

NATIONAL INSTITUTE FOR HEALTH AND WELFARE

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## **Individual approach in treatment of MDR pulmonary TB with severe comorbidity**

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# Clinical case # 2

Patient K., 58 y.o., height 172, weight- 89, BMI = 30,1

## Complaints:

Recurrent pulmonary bleeding up to 300 ml, with last episode in 15.02.17, weakness, moderate shortness of breath.

## Diseases History:

- Became sick from the summer 2015, when the body temperature has been rising to 39 C° in the evenings.  
In the chest X-ray (October, 2015) were identified infiltrative changes in the upper lobe of the left lung.  
MTB (+) (ZN, PCR, cultural methods), DR (-), October, 2015.
- 05.10.15 hospitalized in TB clinic for 6 months, received standard regimen of TB treatment: H, Z, E, R = 180 dosages.
- After discharging (10 March, 2016) for continuation phase of outpatient treatment was loss to follow-up.
- In the summer (June) 2016 the first pulmonary haemorrhage 2B stage was appeared. He was hospitalized at the general clinic urgently, where the hemostatic therapy and blood transfusion were performed. The bleeding was stopped, but the above complaints are remained. CT was performed on 04.06.16 (the document was not presented)



# Diseases History (continuation):

From the general clinic, patient was transferred to the TB hospital (06.07. 2016)

## ❖ Lab tests:

- The fluorescent microscopy №1 was **positive (07.07.2016)**
- PCR, Cultural methods from 07.07. and 11.07. 2016 were positive and DR to **HSR was identified**, with a subsequent changes in TB treatment: **Z 1.5, Sparfloxacin 0,4, Terizidon 0.75, PAS 8,0**

❖ **Contrast CT** in 05.11.16 - signs of aneurysmal enlargement of the ascending part and arc of the thoracic aorta. But it was not taken into account seriously, patient continued only TB treatment.

The patient was noted retrospectively to have been suffering from Lues for a long time, which was confirmed by the lab test at the hospital (RW in 13.01.17 – positive).

Previously prescribed TB treatment was continued: **Z 1.5, Sparfloxacin 0,4, Terizidon 0.75, PAS 8,0**

On 13.02.17 patient was transferred to St. Petersburg Institute of Phthisiopulmonology

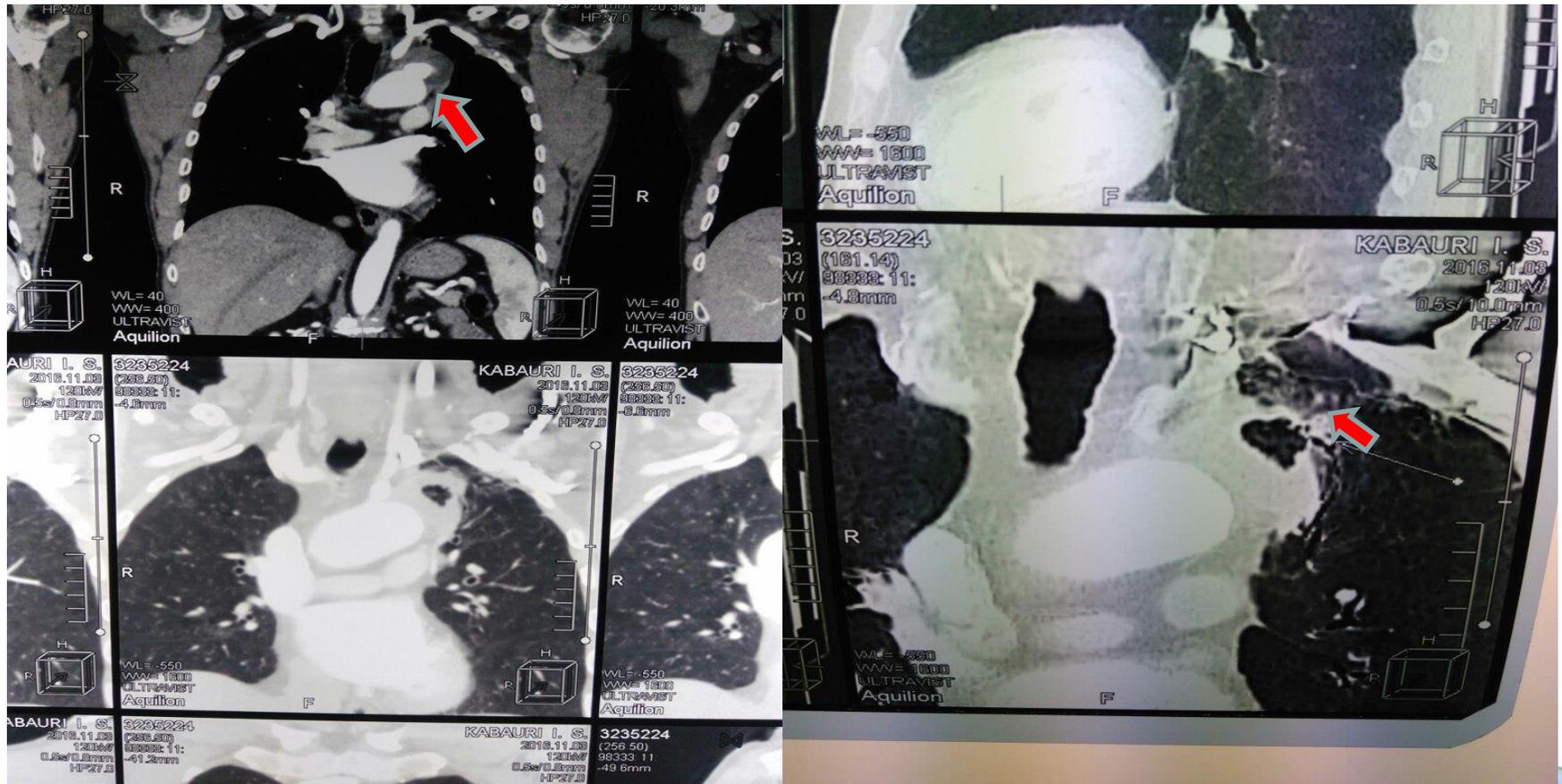
## At the admission:

