



MUNICIPAL CARDIAC SURGERY CENTER CARDIAC SURGERY DEPARTMENT

PERSISTENT LEFT SUPERIOR VENA CAVA: CLINICAL CASE

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Natalia Lepakhina, M.D., cardiologist

Dinara Nugaeva, M.D., cardiac surgeon

MDT Employee: Irina Veselova (MDT Russia)

VITATRON Pacing World Series 21-23 June 2018, Athens, Greece

Saint-Petersburg municipal hospital № 2

PATIENT CLINICAL HISTORY

■ GENDER

- Female patient (58 year)

■ CLINICAL PROCURE HISTORY

- IPG implantation
- Sick sinus syndrome (sinus node arrest with syncope)

■ DEVICE

- MDT ENSURA DDDR MRI pacemaker

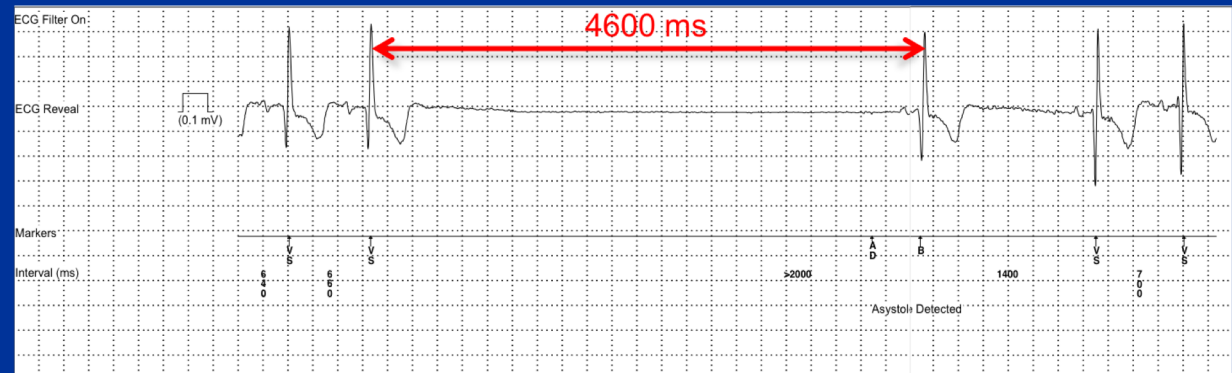
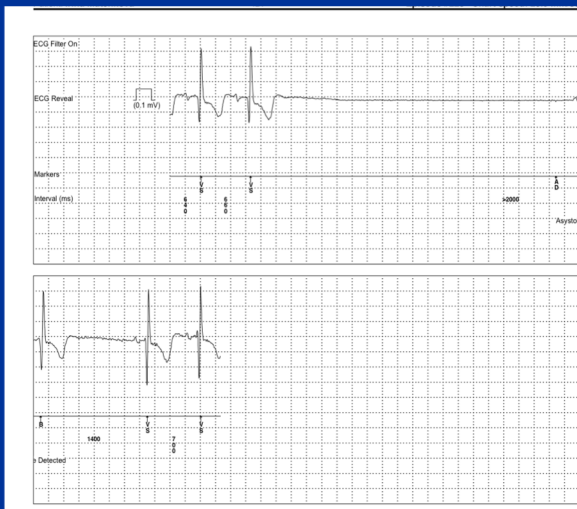
■ LIFE STYLE

