

From surgery to survival: managing high-risk pulmonary embolism with veno-arterial extracorporeal membrane oxygenation

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Introduction: Veno-arterial extracorporeal membrane oxygenation (VA-ECMO) is increasingly being used as a life-saving treatment option for patients with hemodynamic instability or in cardiac arrest undergoing cardiopulmonary resuscitation (CPR) due to acute pulmonary embolism (PE)^{1,2}.

Case report: We report the case of a 56-year-old female who presented with sudden onset of chest pain and dyspnea one month after left ankle surgery. Immediately upon arrival in the Emergency Department, the patient suffered cardiopulmonary arrest. Focused transthoracic echocardiography during CPR revealed an enlarged right ventricle, which, in conjunction with the patient's history, led to the diagnosis of high-risk PE. A systemic thrombolytic therapy was administered, and upon return of spontaneous circulation, VA-ECMO was initiated due to persistent hemodynamic instability. This was followed by mechanical thrombectomy with extraction of multiple thrombi from both pulmonary arteries. VA-ECMO support was gradually decreased and successfully discontinued on the third day of treatment, with stable hemodynamic parameters onwards. However, the next day, the patient developed discoloration of the right foot, accompanied by an absent peripheral pulse. Urgent CT peripheral angiography suggested compartment syndrome, prompting multiple fasciotomies and necrotomy of ischemic right lower leg muscles. Simultaneously, the patient became oliguric, with worsening renal function and myoglobinuria, suggestive of rhabdomyolysis-associated acute kidney injury, leading to hemodialysis. The patient's renal function later recovered and after discontinuation of analgosedation the patient regained consciousness without neurological deficits and was successfully weaned from mechanical ventilation. The patient was then transferred to the Department of Plastic and Reconstructive Surgery for further management of right lower leg defects. Anticoagulation therapy was switched from low-molecular-weight heparin to an oral anticoagulant. A thrombophilia work-up was negative and the patient was discharged in stable condition.

Conclusion: This case highlights the complexity of managing high-risk PE and its associated complications, emphasizing the importance of a multidisciplinary approach in critical care.

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LITERATURE

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