Abstract:

Introduction: Central venous catheters related thrombosis (CRT) insertion has been shown to increase the risk of venous thromboembolism, particularly pulmonary embolism (PE). Nevertheless, deaths caused due to PE have been rarely reported.

Patient concerns: A central venous catheter was introduced through the right jugular vein during the operation due to severe septic shock from a 57-year-old male patient. Two days after surgery, the hemodynamics was stable. On the 7th day, and low molecular weight heparin calcium (4100 units, once a day) was added for anticoagulation to prevent venous thromboembolism. On the 15th day, during the process of central venous catheter removal, the patient suddenly lost consciousness, suffered cardiac arrest, and received emergency cardiopulmonary resuscitation.

Diagnosis: Jugular venous catheter-associated thrombosis and fatal PE. An acute bedside ultrasound showed a thrombus drifting with the blood stream in the right jugular vein. The lower section of the xiphoid process by echocardiography showed decreased systolic amplitude of the right atrium and right ventricle, widened and fixed inferior vena cava, and no variation with respiration. Para-sternal left ventricular long axis section showed that the right ventricular outflow tract was significantly extended, and the contraction amplitude of the anterior and posterior walls of the left ventricle decreased. Left ventricular short axis section indicated a right ventricle enlargement and ventricular septum deviation of left ventricle, showing “D” sign. Apical 4-chamber view showed that the right ventricular ratio increased and the contractile capacity decreased.

Interventions: One and a half million units of urokinase were immediately given through intravenous drip.

Outcomes: Twenty minutes after thrombolysis, the patient’s autonomic heart rhythm was recovered, but continued to suffer from hypotension and coma, followed by multiple organ failure, and died 50 hours later.

Conclusion: Recent clinical practice guidelines recommend against the routine use of any anticoagulant thromboprophylaxis in patients with central venous catheters, but for patients at particularly high risk for CRT, consideration can be given to using higher doses of anticoagulant as prophylaxis, although there are virtually no data to support this approach.

Reference:
Wang, J., Wang, L., Shang, H., Yang, X., Guo, S., Wang, Y. and Cui, C. (2020) Jugular venous catheter-associated thrombosis and fatal pulmonary embolism: A case report. Medicine. 99(26), p.e20873. https://doi.org/10.1097/MD.00000000000020873