- Active, working woman

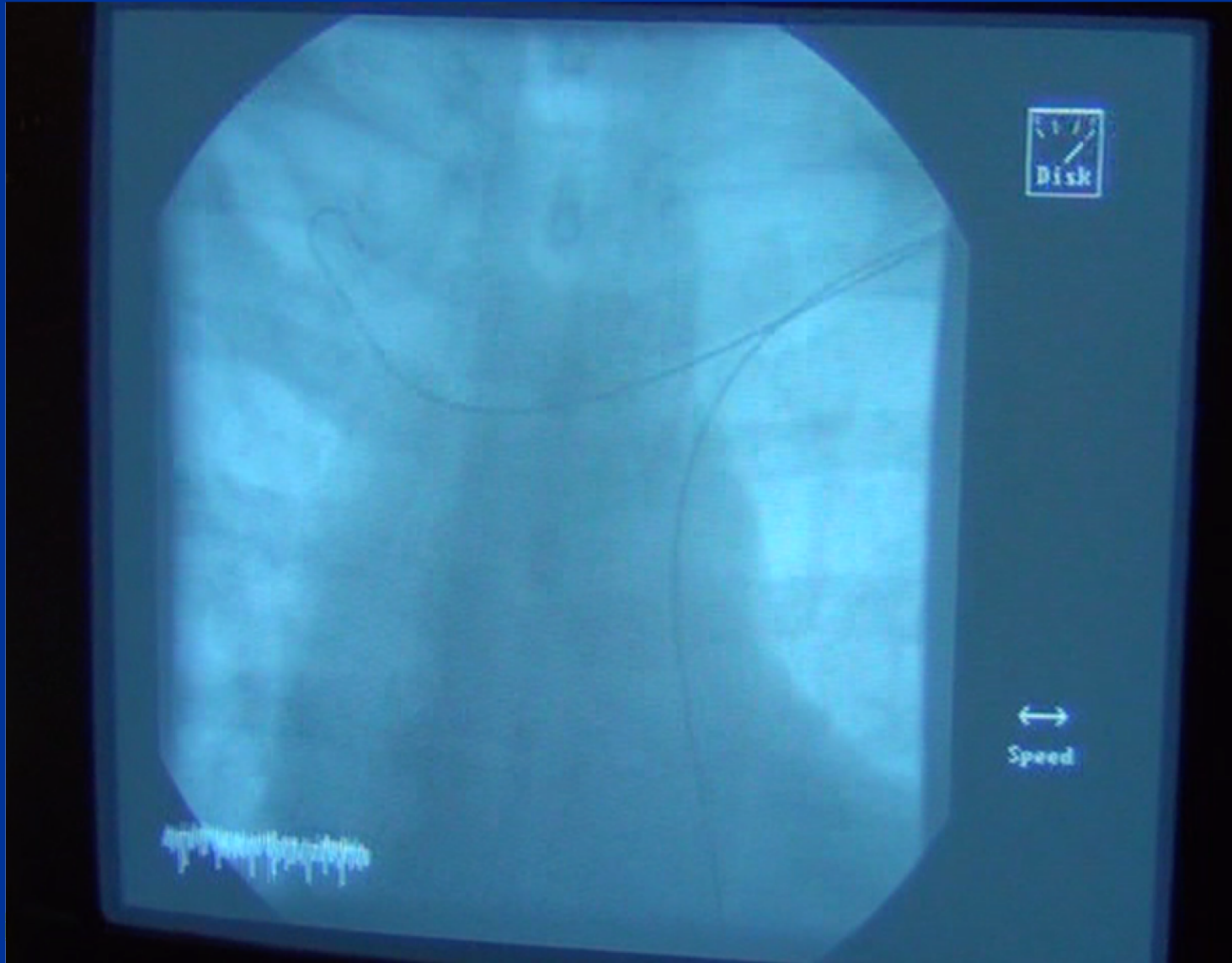
CASE DESCRIPTION

PREAMBLE

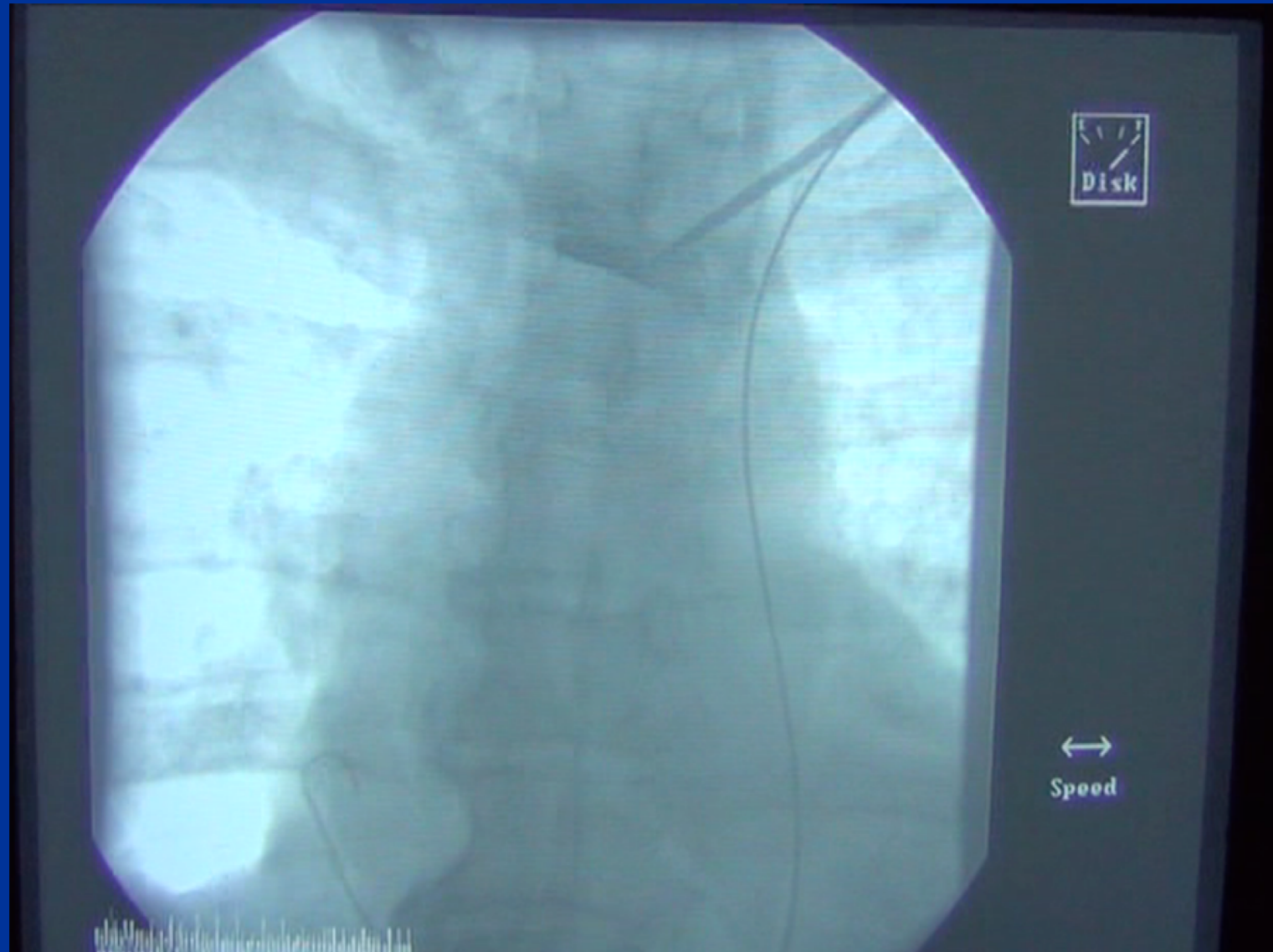
- Patient had loss of consciousness (4-5 per year). She was examined, including ECG monitoring (3 days), cerebral MRI and EEG. **NOTHING!**
- Controversial examination data encouraged us to implant loop recorder Reveal XT (Medtronic, USA). One day later, the patient developed a typical syncope. Analyzing telemetric data of the monitor we found symptomatic pauses due to sinus arrest (up to 4600 ms) and patient has received DDDR MRI IPG.



