

PP-324 Ultrasound-assisted lysis using recombinant tissue plasminogen activator for the treatment of subacute massive pulmonary embolism: A case study

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OBJECTIVES

Massive pulmonary embolism (PE) usually occurs due to deep vein thrombosis (DVT) and is a serious life threatening condition. Systemic, selective or selective enhanced thrombolysis are among modalities used to dissolve thrombus.

CASE

A 53-year-old female presented with severe dyspnea and chest pain. The symptoms had started before four weeks and had increased the last days. Pulmonary CT scan revealed massive pulmonary emboli. Venous Duplex ultrasound of lower extremity demonstrated subacute deep vein thrombosis of right femoral and iliac veins and recanalized chronic thrombosis of left iliac vein.

She was treated with catheter-directed lysis using the EKOS EkoSonic ultrasound system and tissue plasminogen activator. A retrievable IVC filter was implanted via left femoral vein. The EKOS catheter (12 cm) was placed in the right common iliac and external iliac veins. A second 12cm EKOS catheter was deployed via right internal jugular vein into the common and right PA. r-tPA infusion was simultaneously started at a rate of 1mg/h through each EKOS catheter lasting a total of 20h (total of 40 mg tPA). Following 20h of tPA infusion, the patient was feeling better with her heart rate 80 beats/min and SBP 120mmHg. Her respiratory rate was 16/min, and her oxygen saturation was 96%.

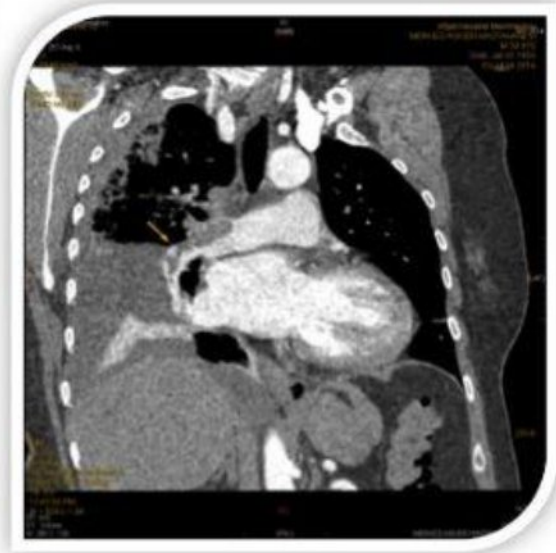
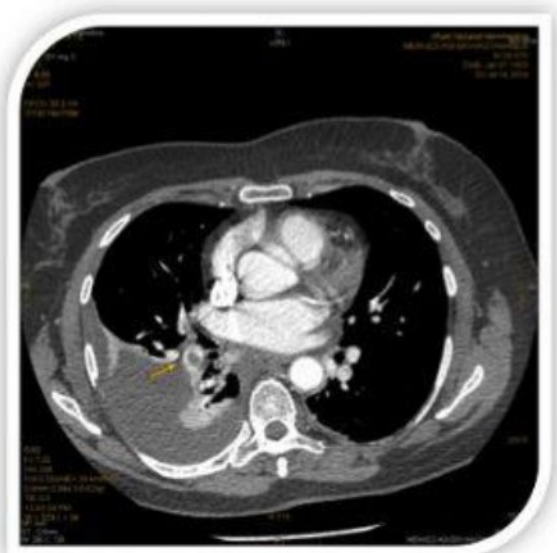
She had a repeat CT angiogram of the PA showed a marked reduction in her right main PA thrombus and the left PA branches. Venous Duplex ultrasound demonstrated recanalization of right CIV and EIV. Thrombolysis was terminated. There was no complication. The patient was discharged uneventfully after 1 week.