Cardiac rate -90 in min, Respiration rate– 20 in min, Arterial pressure – 142/85



# CT (03/11/2016 before admission)

- Aneurysm of the ascending thoracic aorta arc Division penetration in adjacent division of S1-3 left lung, focal tuberculosis changes in S1-3 and S6 of the left lung with fibrosis and bronchiectasis in the background.



## • Life History:

- The patient lives in an apartment with his own family, has been smoking for 10 years and stopped smoking two years ago. A previous moderate alcohol abuser, drug user (cannabis 3 years ago),
- Currently unemployed ( 2 years ago he worked as a driver)
- Chronic disease: Hypertension( uses Losartan 50 mg per day, periodically - aspirin), chronic pancreatitis, chronic hemorrhoids.
- Injury: a ribs fracture (7-8) right and left in 2012
- Epidemiological history:

Before 2015 he did not have TB, TB contact was not established, tests for HCV, HBV, HIV, malaria –negative, sexually transmitted diseases –syphilis( since 2011) blood transfusion in 2016, he did not visit endemic areas

## • Preliminary diagnosis:

- **Main Diagnosis 1:** I 71.2. Aneurysm of the ascending thoracic aorta arc. Division penetration in adjacent Division of S1-3 left lung
- **Complication:** Recurrent pulmonary bleeding 2a-2b (the last episode on 15.02.2017)
- **Main diagnosis 2:** A 15. Destructive TB Infiltration of the upper lobe of the left lung, MTB (+). MDR (HRS).
- **Comorbidity:** Tertiary syphilis? CVD. Atherosclerotic cardiosclerosis. Angina Pectoris 2-3 FC. Hypertension II st. Chronic heart failure 2a st., 2 FC.Moderate hemorrhagic anemia. Chronic pancreatitis in remission.