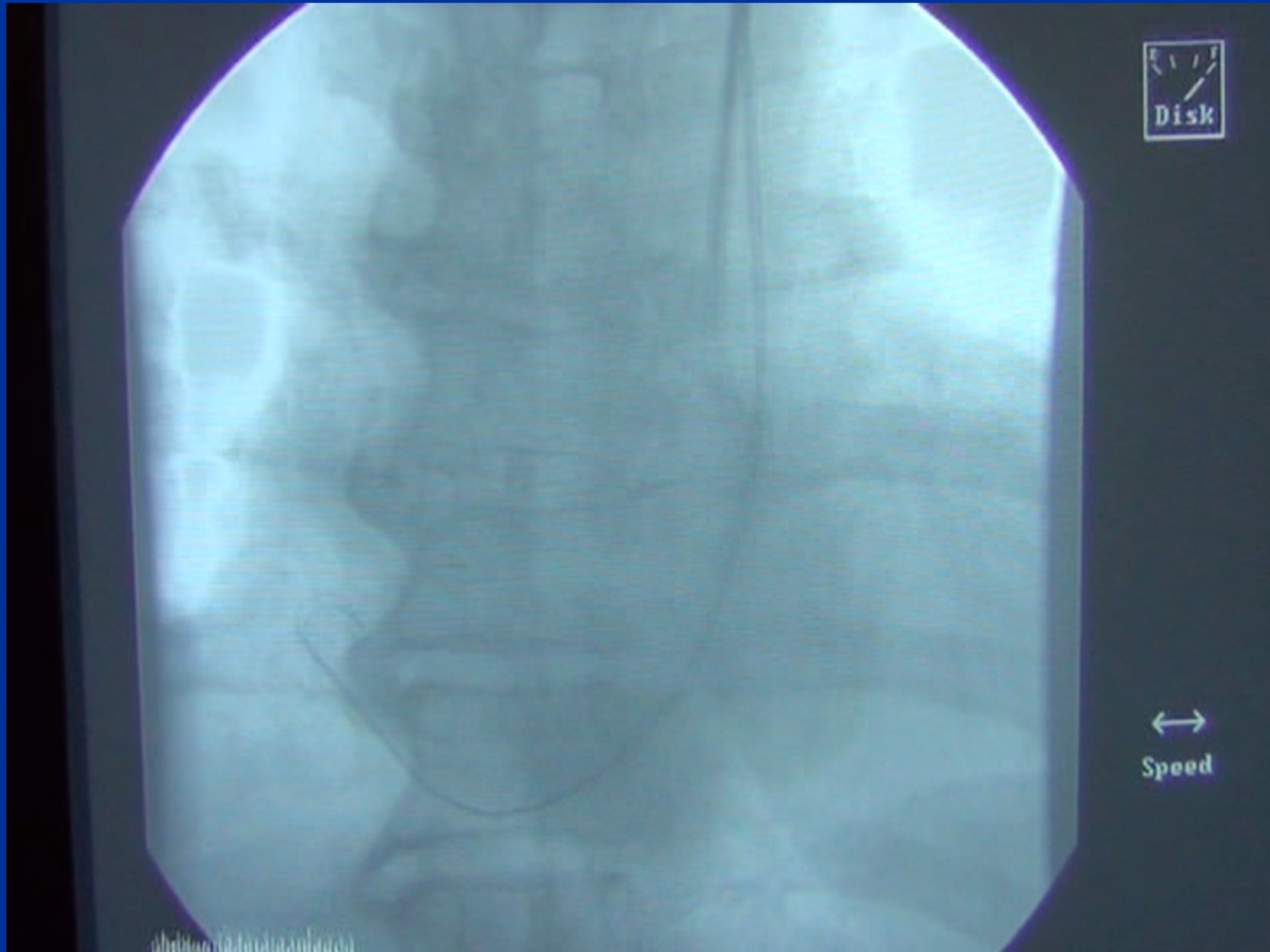
PROCEDURE



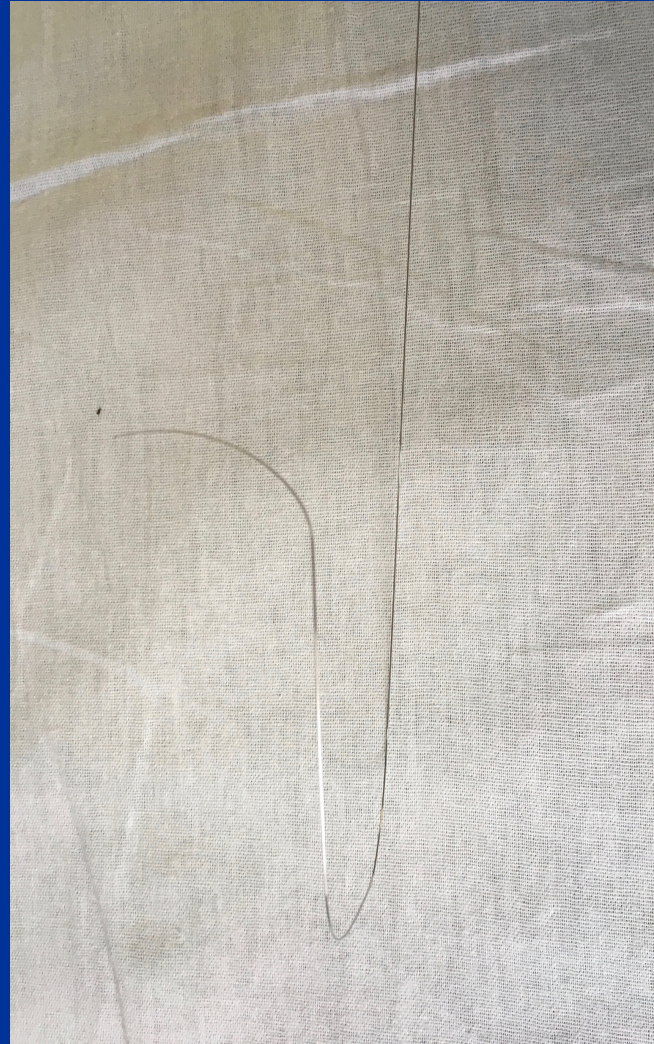
PROCEDURE



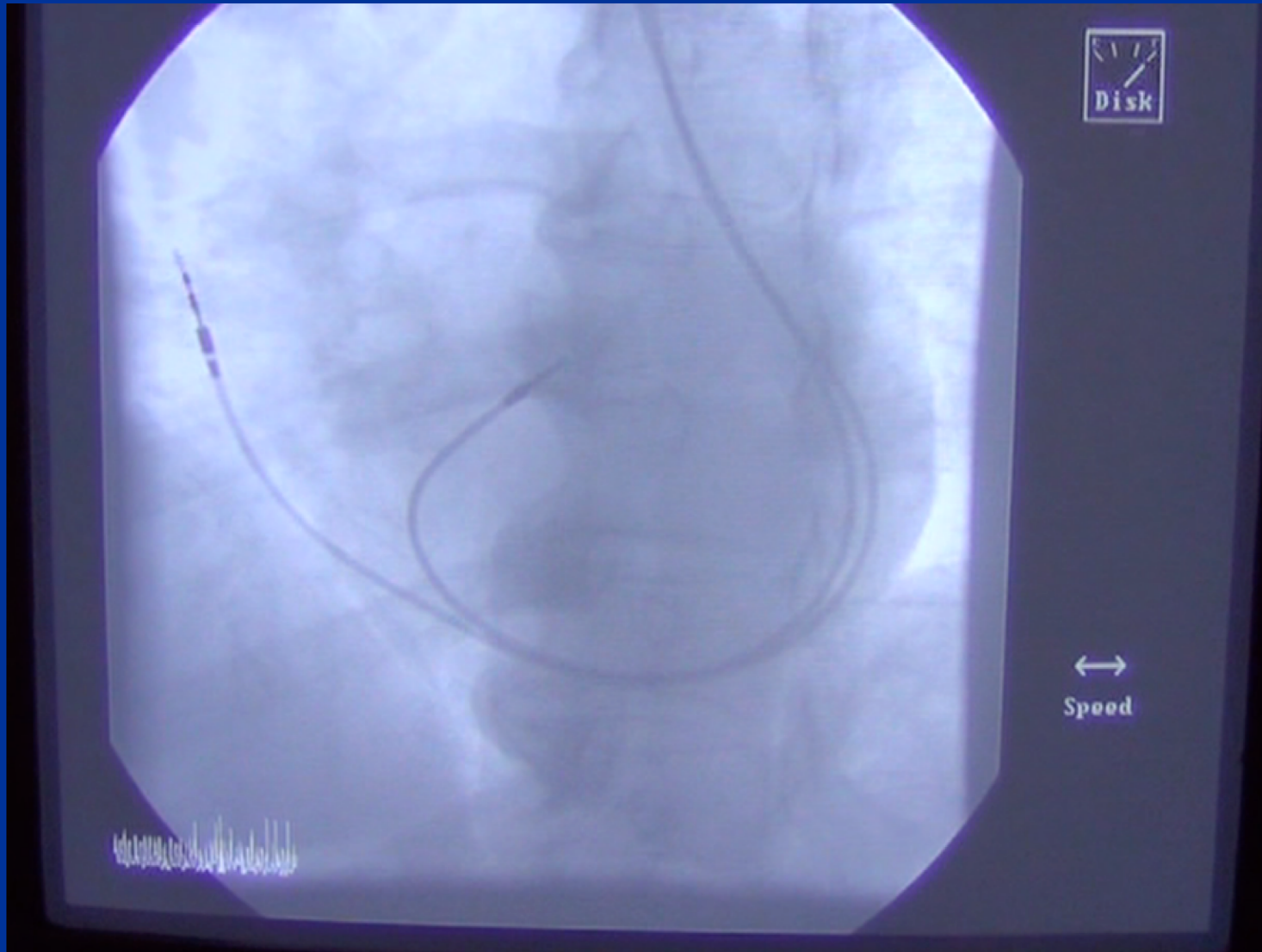
PROCEDURE



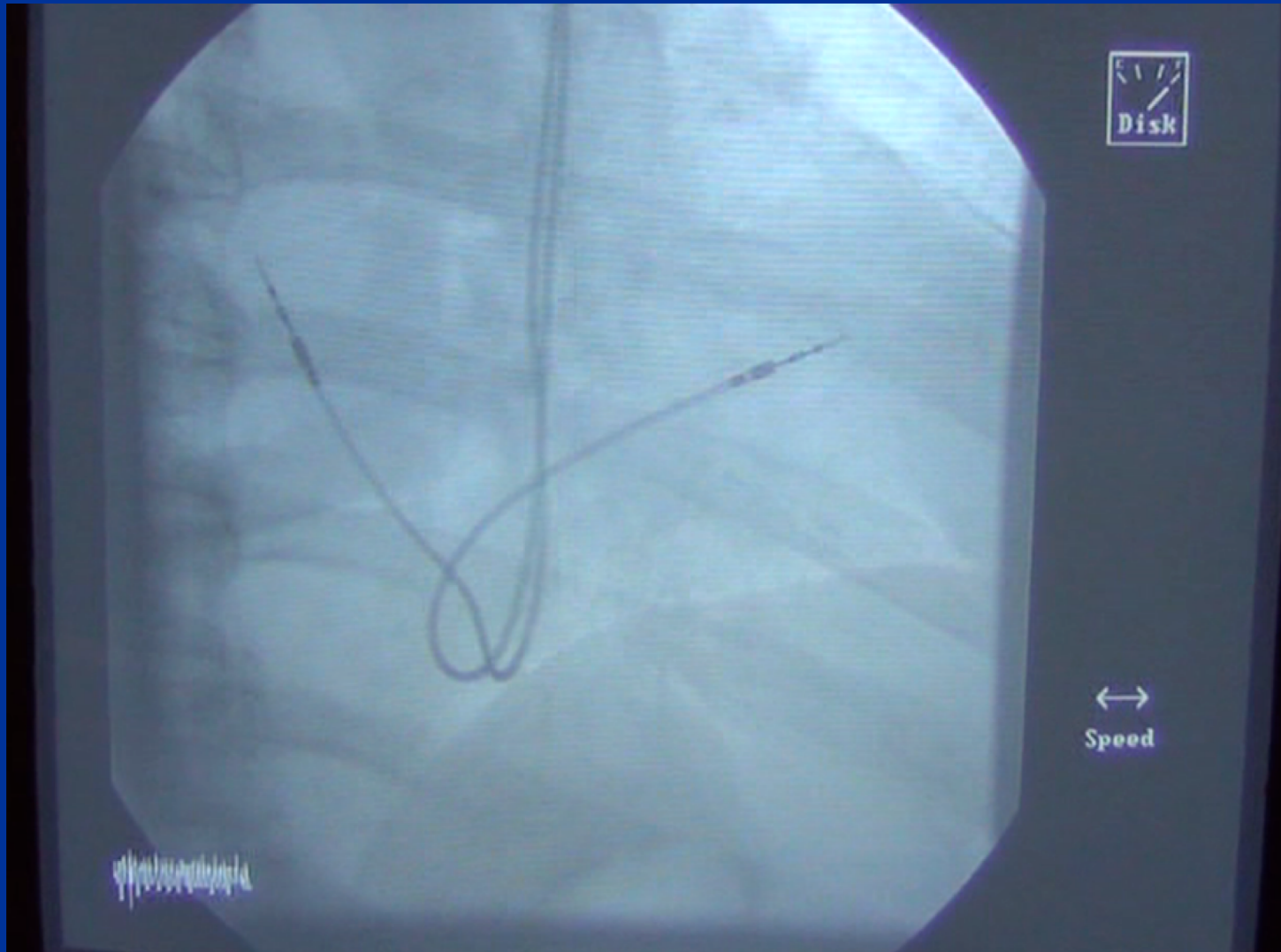
PROCEDURE



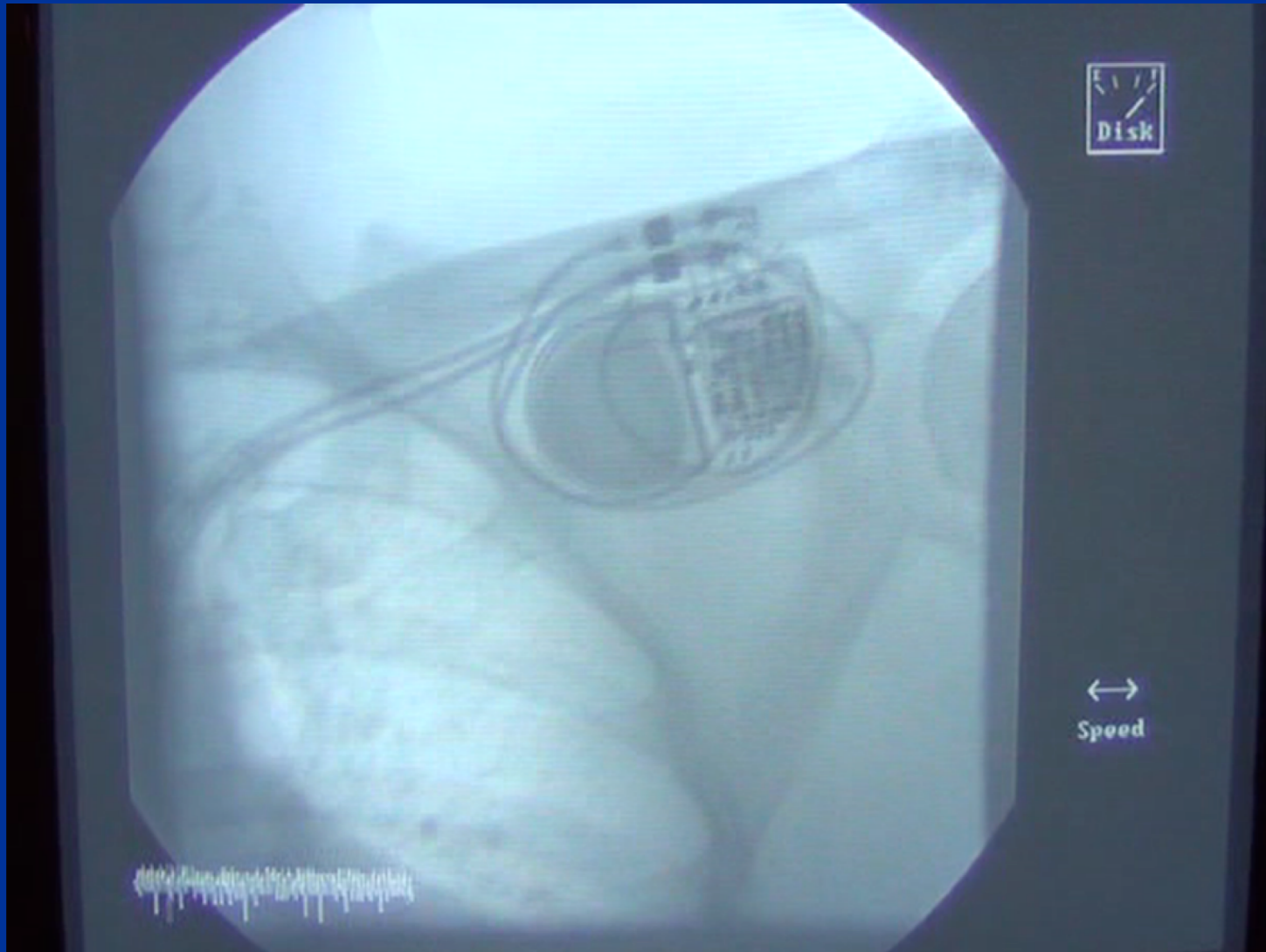
PROCEDURE LAO 30°



PROCEDURE RAO 30°



PROCEDURE AP FINAL SHOT



ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:41.66
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
100 kV
FOV 407.0 мм
Толщина 20.00 мм
Масштабирование 1.00
Контраст

