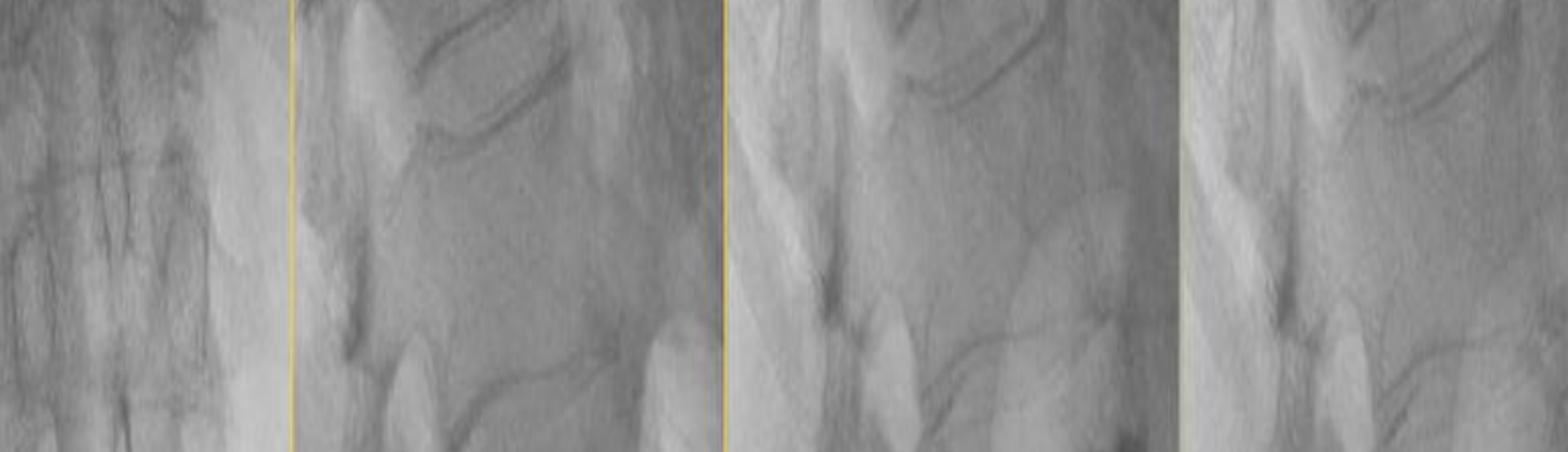
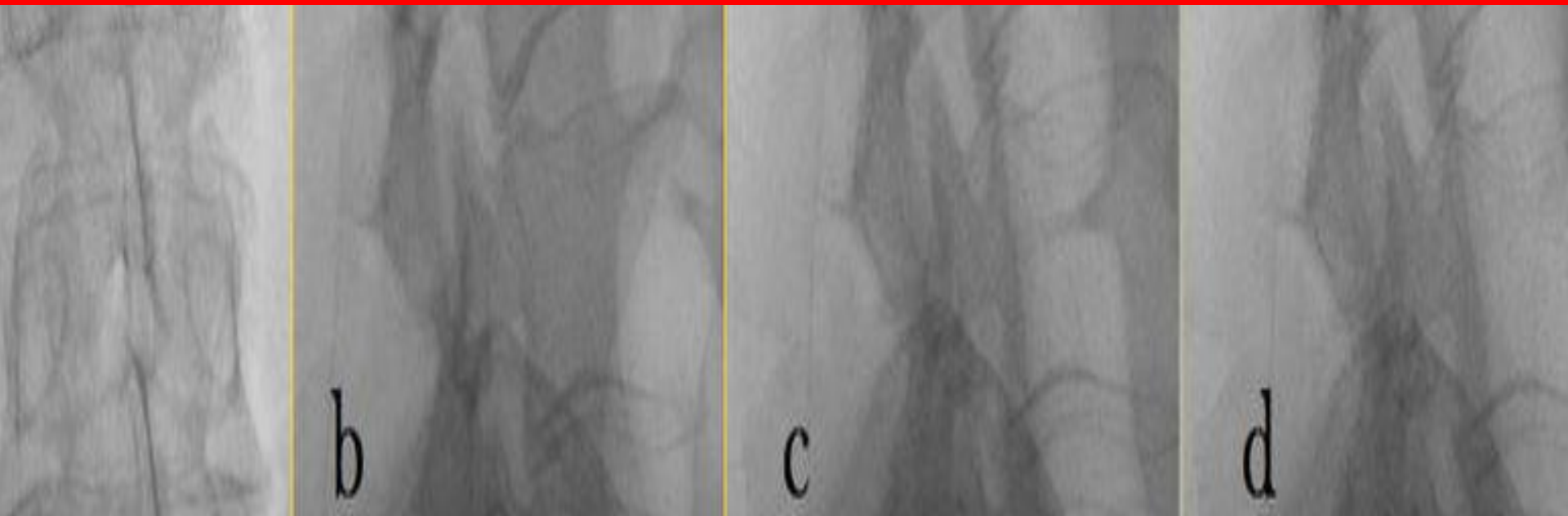


