

Unveiling the Uncommon: Obstructive Shock in the Setting of Massive Pericardial Hematoma

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Case report: A 68-year-old male with a history of stroke and CAD, status-post drug-eluting stent placement in the right coronary and left circumflex arteries two years prior to admission, presented after a syncopal episode. The patient was lying in bed when he reported sudden substernal chest pain without radiation and shortness of breath. He was on his way to the bathroom, and the next thing he remembered was waking up on the floor. In the ED, he reported cyanosis in his extremities, and chest pain when lying flat. Vitals were significant for hypotension at 80/50, tachycardia, and tachypnea. Physical examination was concerning for rapid breathing, otherwise grossly unremarkable. EKG read sinus tachycardia, right axis deviation, and T-wave inversions in the inferior lateral leads. Notable labs included lactic acid 6.9 mmol/L, arterial blood pH 7.29, and mild transaminitis. Troponins peaked to 6200 ng/L within the first 24 hours. The patient was started on a heparin drip in the setting of suspected acute coronary syndrome vs. pulmonary embolism. CT chest instead discovered a 11.9 by 7.1 cm that overlies the right ventricle. Cardiac MRI confirmed a predominantly hypo-enhancing mass with peripheral irregular enhancement collapsing on the right ventricle. Patient underwent a pericardiectomy, complete cardiopulmonary bypass, and excisional biopsy of the mass in the pericardium. Pathology revealed chronically inflamed fibroadipose tissue and fibro-hemorrhagic exudate, less concerning for a neoplasm. With history of prior PCI, the patient was suspected to have gradually developed a large pericardial hematoma that had clotted off and remained a thrombus that compressed the right ventricle. He was monitored in the ICU after surgery and was soon discharged with a cardiothoracic surgery follow-up.

Discussion: Although rare, pericardial effusions can go unnoticed over time leading to the formation of hematomas; presentations vary from asymptomatic to life threatening emergencies. Potential etiologies for pericardial effusions and subsequent hematomas include prior heart trauma, post-infarction myocardial rupture, and post-cardiac injury syndrome. Notably, reports have shown that the risks for coronary artery perforation remain even in the setting of a successful PCI with no contrast extravasation on coronary angiogram post-PCI. Such perforation can lead to rapid accumulation of sanguineous effusion into the pericardial space. On the other hand, gradual extravasation secondary to a smaller coronary artery perforation can develop into a hematoma as an accumulation of clots. Once it causes enough compression of the cardiac chambers and great vessels, the subsequent hematoma's mass effect decreases stroke volume, resulting in shock, as demonstrated in this case. While pericardial hematomas typically prompt pericardiocentesis, aspiration becomes difficult when either the bleeding becomes too large or when it clots into a solid thrombus that significantly reduces diastolic function. While there have been few reports on cases of PCI-related pericardial effusions and hematoma, this is the first case documented for a pericardial hematoma large enough to require a cardiopulmonary bypass and pericardiectomy. This case emphasizes the consideration of a pericardial hematoma as a complication of prior cardiac injury and the importance of regular cardiology follow up after such an event.