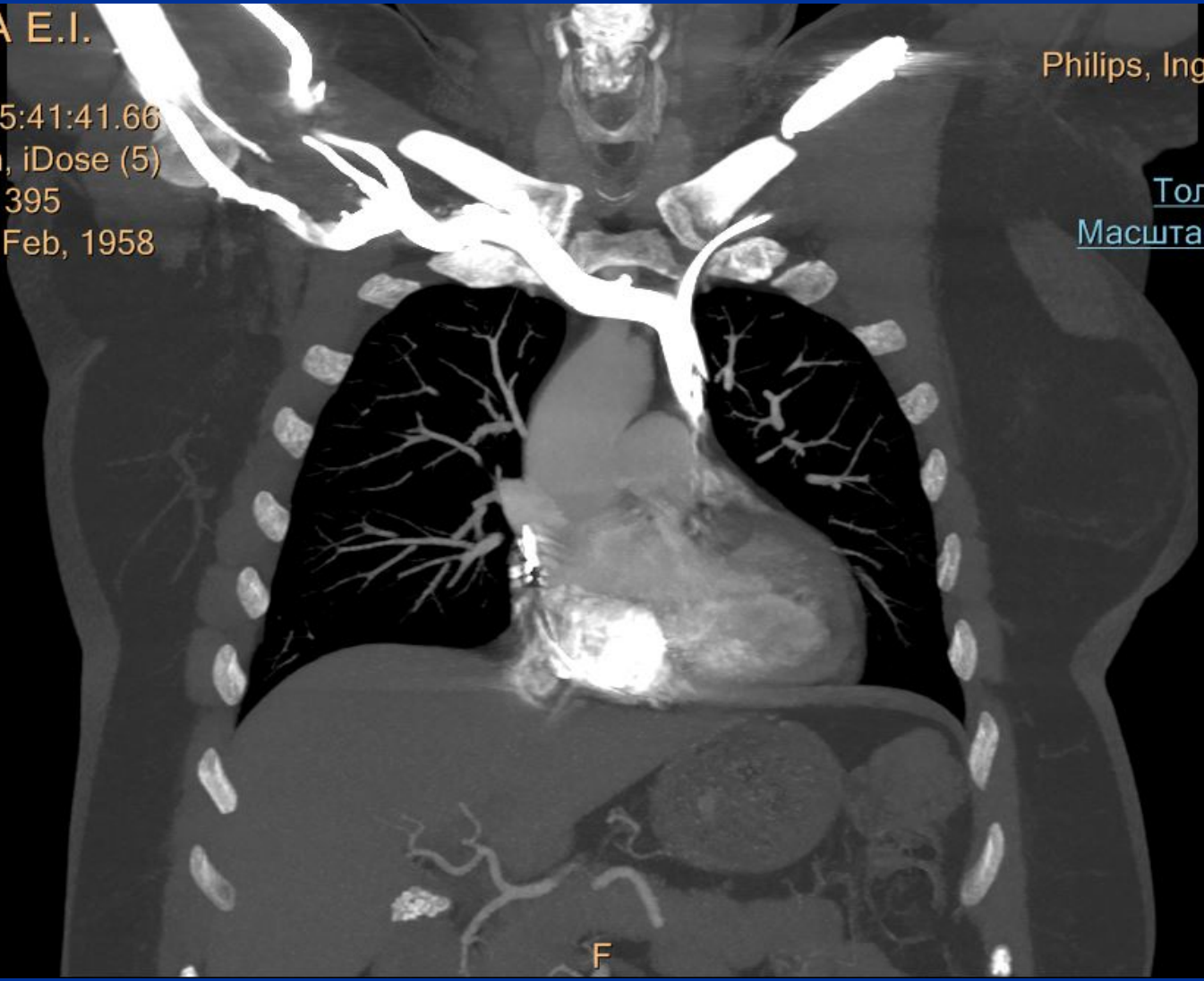
R



MIP
W 370
PHILIPS



F



ANGIO-CT

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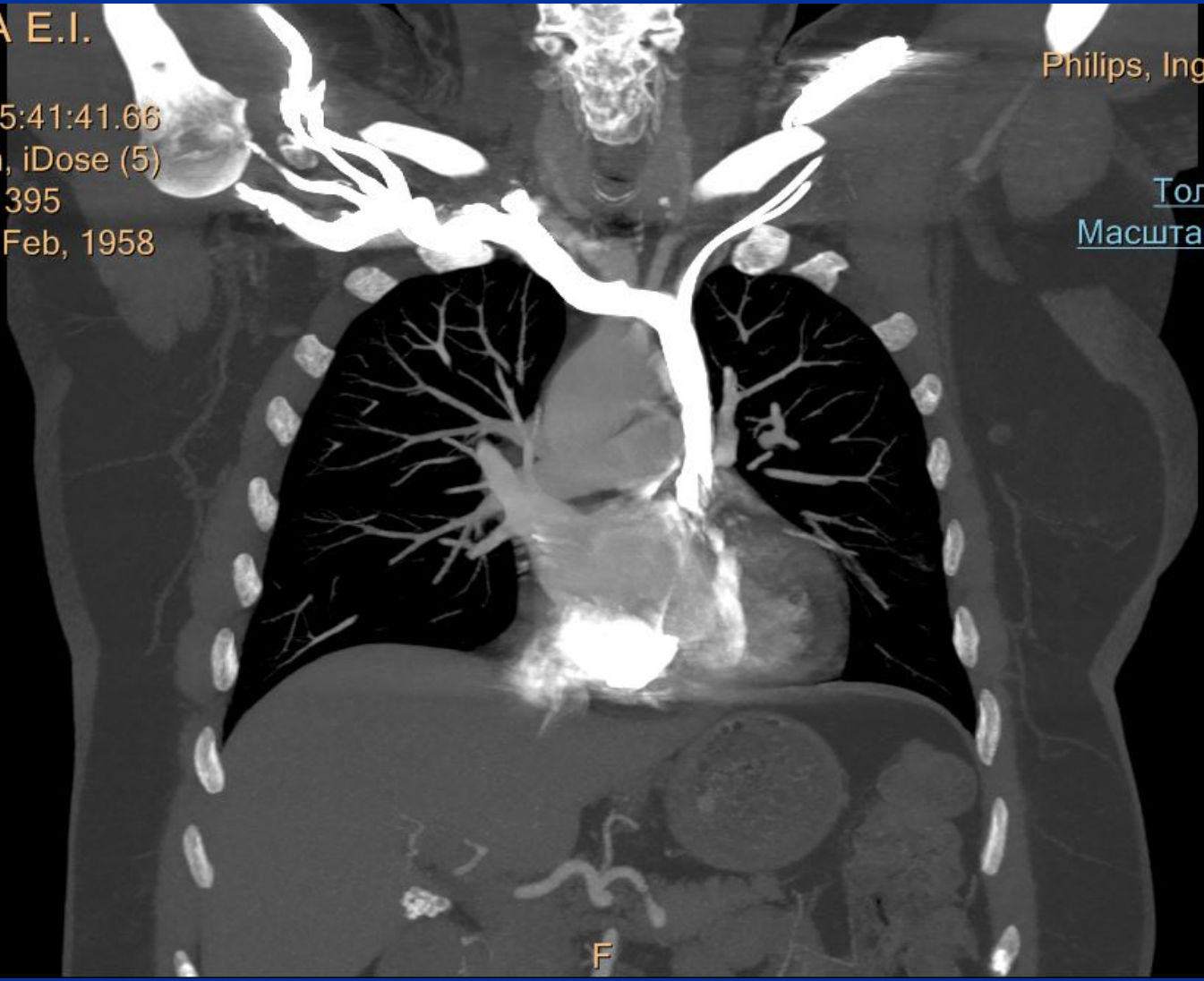
SPb DNKCIB
Philips, Ingenuity Core 128
100 kV
FOV 407.0 мм
Толщина 20.00 мм
Масштабирование 1.00
Контраст