# **Successful surgical treatment of cardiac embolism with bone cement after vertebroplasty of the L2 vertebrae body**

**Presenter: PhD student,  
cardiovascular surgeon  
Zagorodnikov Nikita Igorevich**



**Value of vascular embolism: from 3.5 to 30 %**

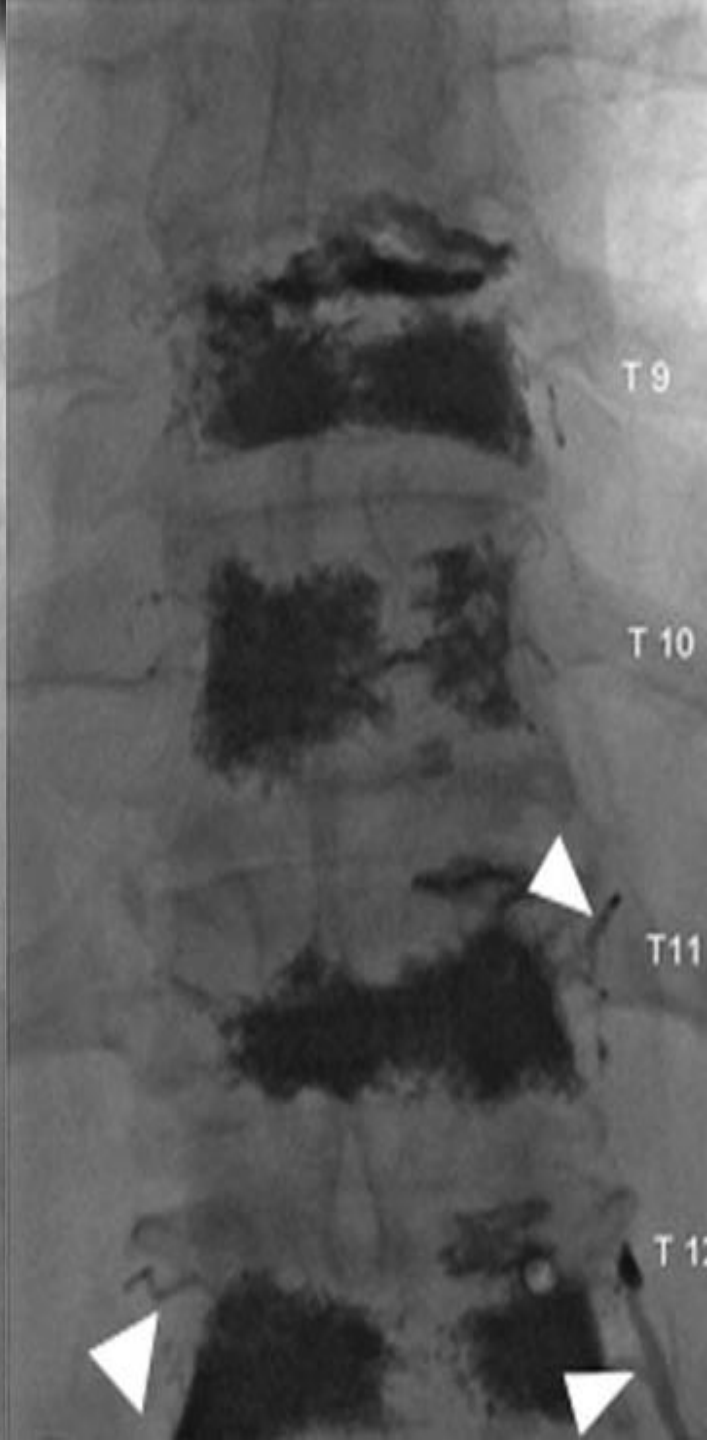


