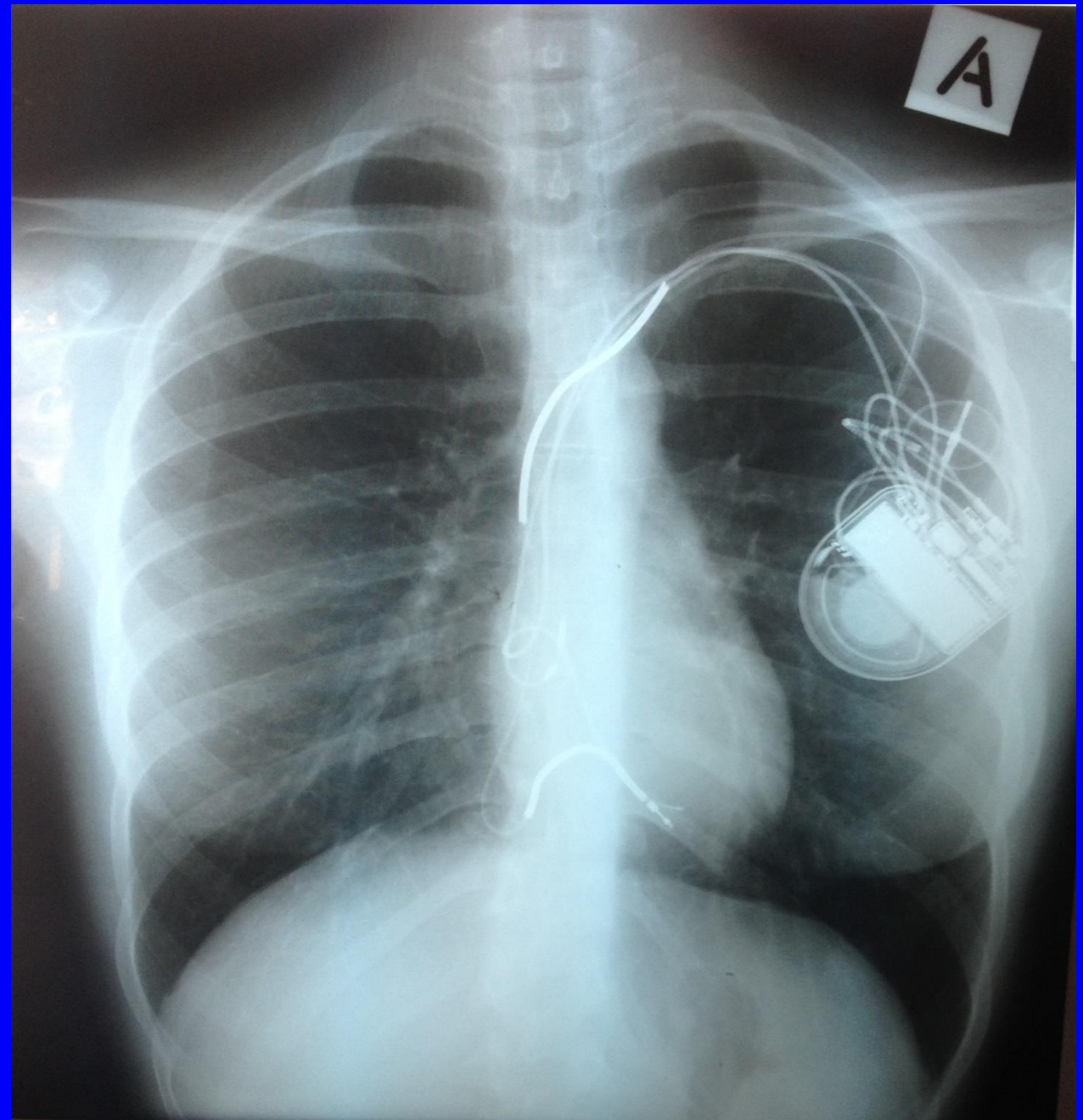


CXR showing the  
three inactive electrodes

a)atrial lead

b)RV lead

c)ICD lead



# Case report

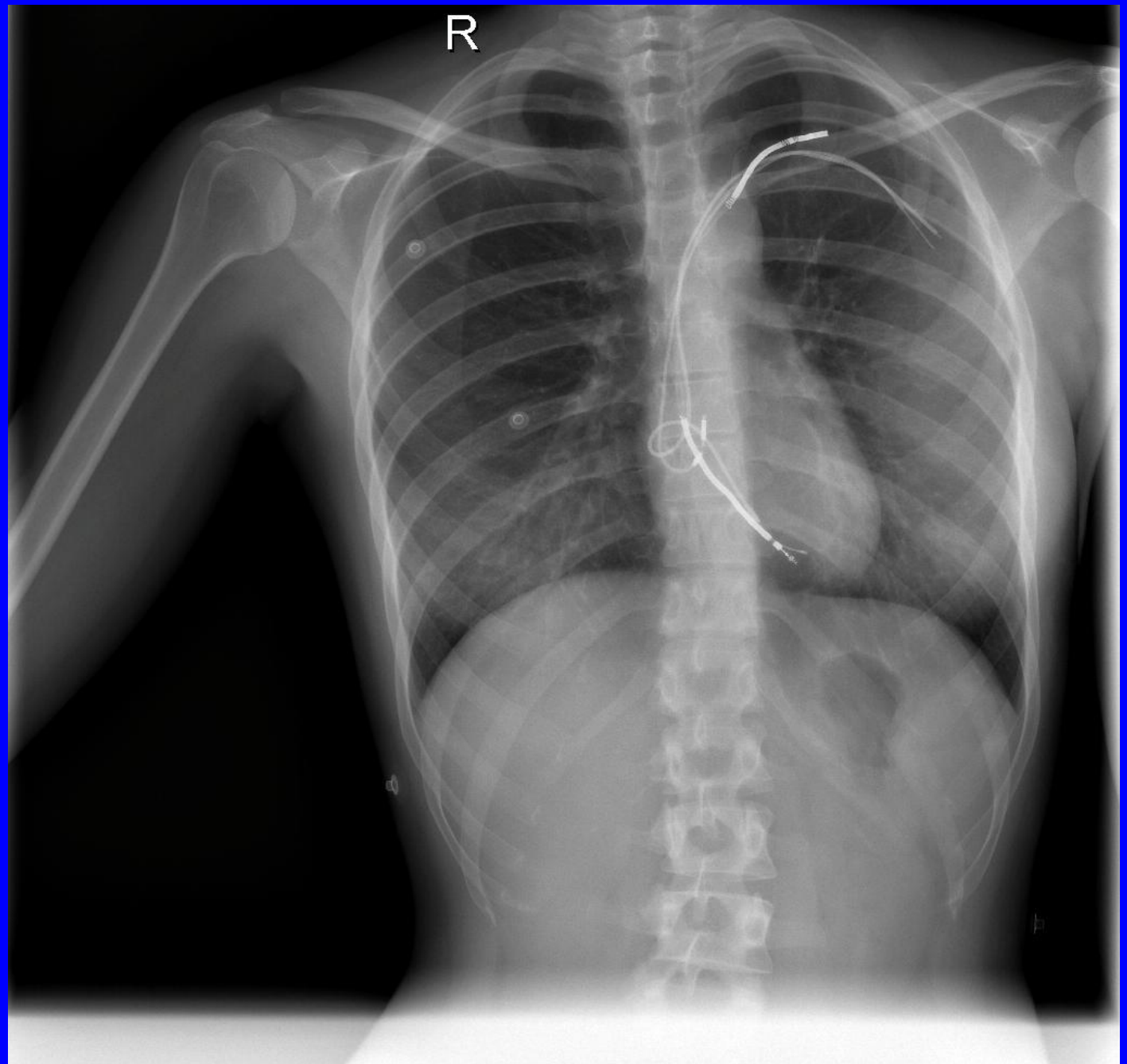
- How should we handle this patient, keeping in mind that she is only 23 years old ?
  1. Extraction all leads and device
  2. Leave the leads and extract only the device
  3. Give only antibiotics and we implant a new one

# Case report

- The decision for the leads and the device extraction was taken.
- The device was extracted successfully.
- The leads were cut prepare and try to extract, but their extraction was unsuccessful.