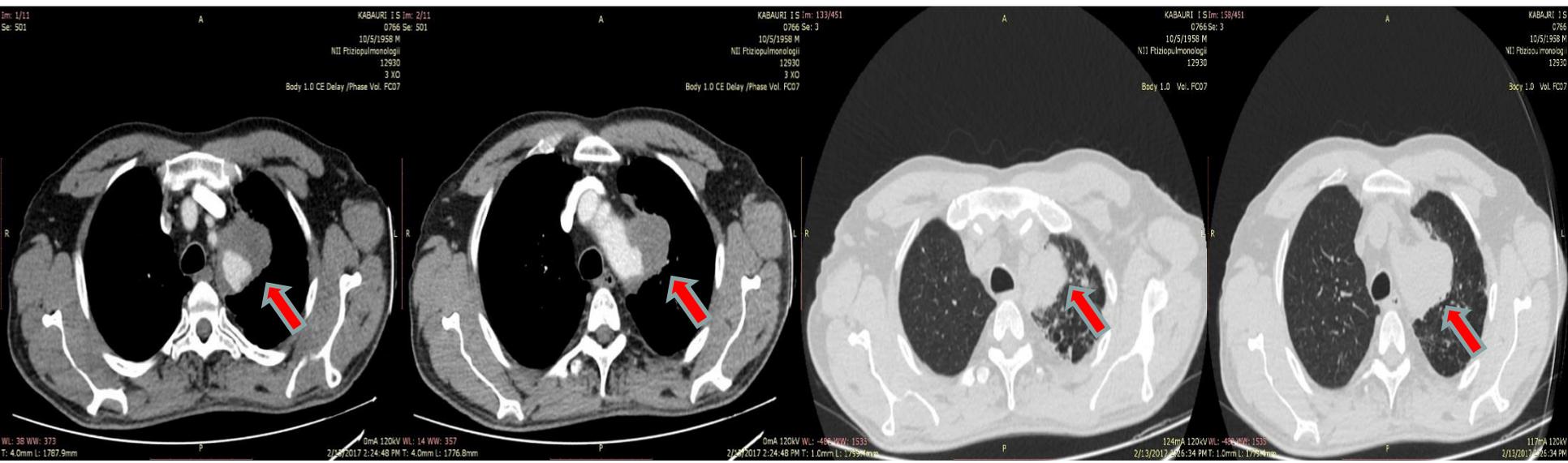
# Lab results

- Fluorescence sputum microscopy 14.02.17,15.02.17 – MB identified.
- **Second sputum microflora:** 14.02.17 – *Candida albicans*  $1 \times 10^3$  KOE, *Erwinia sp.*  $1 \times 10^3$  KOE (sensitivity saved to the main antibiotics).
- Blood group - AB (IV), Rh + (positive). HBsAg, HCVAb from 17.02.17 – negative. Ф 50 от 16.02.17 – negative.
- **Lues confirmation 14.02.17:**
- **Antibodies to T. Pallidum total 14,25 (detected). Antibodies to T. Pallidum, IgG – 6,1 (detected). Antibodies to T. Pallidum, IgG – titration 1:320.**
- Antibodies to T. Pallidum, IgM – 0,2 (not detected). РПГА – positively (4+). РМП – positively (4+). РМП (титр) – 1:16.

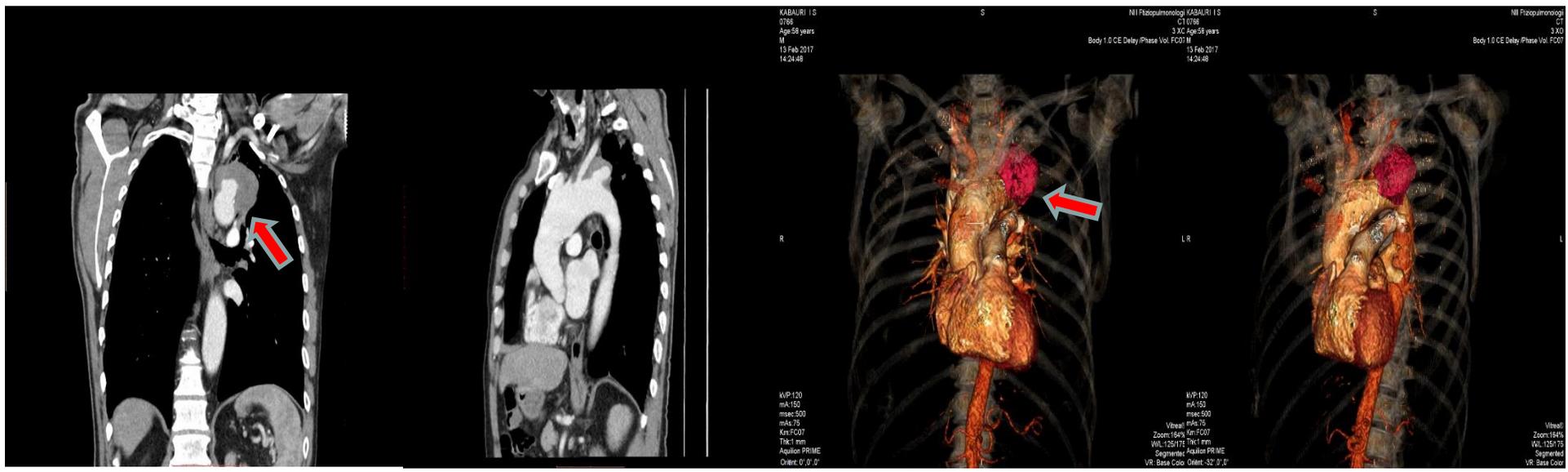
Blood analysis			Biochemical analysis			
	14/02/17	10/03/17		14/02/17	10/03/17	The unit of measurement
RBC	3,63	4,85 (10e12/l)	Total protein	70	65-85	g/l
<b>Hemoglobin</b>	<b>83</b>	<b>107(g/l)</b>	ALT	7	5	U/l
PLT	310	355(10e9/l)	AST	23	15	U/l
WBC	10,1	7,6(10e9/l)	Glucose	5,48	5,17	mmol/l
Lymphocytes	29	38(%)	Creatinine	81	103	mkmol/l
Monocytes	9	7(%)	Bilirubin	15,4	12	mkmol/l
microxyphil nuclear cells	60	64(%)	Coagulogram			
rod nuclear cells	2	0(%)	APTT	34,4	29,9 24-35	s
Eosinophils	5	2(%)	CT	15,3	14,7	s
Basophils	0	0(%)	INR	1,347	1,301	
<b>ESR</b>	<b>71</b>	<b>52</b>	PT	1,347	1,301	