The patient's chest radiograph before the treatment





The patient's thorax CT before the treatment



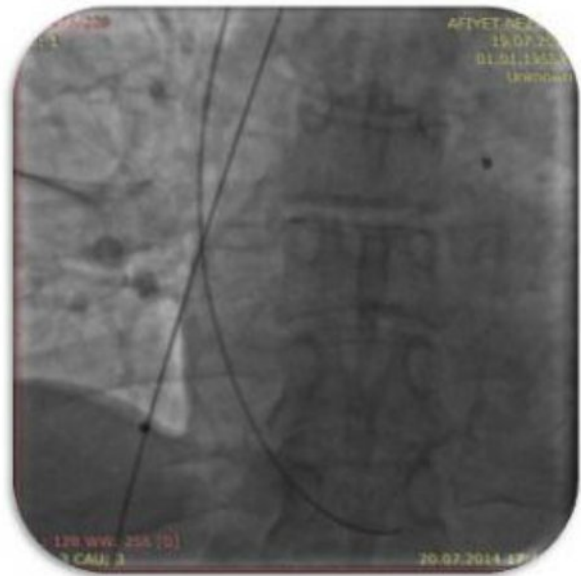
The patient's thorax CT before the treatment



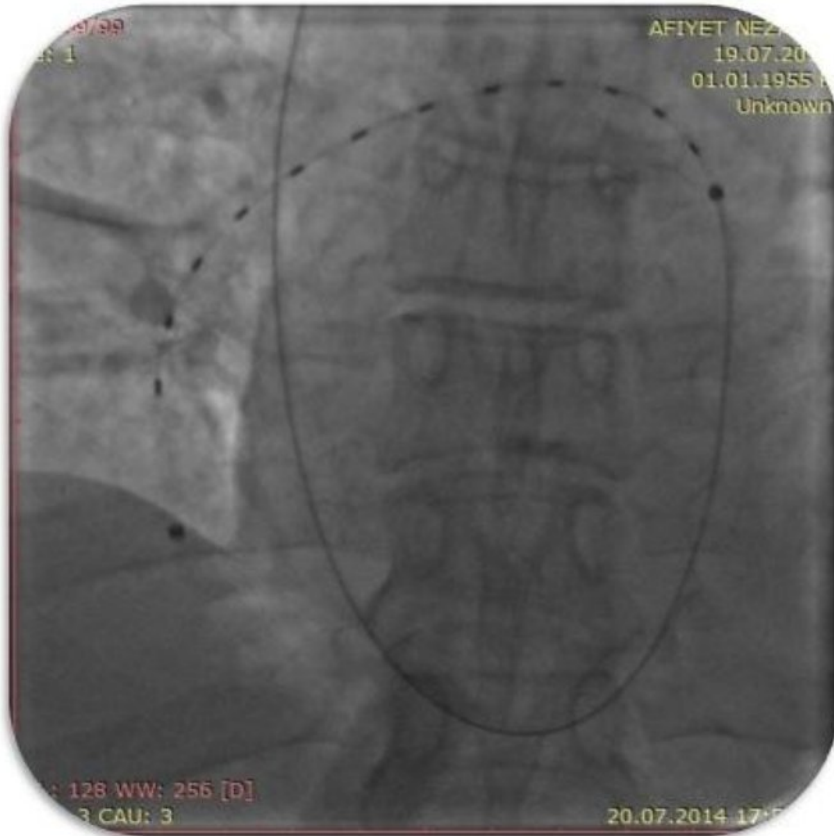
The procedure: The placement of the filter in the vena cava inferior



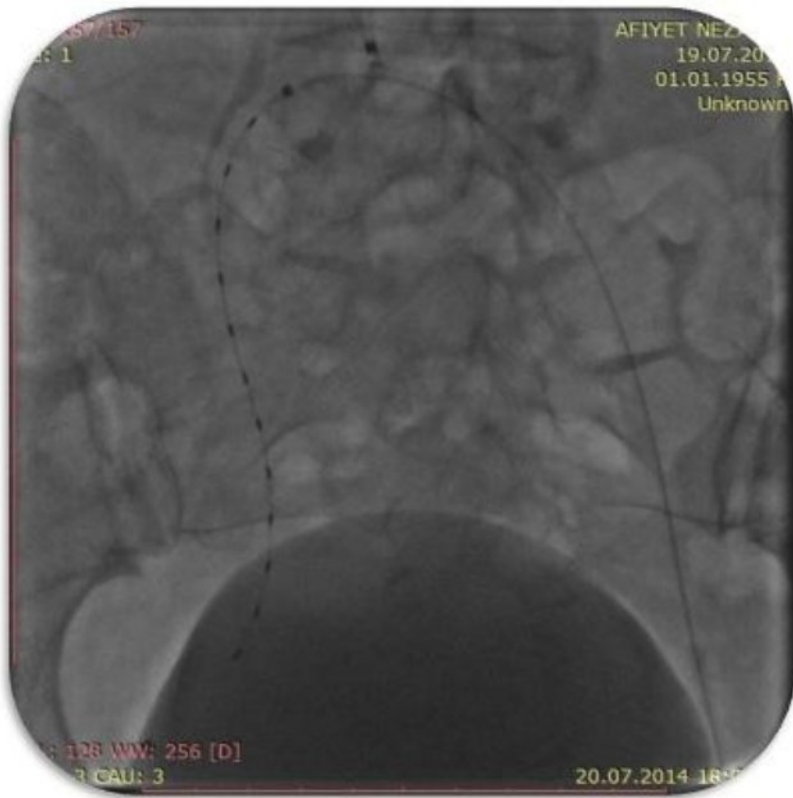
The procedure: The placement of the EKOS catheter in the right pulmonary artery