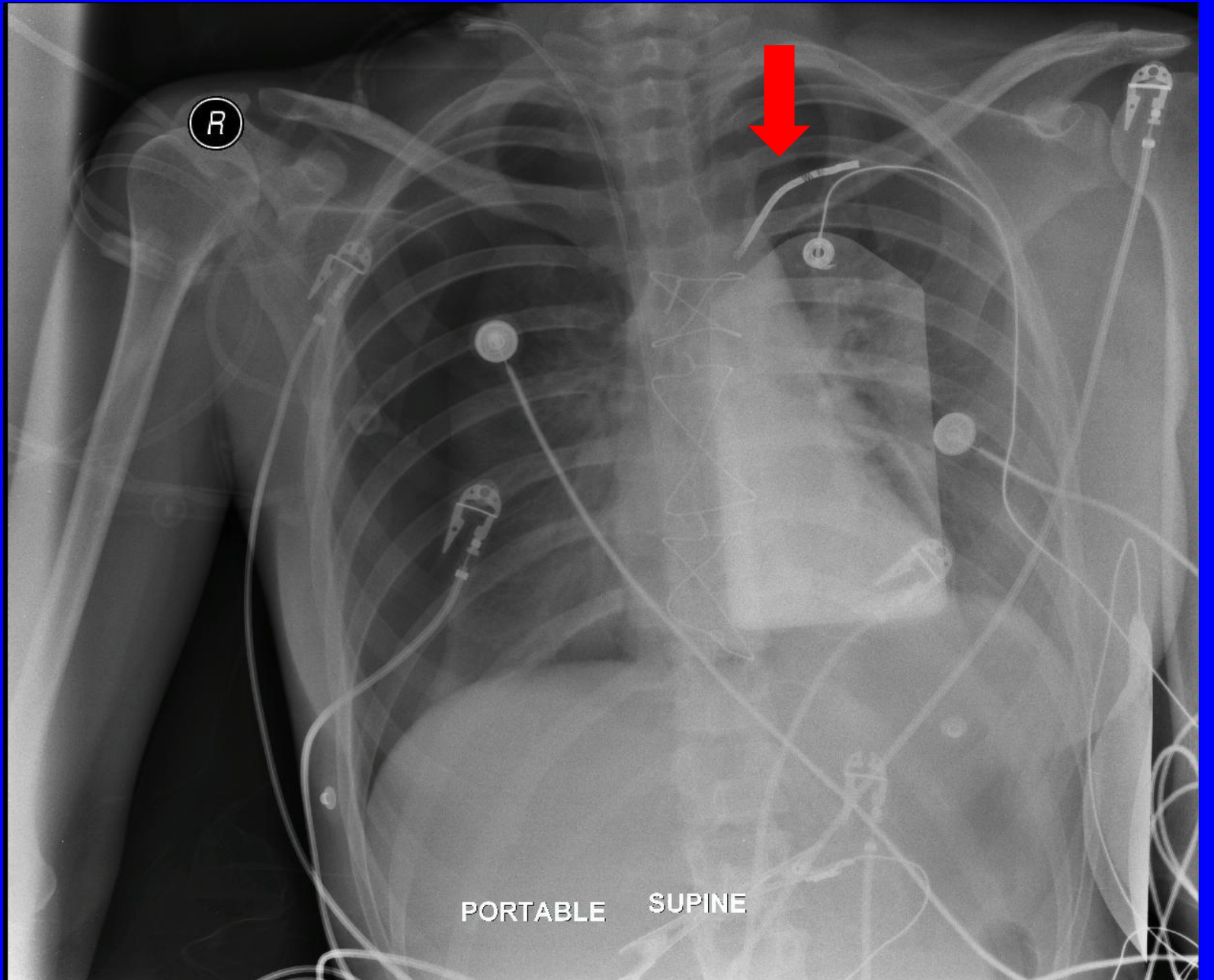
**CXR**  
after the extraction  
of the device and  
the unsuccessful  
lead extraction.



# Case report

- What should we do next?
  1. Leave the leads in this position
  2. Give antibiotics
  3. Go to the cardio surgery

**CXR**  
after the surgical  
extraction



# Case Report

- The tip of the pacemaker electrodes were sent for cultures.
- Administration of meropenem and vancomycin was started
- The patient had a mild fever.
- The cultures of the electrodes tip came out positive to staphylococcus capitis.

# Case Report

- A medical meeting between cardiologists, cardiothoracic surgeons and ID specialist was held and there was a change of the antibiotics (daptomycin instead of vancomycin).
- The patient responded well to the antibiotics and remained afebrile.

# Case Report

- Two weeks later the patient developed aplastic anemia.

# FULL BLOOD COUNT

WBC	1.22	x10.e3 /uL
RBC	3.85	x10.e6 /uL
HGB	10.3	g/dL
HCT	33.1	%
MCV	86	fL
MCH	26.8	pg
MCHC	31.2	g/dL
PLT	149	x10.e3 /uL

# Case Report

- The ID specialist evaluated the patient and the antibiotics were held responsible for the aplastic anemia.
- Antibiotics were stopped immediately
- Growth factor filgrastim (zarzio) was administered iv qd for 2 days.
- The patient responded well and the full blood count values returned to normal range the following days.
- Antibiotic therapy was started again and vancomycin was thereby used.