# Contrast CT 13. 02. 2017 at admission

Aneurysm of the ascending part and arc of thoracic aorta with penetration into adjacent part of S1-3 of left lung, without distinct changes compared to the CT on 03.11.2016. Focal tuberculosis changes in S1-3 and S6 of the left lung with fibrosis and bronchiectasis in the background, comparing to the CT on 04.06. 2016 - partial resorption of disseminated lesions in the lungs and focal infiltration in S1-3 of the left lung. ( CT-scans are not presented)



# Contrast CT 13. 02. 2017 at admission (continuation)



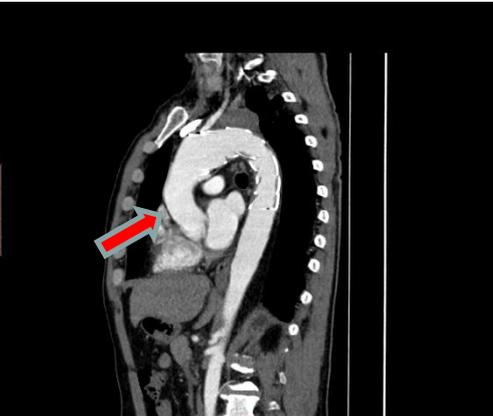
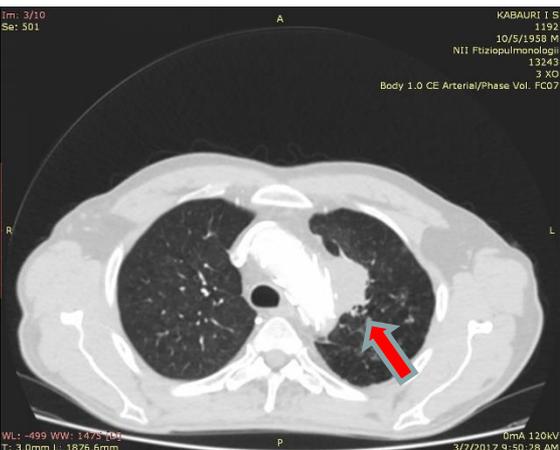
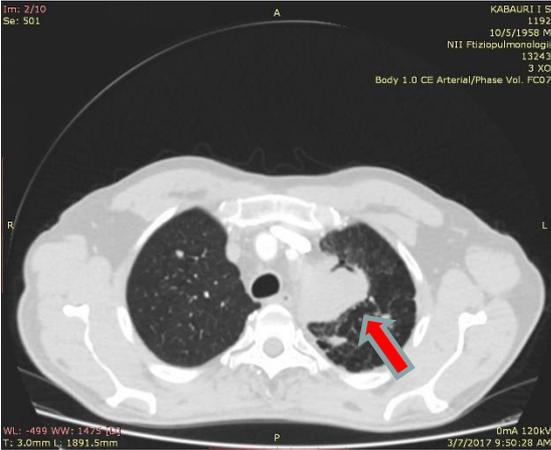
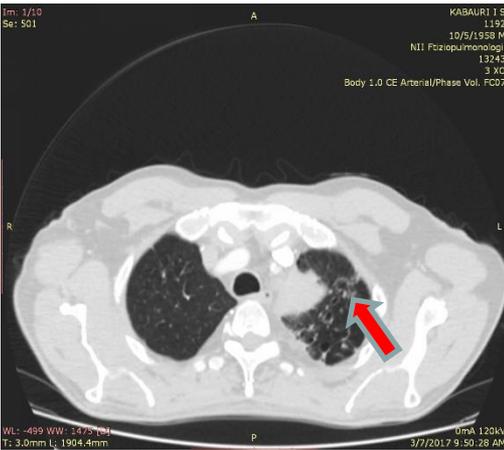
# specialists consultations

