Massive Upper-extremity Edema after Transaxillary Venoarterial-extracorporeal Membrane Oxygenation

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A 76-year-old man was brought to our institution for emergency treatment of broad-anterior ST-elevation myocardial infarction. He was in cardiogenic shock with blood pressure of 74/54 mmHg and SpO₂ of 78%. Immediately after transfer to the angiography room, cannulation for venoarterial-extracorporeal membrane oxygenation (VA-ECMO) through the right femoral vessels was performed. Upon initiating VA-ECMO, only a relatively low flow rate of 2.2 L/min was obtained, despite successful percutaneous revascularization for total occlusion of the proximal left anterior descending artery. However, the arterial cannula site...
was not changed to the left femoral artery due to advanced bilateral arteriosclerosis obliterans (Picture 1a and b) and an abdominal aortic aneurysm (Picture 1c). The next day, relocalization of the cannula to the right axillary artery through a right subclavian incision improved the flow rate to 3.0 L/min (Picture 2). However, one day after the procedure, massive edema with multiple blisters in the right upper extremity appeared due to hyperperfusion syndrome (Picture 3a, b) (1), despite continuous right upper extremity elevation. The anastomosis between the interposition graft and the axillary artery was constructed in an almost perpendicular fashion, despite the recommendation of a 45° oblique anastomosis (2), which was considered a cause of the hyperperfusion syndrome. We therefore removed the ECMO and switched to Impella support. The swelling gradually resolved over 72 h with no additional treatment.

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References