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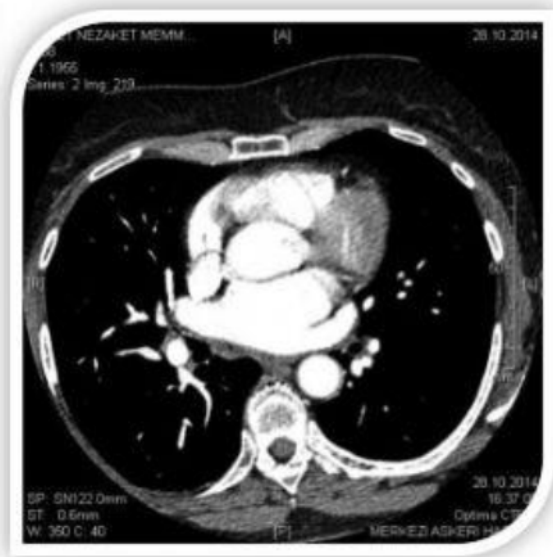
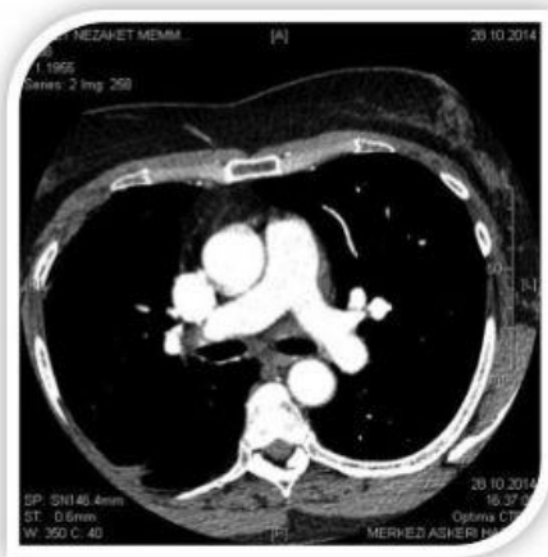
The procedure: The placement of the EKOS catheter in the right CIV and EIV



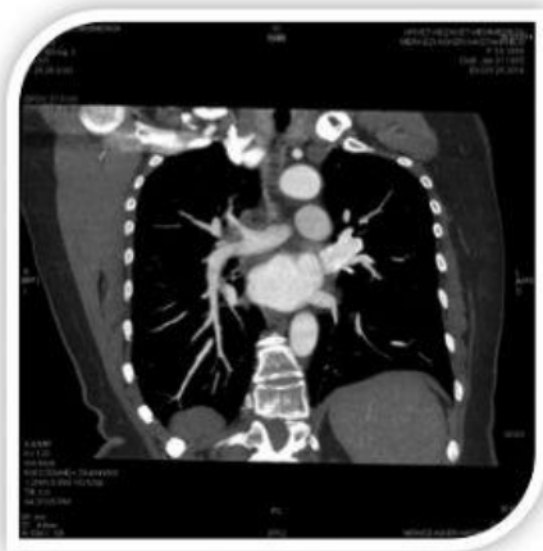
The patient's chest radiograph after 3 months



The patient's thorax CT after 3 months



The patient's thorax CT after 3 months



CONCLUSIONS

Thrombolysis is the first choice in the treatment of PE. Hemorrhagic complications increases proportionally with the dose of thrombolytic agent. Enhanced selective thrombolysis may provide faster recanalisation and less hemorrhagic complications compared to systemic infusions.