- **Cardiac surgeon recommendation (15.02.17):** to perform endoprosthesis replacement of thoracic aorta and arc stent-graft. The operation should preferably be done at the Institute
- **Dermatovenerologist (15.02.17):** The defeat of the ascending thoracic aorta, especially in the estuaries of the coronary vessels, is indeed characteristic of syphilitic etiology. However, the tertiary syphilis in the vast majority of cases develops during a long time as an oligosymptomatic neurosyphilis. To confirm/exclude syphilitic etiology it is recommended:
  1. Consultation of ophthalmologist (eye symptoms of neurosyphilis);
  2. Consultation of the neurologist (neurosyphilis);
  3. Surgical strategy will be as a choice, regardless of the alleged or mixed syphilitic (syphilis and atherosclerosis) etiology.
- **Ophthalmologist (16.02.17):** age-related cataract, angiopathy of the retina.
- **Concilium (7.02.17):** Taking into account an appearance of hoarseness, decrease in hemoglobin (83 g/l (14.02.17) to 71 g/l (15.02.17)), it seems that the disease is progressing with bleeding continuation in the aorta penetration area into the lung which is a patient's life threat. It is emergency for saving of patient life to perform endoprosthesis stent-graft of the thoracic aorta with the goal of overlap of the zone of penetration.



# Contrast CT 07.03.17 (after the operation)

CT scans after endoprosthesis replacement of thoracic aorta. Focal tuberculous changes in S1-3 and S6 of the left lung with fibrosis and bronchiectasis in the background, comparing to the CT on 13. 02. 2017- partial resorption of thrombotic masses in the para-aortic area S3 of the left lung.



# Treatment

❖ **TB treatment:** Pyrazinamide 2,0, PAS 8,0, Cycloserine 0,75, Levofloxacin 0,75, Ethambutol 1,6, Meropenem 1,0 2 times a day

## ❖ Symptomatic Treatment:

- Losartan 50 mg per day, Omeprazole 20 mg 2 times a day, heparin for 5 thousand Units 4 p/day, papaverine is 2.0 2 times per day, intravenous infusions (S. NaCl 0,9% 250, S. Pentoxifillini 5,0) 1 p/day, aminocaproic acid 5% 100 ml 1 p/day, iron preparations
- **Transfusion:** Erythrocyte suspension 303 ml (16.02.17), Erythrocyte suspension 333 ml(18.02.17).

## ❖ Surgical treatment:

- **17.02.17 (12:30-12:40)** –diagnostic aortography conclusion : aneurysm of the ascending aorta before deviation of the brachiocephalic trunk with a maximum diameter of 52 mm in the origin area of the brachiocephalic trunk. Signs of penetrating aortic ulcers are located in 12 mm distally from the left subclavian artery with dimensions 20x17mm, imbibition signs in the para-aortic tissue surrounding the radiopaque ulcer niche with sizes 49x30 mm, closely adhered to the estuary of the left subclavian artery.
- **17.02.17 (12:40-14:05)** – Endoprosthesis replacement of thoracic aorta with stent-graft Valiant THORACIC 46/42 mm, with a total length of 174 mm and a working length 162 mm on the delivery system Captiva with an external diameter 25F. The stent graft is implanted from the left common carotid artery with overlapping of the left subclavian artery. In the control aortography the position of the stent-graft is correct.



# Treatment Results

- The patient was discharged from the Institute Clinic on 15.03.2017 for the outpatient treatment with following results:
- In sputum by all methods (07.03. 2017, 05.04. 2017, 11.05. 2017) – MTB was not detected;
- Clinical and radiological data became better (increase hemoglobin level up to 115 g/l, absence of previous complaints;
- Partial resorption of thrombotic masses in the para-aortic area S3 of the left lung.

**Thus, we can say that in one specialized medical facility with capability to the broad interdisciplinary approach in TB treatment, it is possible to obtain a positive outcome in MDR pulmonary tuberculosis with severe comorbidity.**



***Thank you for your attention!***



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