A Heart Touched by “The Devil’s Tongue”: Near Fatal Pulmonary Embolism

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Abstract
From the past ten years echocardiography has become a valuable tool in intensive care and emergencies, for both diagnosis and clinical decision-making at bedside. This made the diagnosis and medical interventions better oriented, improved patient care. For this reason, intensive and emergency medicine societies have promoted the proper use of this tool, to optimize its use in a responsible and homogenized way, based on the scientific evidence. Here we presented a case that represents this statement. When rapid decision making has been determinant to give a proper treatment to the patient, that will improve the quality of care.

Keywords: Ultrasound; Critical care echocardiography; Pulmonary embolism; Shock; Emergency department

Abbreviations
VTI: Velocity Time Integral; CT: Computed Tomography; ICU: Intensive Care Unit.

Case Report
A 73–year old man with a history of hypertension, attended the emergency room presenting syncope, dyspnea, and chest tightness with inspiratory efforts. In emergency room the patient’s mental status was obtunded, his heart rate was 84 beats per minute, respiratory rate 28 breaths per minute; oxygen saturation was 88% with ambient oxygen, blood pressure: 70/48 mmHg, temperature 35.8°C. Blood gas analysis showed a metabolic acidosis with a pH of 7.07 and lactate level of 7.4 mMol/L. Due to hemodynamic instability, an echocardiogram was performed at the bedside by the critical care physician, showing a marked right ventricular dilatation with left displacement of interventricular septum, severe right ventricular dysfunction, (Tricuspid Annular Plane Systolic Excursion -TAPSE of 8.6 mm). In the apical five chamber view, using pulsed Doppler a velocity time integral (VTI) of 6.8 cm/sec was measured, allowing calculation of the LV stroke volume, corresponding to a cardiac output of 2.3 L/min. An elongated image attached to the right atrium was observed, guiding the clinical picture of pulmonary embolism (Video 1), which was subsequently confirmed by CT pulmonary angiogram (Image A, B, and C).

In the emergency room a thrombolysis with 100 mg of Alteplase was performed, followed by a clinical improvement in the next eight hours, with right ventricular function and cardiac output recovery. In an echocardiogram performed at 24 hours of Intensive Care Unit (ICU) admission, the thrombus had disappeared, although persistent moderate right ventricle dilation was observed. The patient was discharged to the ward after five days of admission in the ICU, and discharged to home after 5 o’clock.

Since the echocardiography has become a valuable tool in intensive care and emergencies, based on the scientific evidence [1–3] intensivist and emergency departments have promoted the proper use of this tool. Echocardiography should be widely used first line in the ICU and during the assessment of critically ill patients in the emergency department. Through this exam performed by following a protocol of assessment depending on the clinical presentation [4–6], the Intensivist can obtain important information regarding the underlying cause of shock or acute
dyspnea, its diagnosis at the bedside, and guide the decision making. It safely provides hemodynamic information about acute ill patients, as well; it can also be used as a diagnostic tool for circulatory or respiratory failure. Every intensivist should receive training at least to the basic level, and acquire an appropriate diploma approved by an intensive care society [7].

References


