

Letter to Editor

A Rare Fatal Case of Rectus Hematoma Related to EKOS Treatment in a Patient with Acute Pulmonary Embolism

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Dear Editor

Pulmonary Embolism (PE) is a life-threatening emergency. Clinical presentation varies from dyspnea to sudden cardiac death [1]. Risk stratification is important for treatment for PE. For high risk patients, reperfusion for obstructive pulmonary artery with thrombolytic therapy is indicated according to current guideline [2]. Endovascular therapy using Catheter-Directed Thrombolysis (CDT) or mechanical thrombectomy is another alternative choice for reperfusion and decrease the bleeding risk of systemic thrombolytic therapy [2]. EkoSonic Endovascular System (EKOS) is a kind of treatment of CDT in combination with high frequency, low power ultrasound energy to achieve clot dissolution. Comparing with traditional CDT, EKOS can decrease the thrombolytic dose and duration of CDT which may further decrease the bleeding risk. Although EKOS is a safe and effective treatment for PE [3-5], it still has the possible risk of major bleeding including Intra-Cranial Hemorrhage (ICH). Rectus hematoma is an extremely rare bleeding complication and seldomly cause mortality. Herein we reported a fatal case of rectus hematoma related to EKOS treatment in a patient with acute PE.

A 77-year-old female suffered from progressive dyspnea was sent to our Emergency Department (ED). Tracing back her history, she was a case of hypertension and old stroke. On arrival at our ED,

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laboratory data showed increased D-Dimer and chest Computed Tomography (CT) revealed pulmonary embolism over right main pulmonary artery (Figure 1A). The patient was then admitted to our cardiac care unit. Due to impending respiratory failure, endovascular therapy with EKOS insertion was performed for further ultrasound-assisted thrombolysis. Initial CDT treatment was smooth and oxygen saturation and hemodynamic became improved under the treatment. However, shock was noted later and vasopressors were used for maintain hemodynamic. Progressive abdominal fullness was also found after shock episode. We arranged emergent abdominal CT and result showed bilateral rectus hematoma (Figures 1B-1D). Because of profound shock and ongoing metabolic acidosis, we removed EKOS catheter and performed blood transfusion for the patient. Unfortunately, shock condition still progressed even under above treatment. Due to high surgical risk under profound shock status, family signed do-not-resuscitate order and patient finally expired.

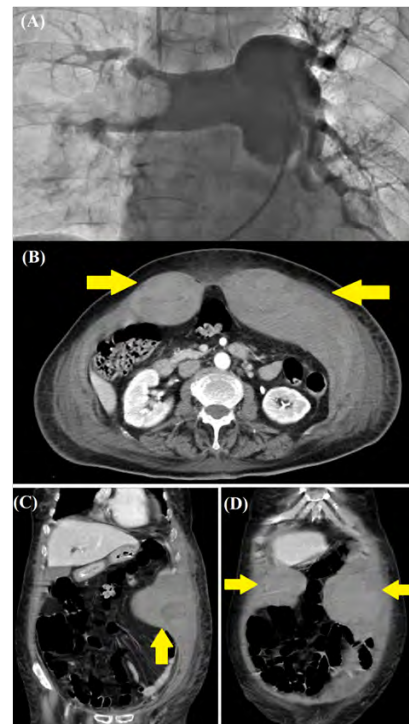


Figure 1: A) Chest computed tomography (CT) revealed pulmonary embolism over right main pulmonary artery; A-D) Abdominal CT showed bilateral rectus hematoma aftershock episode.

EKOS is an FDA-approved device with good efficacy and safety for treatment of PE [3-5]. It may reduce the major bleeding risk than systemic thrombolytic therapy and CDT treatment. However, risk of ICH and other bleeding is still reported in the literature [3-5]. Rectus hematoma is an extremely rare complication of EKOS

treatment. Only very limited case was reported but no mortality case was searched under EKOS treatment [5]. To our knowledge, our case might be the first fatal case of rectus hematoma related to EKOS treatment. In our experience of EKOS treatment (around 70 cases) in Kaohsiung medical university hospital, no case of ICH was noted. Besides this case, no other case with mortality was related to bleeding event. Therefore, this rare case reminds physician that despite of good efficacy and safety of EKOS for treatment of PE, we should keep rectus hematoma in mind while using EKOS to decrease and prevent the possible disaster occur.

References

1. Morrone D, Morrone V (2018) Acute Pulmonary Embolism: Focus on the Clinical Picture. *Korean Circ J* 48: 365-381.
2. Konstantinides SV, Meyer G, Becattini C, Bueno H, Geersing G-J, et al. (2020) 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with the European Respiratory Society (ERS). *Eur Heart J* 41: 543-603.
3. Kennedy RJ, Kenney HH, Dunfee BL (2013) Thrombus resolution and hemodynamic recovery using ultrasound-accelerated thrombolysis in acute pulmonary embolism. *J Vasc Interv Radiol* 24: 841-848.
4. Mangi MA, Rehman H, Bansal V, Zuberi O (2017) Ultrasound Assisted Catheter-Directed Thrombolysis of Acute Pulmonary Embolism: A Review of Current Literature. *Cureus* 9: 1492.
5. Lee KA, Cha A, Kumar MH, Rezayat C, Sales CM (2017) Catheter-directed, ultrasound-assisted thrombolysis is a safe and effective treatment for pulmonary embolism, even in high-risk patients. *J Vasc Surg Venous Lymphat Disord* 5: 165-170.



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