# Factors of cement leakage

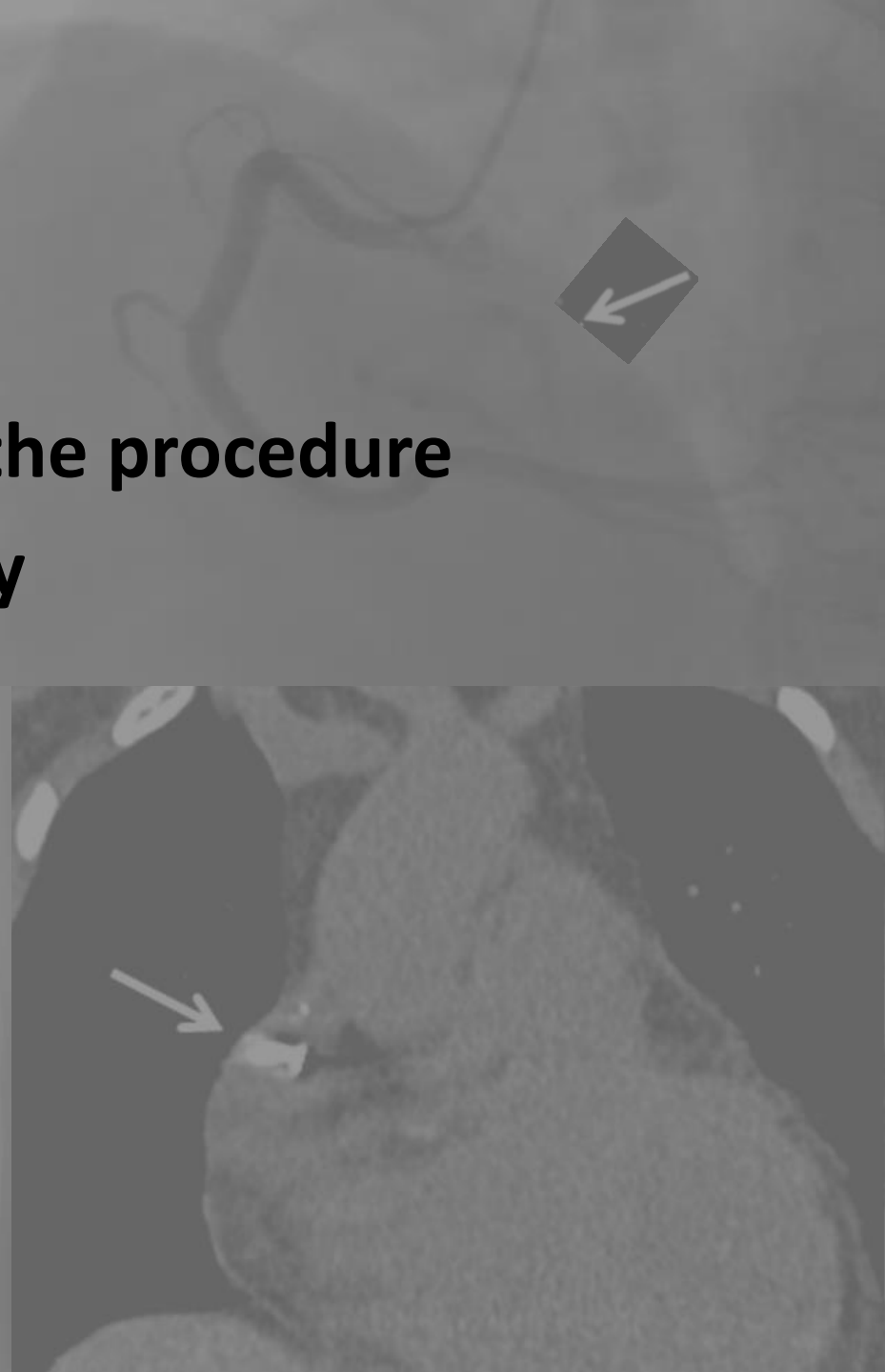
- **Cement viscosity**
- **Bone permeability**
- **Marrow viscosity**
- **Bone porosity**
- **Size of the injection cavity**
- **Diameter of the leakage path**
- **Bone pore size**