R

10 CM

MIP
W 370
PHILIPS

F



ANGIO-CT

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R

10 cm

MIP
W 370
PHILIPS

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ANGIO-CT

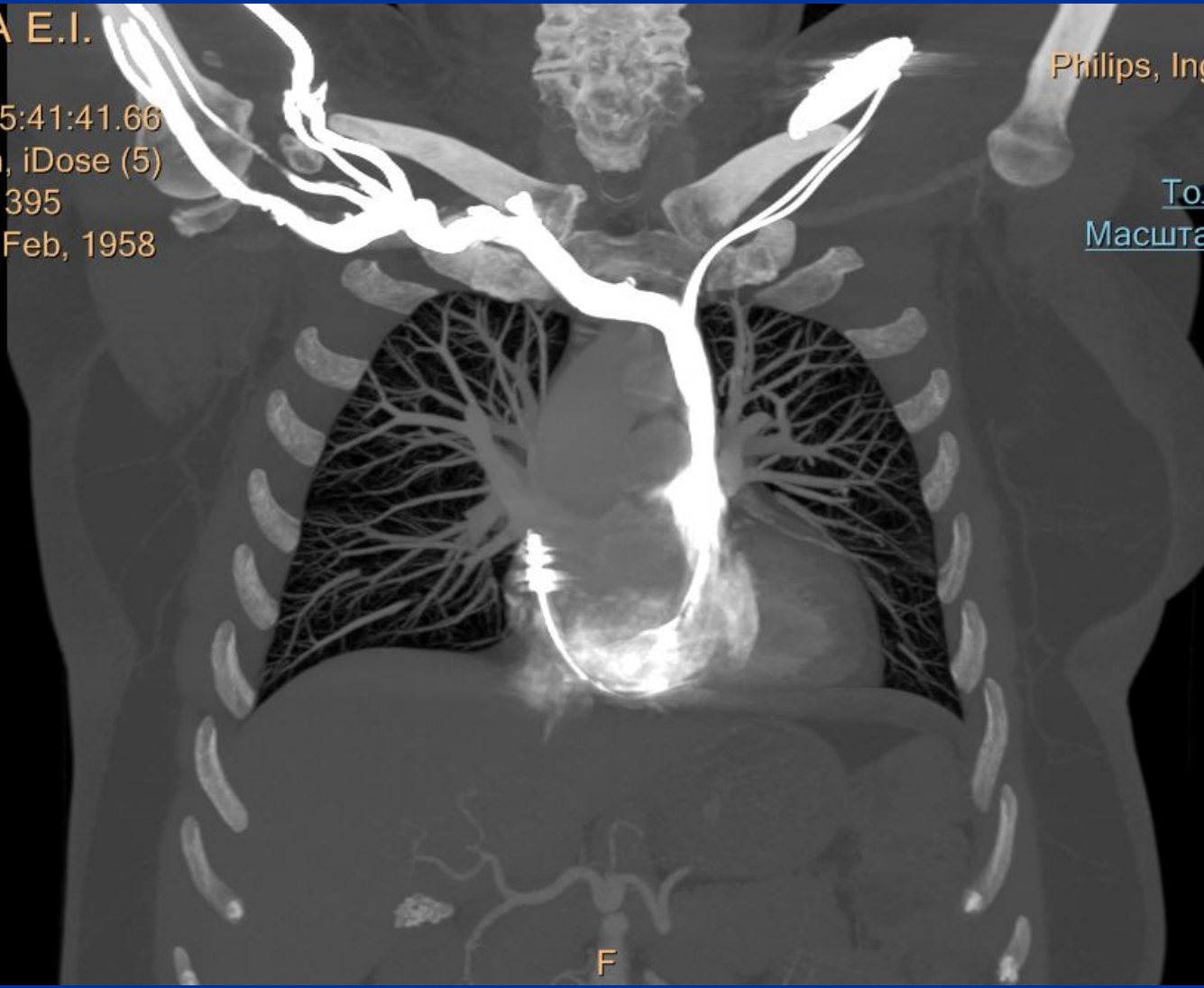
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Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
100 kV
FOV 407.0 мм
Толщина 50.00 мм
Масштабирование 1.00
Контраст

R



MIP
W11 C01
PHILIPS



F

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:41.66
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100 kV
FOV 407.0 мм
Толщина 50.00 мм
Масштабирование 1.00
Контраст

R

10 cm

MIP
W11 C01
PHILIPS

F



ANGIO-CT

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100 kV
FOV 407.0 мм
Толщина 50.00 мм
Масштабирование 1.00
Контраст

R

10 cm

MIP
W 1000 L 500
PHILIPS



F

ANGIO-CT

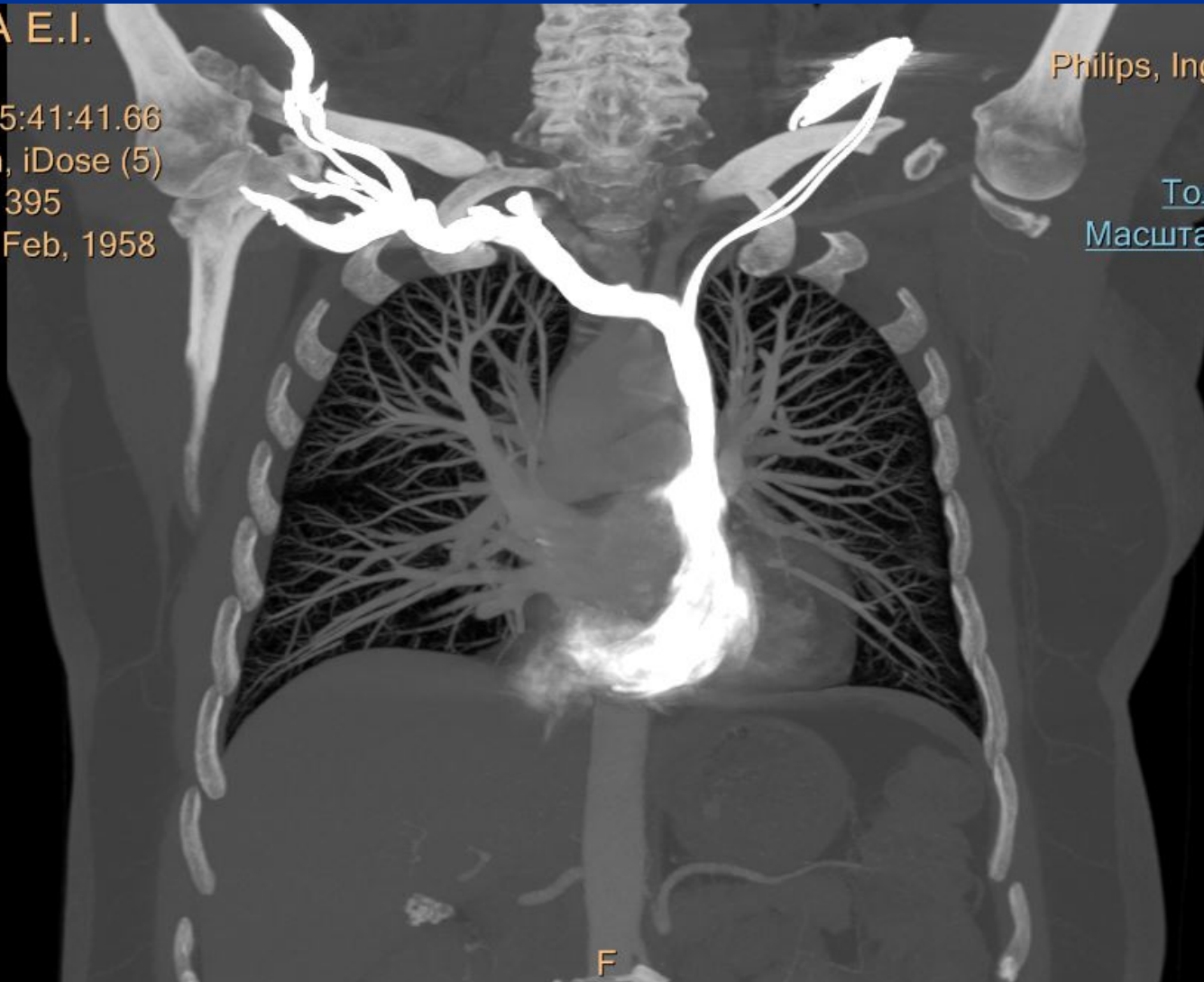
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Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
100 kV
FOV 407.0 мм
Толщина 50.00 мм
Масштабирование 1.00
Контраст

R

10 cm

MIP
W 1000 L 500
PHILIPS



F

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.28
Контраст

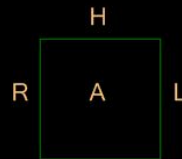
R



10 см

Об. виз.

PHILIPS



Угол 0, 0, 0 град.

ANGIO-CT

SHCERBINA E.I.

