

Percutaneous pulmonary thrombectomy as life-saving therapy in high-risk pulmonary embolism with obstructive shock in early pregnancy

Marek Grabka¹, Mariusz Łebek², Paweł Żurek³, Radosław Gocoł³, Ewa Kucewicz⁴, Katarzyna Mizia-Stec¹

¹1st Department of Cardiology, Medical University of Silesia, Katowice, Poland

²2nd Department of Cardiology, Medical University of Silesia, Katowice, Poland

³Department of Cardiosurgery, Medical University of Silesia, Katowice, Poland

⁴Department of Anesthesiology and Intensive Care, Medical University of Silesia, Katowice, Poland

Correspondence to:

Marek Grabka, MD, PhD,
1st Department of Cardiology,
Medical University of Silesia,
Ziołowa 45–47,
40–635 Katowice, Poland,
phone: +48 500 228 614,
e-mail: marekgrabka@interia.pl

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A 43-year-old pregnant woman was admitted to the Department of Cardiology with cardiogenic shock due to acute pulmonary embolism. It was the 10th week of the patient's fifth pregnancy and the 5th embolic episode in pregnancy. During three previous pregnancies, the patient suffered from deep venous thrombosis, and her last pregnancy was complicated by a low-risk pulmonary embolism. All pregnancies ended on time in natural births without additional pathologies. Four of the woman's children are perfectly healthy. Because of recurrent thromboembolism, the patient was treated with enoxaparin 1 × 1 mg/kg during pregnancy. On admission, the woman was in an extremely severe state of cardiogenic shock and with blood pressure 100/80 mm Hg on high doses of pressors, heart rate 100/min, and only 89% saturation on 100% oxygen. The patient was intubated and treated with intravenous heparin. A computed tomography (CT) scan revealed proximal clots in the main pulmonary arteries with almost total occlusion of the right pulmonary artery (RPA, **Figure 1A**). Echocardiography confirmed right ventricular insufficiency (**Figure 1B, C**). According to the guidelines, high-risk pulmonary embolism (PE) should be treated with reperfusion therapy (t-PA), but on the other hand, pregnancy is a relative contraindication for thrombolytic therapy [1]. Moreover, we knew that the risk of PE and thrombolysis in pregnancy was quite high [2], and in the case of thrombolysis administration, we were afraid of hemorrhagic intrauterine complications and potential loss of pregnancy. In the

case of contraindications to pharmacological reperfusion, the guidelines give priority to cardiocirculatory embolectomy, which was also considered [1]. Because of high mortality after surgical thrombectomy [3], finally, we decided to perform pulmonary catheter embolectomy.

Using pulmonary arteriography through femoral vein access, we confirmed huge proximal clots in the RPA and smaller clots in the left pulmonary artery (LPA) (**Figure 1D**). In the next step, we performed suction thrombectomy using a Penumbra Indygo 8 F device with a separator, and we removed the huge thrombus from the RPA (**Figure 1E**) and restored blood flow in the RPA (**Figure 1F**). The patient received only 17 mGy of X-rays and 70 ml of contrast media. She left the lab in a much better state with a blood pressure of 100/70 mm Hg on minimal pressors flow and oxygen saturation of 95%. In the next 2 hours, the patient's condition was quite good, but in the third hour, the patient started to deteriorate. The most probable reason for deterioration after the initial improvement was either peripheral embolization or developing right ventricular failure. Because of the patient's state, we decided on veno-arterial extracorporeal membrane oxygenation (ECMO) insertion. In the next hours, the patient's condition systematically improved and allowed for ECMO removal on the third day and extubation on the fifth day. The patient was rehabilitated during the next days and discharged on the eleventh day home on enoxaparin. During follow-up, the patient's state was quite good with dyspnoea in New York Heart Association

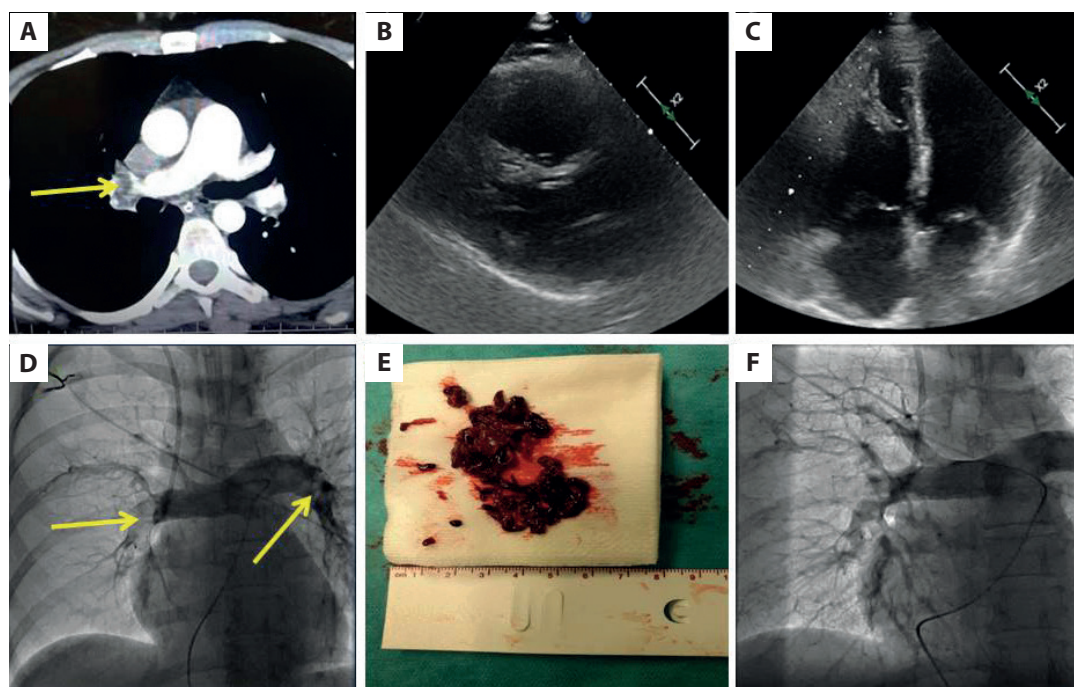


Figure 1. **A.** Computed tomography (CT): proximal clots in the main pulmonary arteries with almost total occlusion of the right pulmonary artery. **B.** 2D echocardiography: right ventricular enlargement in long axis parasternal view. **C.** 2D echocardiography: right ventricular enlargement in 4-chamber view. **D.** Pulmonary arteriography: huge proximal clots in the right pulmonary artery and smaller clots in the left pulmonary artery. **E.** Huge thrombus removed from the right pulmonary artery. **F.** Pulmonary arteriography: the final result — restoration of blood flow in the right pulmonary artery

class II, without right ventricular enlargement. The woman gave birth to a healthy baby (Apgar scale 9) in the 38th week of pregnancy.

Article information

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