A 64-year-old woman was admitted to the hospital with chest discomfort. ECG recording and coronary angiography were performed and revealed myocardial infarction due to an occlusion of the left anterior descending coronary artery. During angiography, cardiac arrest occurred, and closed-chest cardiac massage was performed successfully. After 3 minutes of resuscitation, a sinus rhythm was restored, but the patient developed progressive hemodynamic instability. To exclude other potential causes of hemodynamic deterioration such as aortic aneurysm, a computed tomographic scan was obtained, revealing a significant hemopericardium and a subcutaneous hematoma of the chest wall; rib and sternal fractures were absent. The site of bleeding could not be detected, but the epicardial fatty tissue appeared effaced, and myocardial contusion was assumed (Figure 1).

Intraoperatively, a distinct hematoma of the epicardial fatty tissue of the right ventricle was seen, and incision of the epicardium revealed a roundish lesion of the right ventricle right below the sternum (Figure 2). The ventricular rupture was sutured, and after closure of the thorax, vital signs were stable, and cardiac function was satisfactory. However, 2 days later, hypotension and cardiac arrhythmias occurred, and the patient died despite prolonged life-saving measures.

Since its introduction in the 1960, a number of complications resulting from closed-chest cardiopulmonary resuscitation such as regurgitation, aspiration, and rib and sternal fractures have been described. In contrast to these adverse effects, life-threatening complications due to resuscitative measures such as ventricular rupture are exceedingly rare (<5%; ventricular rupture, 0.1%) and are related primarily to rib or sternal fractures, insufficient skills, or preexisting myocardial damage (eg, myocarditis). In this patient, the cause of rupture of the right ventricle and of death could not be clarified. Because of the unclear cause of death, an autopsy was performed but did not reveal any findings.

Disclosures

None.

References


Figure 1. Computed tomography performed after closed-chest cardiac massage showed hemopericardium as well as effacement and hemorrhage of the epicardial fatty tissue (arrow), suggesting myocardial contusion.

Figure 2. External view of the heart. A, Distinct hematoma of the epicardial fatty tissue of the right ventricle (arrow). B, Incision of the epicardium showed extravasation (arrow) and a roundish lesion of the anterior wall of the right ventricle (dotted arrow).
Rupture of the Right Ventricle After Closed-Chest Cardiac Massage
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