ous thrombectomy in a patient with massive pulmonary emboli and acute cerebral infarct," by Uğurlu et al. (1) and published in Anatol J Cardiol 2015; 15: 69-74. For the last two years, ultrasound-assisted catheter-directed thrombolytic (USAT) has been used as an alternative method for treatment in selected cases (2). We believe that massive pulmonary embolism can be a life-saving treatment option in experienced centers of the percutaneous intervention. However, we have some concerns about employing it in "intermediate-high" group patients. In this article, we would like to present a successful USAT on a patient to whom a prior thrombolytic treatment had been applied. However, this initial thrombolytic treatment had ended with failure and a bleeding complication had developed.

A 75-year-old female patient with hemiplegia showed thrombus in bilateral main pulmonary arteries in CT pulmonary angiogram (CTPA) performed at another center, and developed respiratory and cardiac failures. The patient was given thrombolytic treatment; however, her hypoxemia got deeper in spite of anticoagulant treatment. The patient whose thrombolytic treatment was in the "intermediate-high" category with respect to mortality risk, pulmonary embolism severity index was 175, and Wells bleeding risk score was 4, was admitted to the intensive care treatment. Since the probability of mortality was determined as 10–25% within the first 30 days, systemic thrombolytic treatment failed, and since the bleeding risk remained high, USAT was planned. Angiography for USAT was performed under local anesthesia during invasive mechanical ventilator support. Mean pulmonary artery pressure was found to be 53 mm Hg. 5 mg tPA bolus was administered through each catheter to maintain the patency of catheters and receive an immediate response. Following a total 10 mg push, a continuous tPA infusion was initiated as 1 mg/h dose for the first 5 hours, and 0.5 mg/h dose for the following 10 hours time. In addition to tPA, the patient was administered systemic unfractionated heparin. Echocardiographic evaluation on the fifth day of treatment revealed that pulmonary artery pressure and right ventricular functions were back to normal. CTPA showed almost complete resolution of thrombi within the pulmonary arteries.

According to Uğurlu et al. (1), percutaneous intervention is a life-saving treatment option in massive PE treatment. USAT treatment was found to be especially effective at the right ventricular dilatation without causing any hemorrhage, compared with unfractionated heparin infusion in patients diagnosed with intermediate-risk PE (3). In conclusion, our case indicates that USAT is a safely usable option for treating massive and sub-massive PE's with high-risk of bleeding and is unresponsive to systemic thrombolytic treatments.

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Ultrasound-assisted catheter-directed thrombolysis for pulmonary embolism

To the Editor,

We have read through the case report article with great interest, entitled "Combined catheter thrombus fragmentation and percutane-

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