

# The role of echocardiography in the management of pulmonary embolism

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**Introduction:** To present a case of pulmonary embolism (PE) assessed with echocardiography (ECH) and confirmed by computed tomography (CT) pulmonary angiogram. PE is common and potentially lethal medical condition. Early systolic notching (ESN) on ECH is highly sensitive and specific for the diagnosis of submassive or massive PE<sup>1</sup>. Patients with PE and ESN are more likely to have other evidence of right heart strain (such as right ventricular (RV) dilatation, McConnell's sign, 60/60 sign, RV dysfunction).

**Case report:** 68-year-old male was admitted to our hospital with a main complaint of worsening dyspnea over the past 10 days and chest pain that started on the day of admission. He also had pain in his right lower leg that started two weeks prior to admission. We immediately performed electrocardiogram, ECH and cardiac markers. ECH revealed signs of right heart strain: ESN of the right ventricular outflow tract; McConnell's sign or right ventricular free wall akinesia with sparing of the apex, RV dilatation with flattened interventricular septum and D shaped left ventricle because of right ventricular overload. Cardiac markers (TnT, NT pro-BNP, D-dimer) were elevated. Based on the performed ECH, a massive pulmonary embolism was suspected, even though the patient was still hemodynamically stable. We referred the patient to the "Sveti Duh" University Hospital, where pulmonary CT angiogram was performed, and massive bilateral pulmonary embolism confirmed. The patient was admitted to the Intensive Care Unit for further treatment. A Doppler ultrasound revealed deep vein thrombosis of the right leg.

**Conclusion:** PE is a common disease with a wide spectrum of illness severity. Point of care ECH has been used to find evidence of right heart strain<sup>2</sup>. This, in combination with their hemodynamic parameters can help with stratification of these patients into a submassive or massive PE category, which has diagnostic and prognostic value.

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## LITERATURE

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