A curious case of syncope in an implantable cardioverter defibrillator patient.

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Implantable Cardioverter / Defibrillator

Citation:
INTRODUCTION
A 68 year old woman presented to the hospital because of multiple syncopal episodes since three weeks. These episodes were almost exclusively after increasing intrathoracic pressure or with sudden changes in body position. Furthermore, she experienced progressive dyspnea and a headache with mild swelling and red appearance of her head since one day.

Her medical history was positive for an out of hospital cardiac arrest due to ventricular fibrillation (VF) for which she received an implantable cardioverter defibrillator (ICD) in 2011. An angiography at that time showed no significant coronary lesions and myocardial fibrosis was excluded using cardiac MRI with gadolinium contrast (LVEDD 101 ml, EF 67%).

On physical examination a sinus rhythm of 70 bpm and oxygen saturation of 90% was noted. Blood pressure was 156/78 mmHg. Auscultation of the lungs revealed mild wheezing and there was some swelling of her head and neck for which methylprednisolone and an anti-histaminic drug were prescribed on the emergency department.

ECG showed a sinus rhythm of 76 bpm. There were no ventricular arrhythmias when analyzing her ICD. TTE revealed preserved biventricular systolic function and absence of valvular lesions. A transticuspid gradient was not measurable.

Blood gas analysis showed a pO2 of 58mmHg, pCO2 33 mmHg, pH 7.47 and elevated blood lactate concentration of 4.7 mmol/l. The patient was brought to the intensive care unit (ICU).

COURSE DURING HOSPITALIZATION
At the ICU one episode of syncope, during defecation, was documented. Continuous heart rate monitoring showed an accelerated idioventricular rhythm with desaturation during the syncope. The patient’s condition worsened within a day and she was intubated because of respiratory distress.

A CT scan of the thorax was performed and showed no signs of pulmonary embolism. An intraluminal filling defect at the vena cava superior (VCS) was described but interpreted as an artefact by the radiologist.

DIFFERENTIAL DIAGNOSIS
Because of the intraluminal filling defect at the VCS, the diagnosis of vena cava superior syndrome was suspected. A transesophageal echocardiography (TEE) was performed and confirmed an occlusive thrombosis around the ICD lead. Because of the acute onset of symptoms and rapid progression, thrombolysis (alteplase 100mg/2h) was administered. A control TEE showed almost complete resolution of the thrombus. Afterwards, the patient was put on oral anticoagulant therapy with rivaroxaban.

CONCLUSION
Superior vena cava syndrome after transvenous ICD implantation is generally an uncommon but serious complication which can lead to syncope, respiratory insufficiency and in extreme cases cardiogenic obstructive shock. Symptoms usually occur early after implantation but may develop at any time, as is shown in this case. In our case, thrombolysis and subsequent oral anticoagulation with a DOAC was successfully used as a treatment.
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