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**A misleading EKG and the saviour echo**

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**Introduction**

Floating right heart thrombi (in transit from the legs to the pulmonary arteries) are a severe form of venous thromboembolism, with a high early mortality rate without treatment. Evidence-based recommendations do not adequately address the treatment of right heart thrombi in patients who present with acute symptomatic pulmonary embolism.

**Case Report**

Woman, 76 years old. Previous medical history of hypertension, dyslipidaemia, mitral valve repair and hypothyroidism. Recent admission in our cardiology department with the diagnosis of NSTEMI. She performed an echocardiogram that revealed only an enlarged left atrium, with no other changes. EKG only revealed inversion of T waves in V2-V4 with posterior normalization during hospital stay. She underwent to coronary angiography and right dominance without any coronary lesions was showed. The presence of a fistula, with a badly defined route, was also pointed in the coronary angio.

One month after this episode she was admitted again in our emergency department due to onset of dyspnoea and productive cough. The physical examination showed SatO₂: 90%; BP: 95/53 mmHg; HR: 100 bpm; Respiratory rate: 27 cpm; Apyretic (36.9°C). Normal pulmonary and cardiac auscultation, without any other pathological findings on physical examination. EKG revealed a sinus tachycardia, HR 122 bpm, with ST elevation in aVR and ST depression in DI, DII, aVL and V2-V6. Presence of S wave in DI and Q wave in DIII. While the EKG was being performed the patient presented a sudden cardiovascular deterioration (with blood pressure (BP: 67/35 mmHg) drop and appearance of chest pain). We performed an arterial-blood gas test that revealed: pH7,16; pCO₂ 26,5; Po28,7; Potassium 4; Sodium 138; lactates 8,8. With these findings we decided to perform an echocardiogram to identify a possible cause for the shock. The echo showed right dilated chambers (with D-shape in parasternal short axis) with dilated IVC. We also point out the presence of a mobile intra-cardiac mass at the level of right atrium, suggestive of thrombus.

We assumed the presence of obstructive shock in the context of pulmonary embolism. Thrombolysis was performed with clinical improvement of the patient. Medical therapy was optimized and heparin was initiated after the patient finished alteplase perfusion.

During hospital stay the patients didn’t have any other cardiovascular complication and went home after 7 days in hospital. A venous doppler was performed before hospital discharge and it revealed the presence of a deep venous thrombosis at the level of right femoral vein.

**Conclusion**

The authors presented a didactic clinical case where the EKG mislead us to a possible Acute Coronary Syndrome involving the left main artery. Although there is no clear consensus for the management of right heart
thrombus associated with pulmonary embolism, thrombolysis is readily available and can be effective in carefully selected patients.