# Possible directions of leakage

- The puncture canal
- The disk
- The spinal canal
- Paraspinal tissues
- **Paravertebral veins**

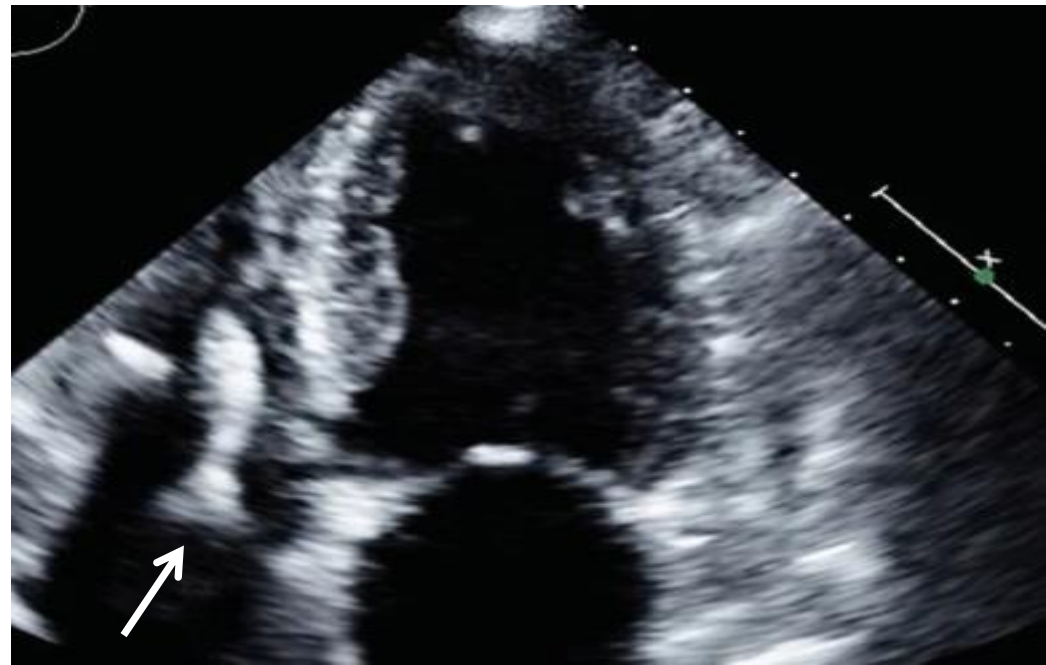


- **An incidental finding**
- **During the procedure**
- **Immediately following the procedure**
- **During hospital recovery**
- **Long term complication**



# Required examinations

- **CT**
- **TT Echocardiography**
- **Transesophageal Echocardiography**
- **angiography**



# Complications

## Minor

- Fever
- Transient back pain worsening
- Transient radicular pain
- Paravertebral venous migration and subcutaneous hematoma along the course of the bone needle

## Major

- Cauda equina/spinal cord compression
- Nerve root compression
- Spondylitis
- **Arterial migration**
- **Symptomatic pulmonary migrations** and decompensation of comorbidities (cardiac or pulmonary failure)