1285 F/60Y

13 Jun, 2018 / 15:41:38.71

ax PA soft 1mm, iDose (5)

Исследование: 395

Дата рожд.: 22 Feb, 1958

Серия 501

iDose (5)

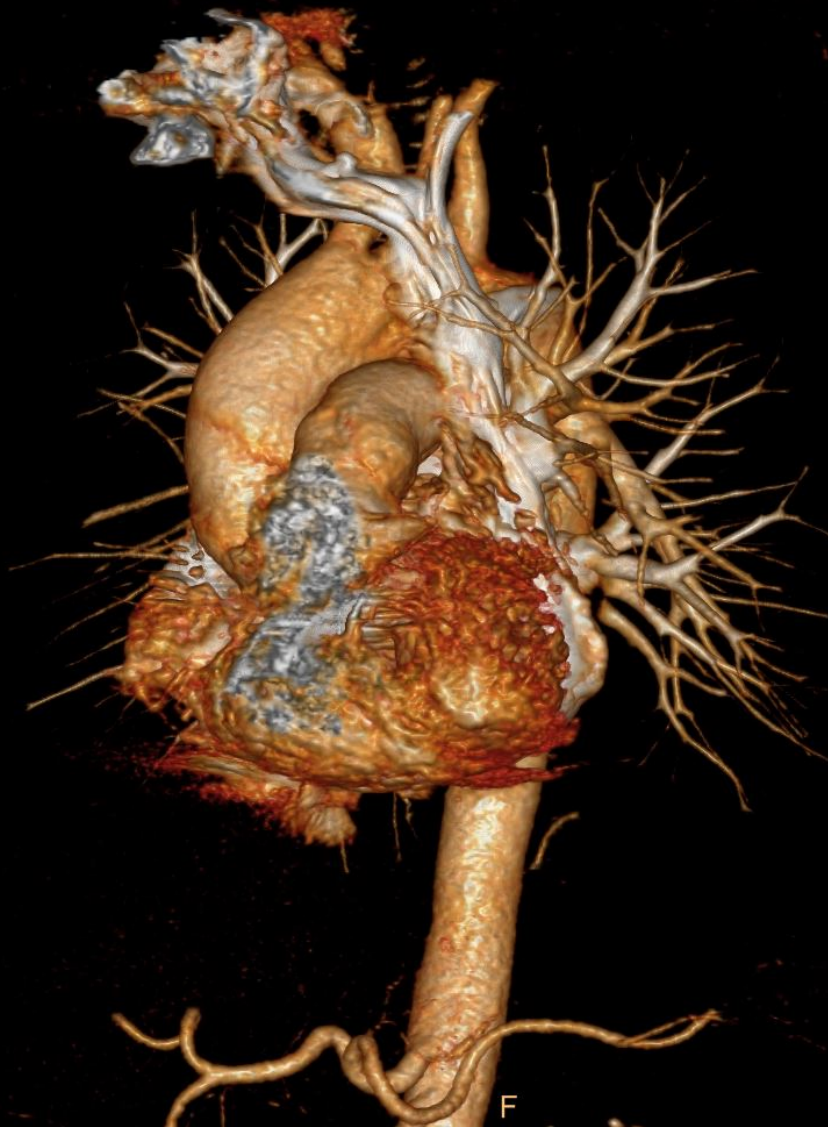
SPb DNKCIB

Philips, Ingenuity Core 128

Масштабирование 1.28

Контраст

RA



10 cm

Об. виз.

PHILIPS

F



Угол -1, -1, -40 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.28
Контраст



A

10 см

Об. виз.

PHILIPS



Угол -1, -3, -80 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
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Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.28
Контраст

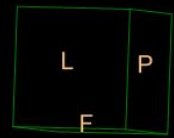


A

10 см

Об. виз.

PHILIPS



Угол -1, -2, -110 град.

ANGIO-CT

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1285 F/60Y
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ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.28
Контраст



L

10 см

Об. виз.

PHILIPS



Угол -2, 0, -159 град.

ANGIO-CT

SHCERBINA E.I.

1285 F/60Y

13 Jun, 2018 / 15:41:38.71

ax PA soft 1mm, iDose (5)

Исследование: 395

Дата рожд.: 22 Feb, 1958

Серия 501

iDose (5)

SPb DNKCIB

Philips, Ingenuity Core 128

Масштабирование 1.28

Контраст

PL



10 см

Об. виз.

PHILIPS

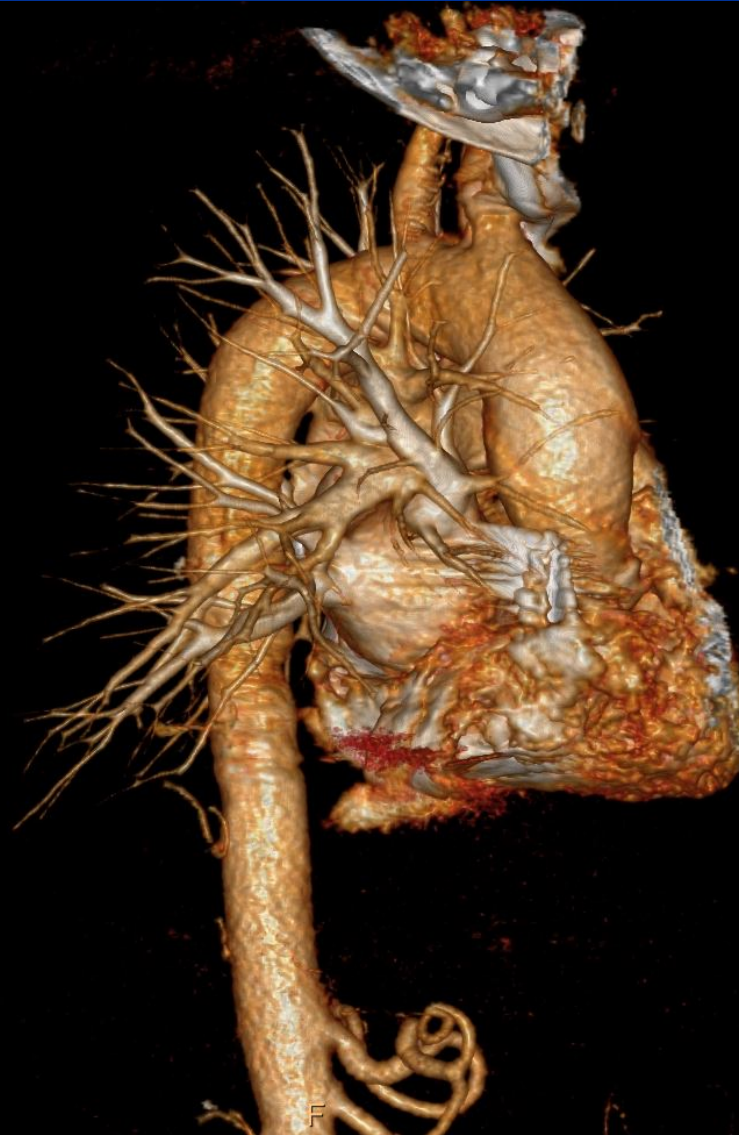


Угол 4, -2, 131 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.28
Контраст



P

10 cm

Об. виз.

PHILIPS



Угол 4, 0, 81 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.61
Контраст

AR



10 см

Об. виз.

PHILIPS

F



Угол 5, -1, -67 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
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Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.61
Контраст



A

10 см

Об. виз.

PHILIPS

F



Угол 5, -1, -89 град.

ANGIO-CT

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1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.61
Контраст



AL

10 см

Об. виз.

PHILIPS

F



Угол 3, 6, -115 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.61
Контраст

LA



10 см

Об. виз.

PHILIPS

F



Угол 4, 5, -145 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.80
Контраст



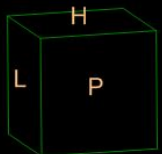
L

5 см

Об. виз.

PHILIPS

F



Угол -11,4, -164 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.80
Контраст



5 см

Об. виз.

PHILIPS

F



Угол -9,3, -179 град.

ANGIO-CT

SHCERBINA E.I.
1285 F/60Y
13 Jun, 2018 / 15:41:38.71
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Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.80
Контраст



PL

5 см

Об. виз.

PHILIPS

F



Угол -1, -2, 117 град.

ANGIO-CT

SHCERBINA E.I.
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13 Jun, 2018 / 15:41:38.71
ax PA soft 1mm, iDose (5)
Исследование: 395
Дата рожд.: 22 Feb, 1958
Серия 501
iDose (5)

SPb DNKCIB
Philips, Ingenuity Core 128
Масштабирование 1.80
Контраст



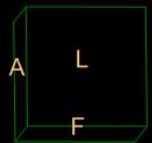
A

5 см

Об. виз.

PHILIPS

F



Угол 0, -7, -84 град.