# FULL BLOOD COUNT

WBC	7.69	x10.e3 /uL
RBC	4.32	x10.e6 /uL
HGB	11.3	g/dL
HCT	36.6	%
MCV	84.8	fL
MCH	26.2	pg
MCHC	30.8	g/dL
PLT	132	x10.e3 /uL

# Case report

- The following days the patient remained stable and afebrile
  - A meeting between cardiologists, thoracic surgeons and vascular surgeons was held about the remaining part of the electrode inside the left subclavian vein.
  - What would you do ?
1. Leave the remaining part of ICD lead in left subclavian vein
  2. Give antibiotics for life
  3. Go to new surgery procedure

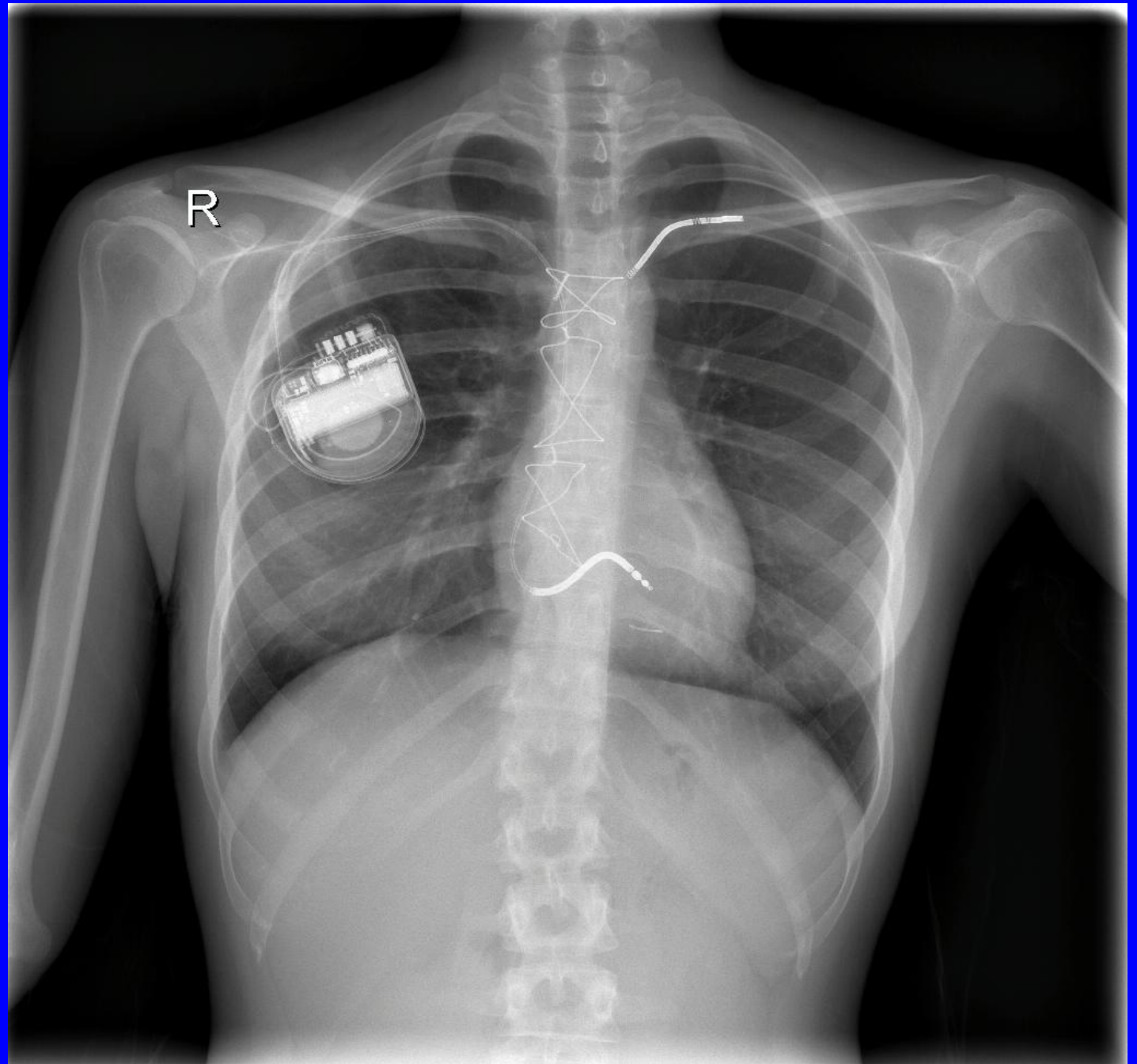
# Case report

- The decision to give up any tries removing it from the left subclavian vein was taken due to the high risk of the procedure.

# Case Report

- The patient finished 6 weeks of antibiotic therapy.
- Antibiotics were stopped and 4 days later blood cultures were taken.
- The patient remained afebrile.
- Blood cultures yielded a negative result.
- An ICD device was implanted through the right subclavian vein without any complications.
- The patient was discharged asymptomatic.

**CXR**  
ICD implantation  
through the right  
subclavian vein.



Thank you for your attention