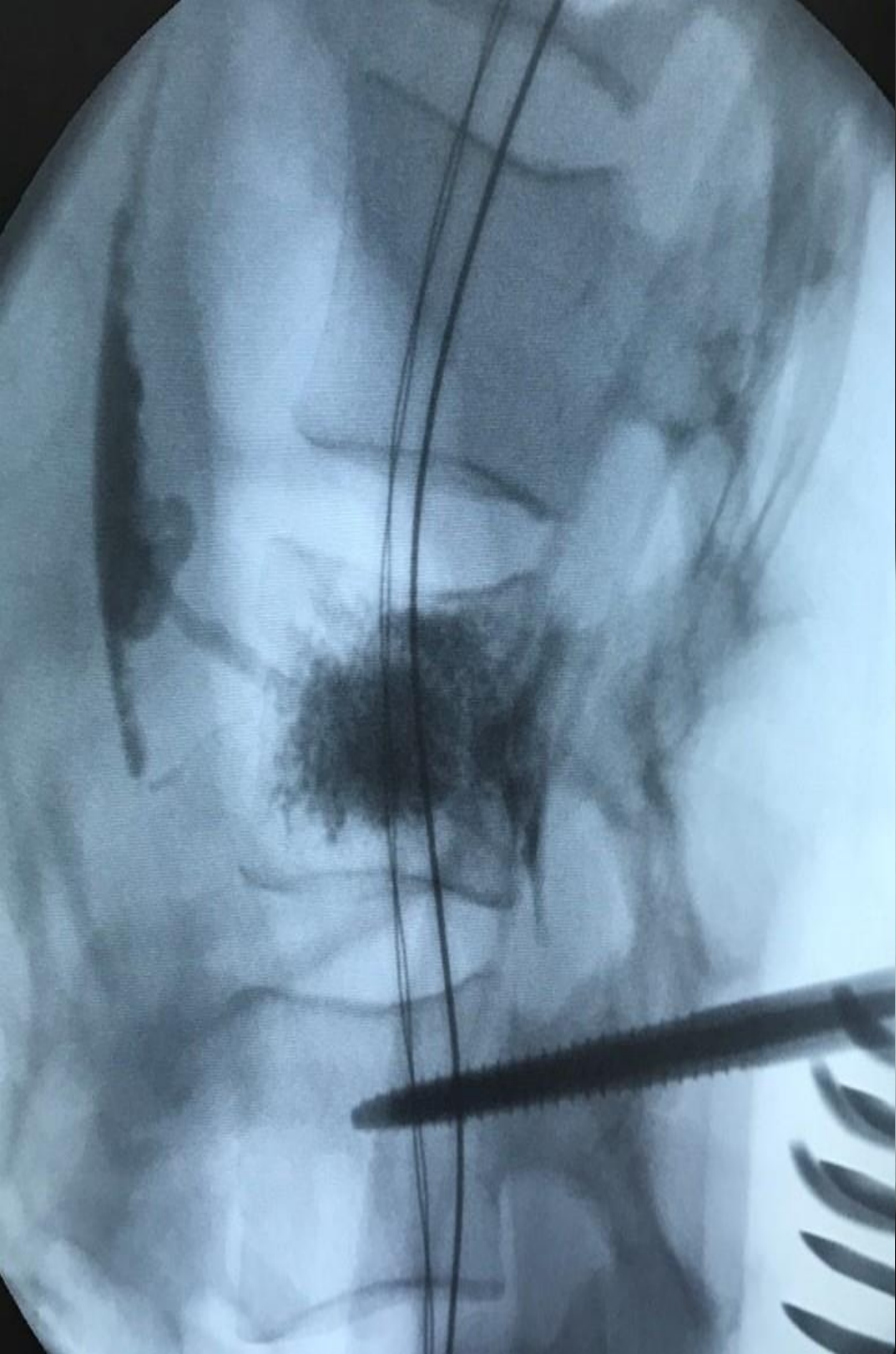
# Surgery indications

- High risk of complications
- Clinical manifestations of embolism
- Tight adherence of cement masses to the myocardium
- When they are in the pericardial bag
- Trauma of the valve