FOLLOW-UP

Final: Session Summary

Device: **Ensura DR MRI EN1DR01**

Serial Number: **PZW695738S**

Date of Visit: **06-Jun-2018 09:20:14**

Patient: **Sherbina Elena**

ID:

Physician: **Iliia Skigin +78123389447**

Device Information

Device	Medtronic	Ensura DR MRI EN1DR01	PZW695738S	Implanted: 09-Aug-2016
		5076 CapSureFix® Novus		Implanted: 09-Aug-2016
		5076 CapsureFix Novus MRI		Implanted: 09-Aug-2016

Device Status (Implanted: 09-Aug-2016)

Battery Voltage (RRT=2.83V)	3.02 V	(06-Jun-2018)
Remaining Longevity (based on initial interrogation)	7.5 years (6.5 - 9 years)	

	Atrial	RV
Lead Impedance	513 ohms	513 ohms
Capture Threshold Measured On	0.625 V @ 0.40 ms 06-Jun-2018	0.750 V @ 0.40 ms 06-Jun-2018
In-Office Threshold	0.25 V @ 0.40 ms	0.50 V @ 0.40 ms
Programmed Amplitude/Pulse Width	1.50 V / 0.40 ms	2.00 V / 0.40 ms
Measured P/ R Wave	4.3 mV	5.9 mV
Programmed Sensitivity	1.20 mV	2.80 mV

Parameter Summary

Mode	AAIR<=>DDDR	Lower Rate	60 bpm	Paced AV	180 ms
Mode Switch	171 bpm	Upper Track	120 bpm	Sensed AV	150 ms
		Upper Sensor	120 bpm		

Detection

AT/AF	Monitor
VT	Monitor

Rates

>171 bpm
>150 bpm

Changes This Session

Session Start	Current Value
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No parameters have been changed during the current session.

FOLLOW-UP

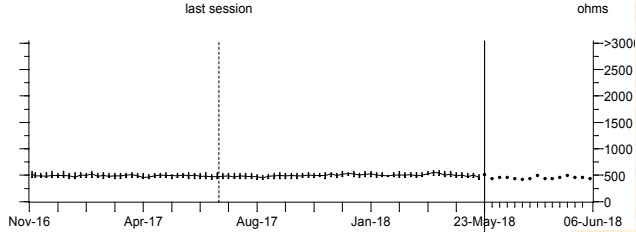
Final: Lead Trends - Atrial

Device: **Ensura DR MRI EN1DR01** Serial Number: **PZW695738S** Date of Visit: **06-Jun-2018 09:20:14**
 Patient: **Sherbina Elena** ID: Physician: **Ilia Skigin +78123389447**

Pace Polarity **Bipolar**
 Sense Polarity **Bipolar**

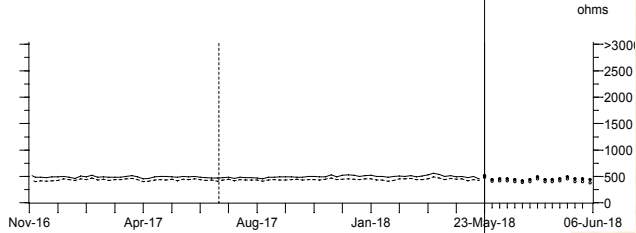
A. Impedance (bipolar)

Last Measured 513 ohms



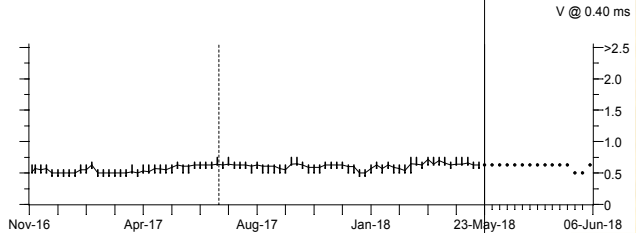
A. Impedance

----- Bipolar
 - - - - - Unipolar



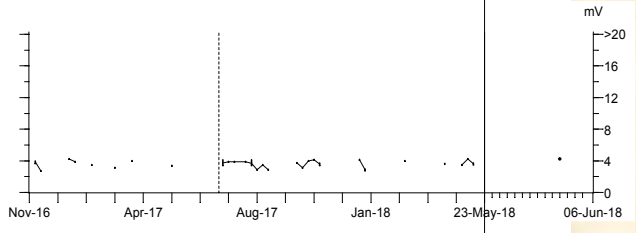
A. Threshold

Capture Adaptive
 Amplitude 1.50 V
 Pulse Width 0.40 ms
 Last Measured 0.625 V @ 0.40 ms
 Measured On 06-Jun-2018



P-Wave Amplitude

Sensitivity 1.20 mV
 Last Measured 4.3 mV



Last 80 weeks (min/max/avg per week)

Last 15 days

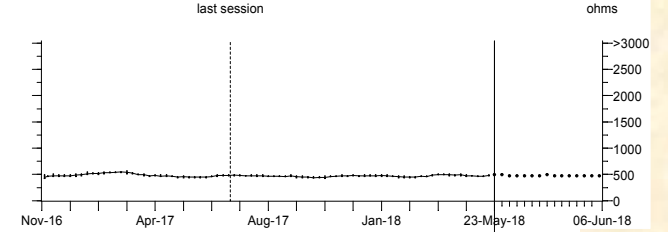
Final: Lead Trends - RV

Device: **Ensura DR MRI EN1DR01** Serial Number: **PZW695738S** Date of Visit: **06-Jun-2018 09:20:14**
 Patient: **Sherbina Elena** ID: Physician: **Ilia Skigin +78123389447**

Pace Polarity **Bipolar**
 Sense Polarity **Bipolar**

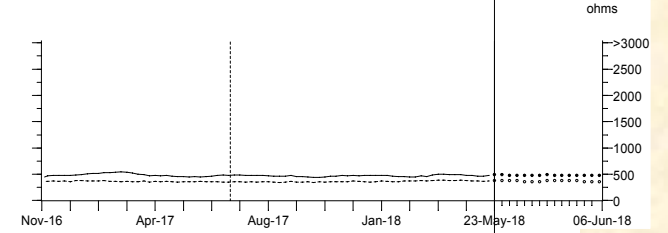
RV Impedance (bipolar)

Last Measured 513 ohms



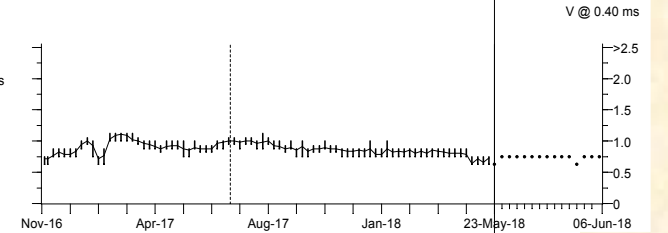
RV Impedance

----- Bipolar
 - - - - - Unipolar



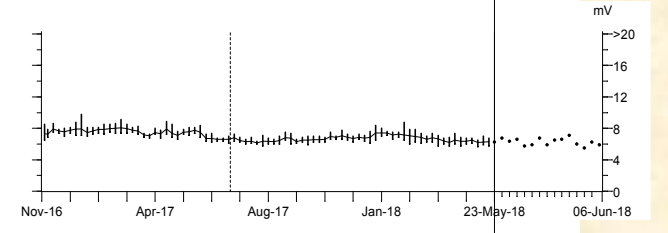
RV Threshold

Capture Adaptive
 Amplitude 2.00 V
 Pulse Width 0.40 ms
 Last Measured 0.750 V @ 0.40 ms
 Measured On 06-Jun-2018



R-Wave Amplitude

Sensitivity 2.80 mV
 Last Measured 5.9 mV



Last 80 weeks (min/max/avg per week)

Last 15 days

CONCLUSIONS

Although an LP SVC draining into the CS has no adverse hemodynamic effects, it may impact on procedures which require upper limb venous access, transvenous pacing for bradycardia and advanced device implantation.

BUT.....!!!

CONCLUSIONS

NEVER GIVE UP!





THANK YOU FOR YOUR ATTENTION !