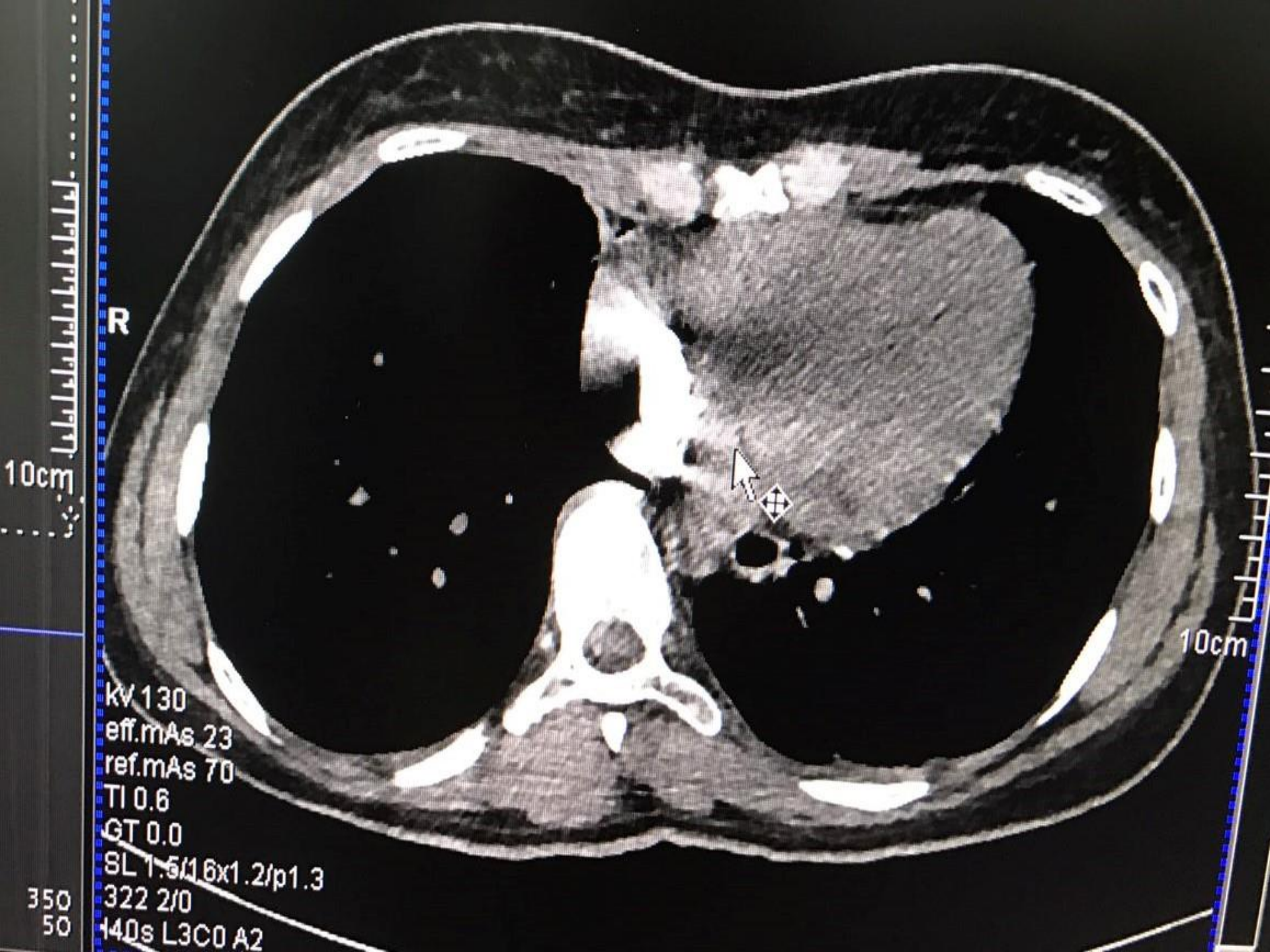


# Clinical case

- Woman, 40 y.o.
- 02/2019 from the trauma department of the city hospital
- Ds.: Closed compression stable uncomplicated penetrating fracture of L2, L3, L4 vertebral bodies. Closed fracture of the spinous process of the L3 vertebra.
- Performed: vertebroplasty of L2 vertebra, transpedicular fixation of L3-L5 vertebrae







R

10cm

10cm

kV 130  
eff.mAs 23  
ref.mAs 70  
TI 0.6  
GT 0.0  
SL 1.5/16x1.2/p1.3  
322 2/0  
140s L3C0 A2

350  
50



- Cardiotoxic support was not required
- Dabigatran etexilate 150 mg 2 times a day
- On the 15th day the patient was discharged from the department.



Fin.