

Atypical Presentation of Cardiac Tamponade in a Postoperative CABG Patient

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Introduction: Cardiac tamponade is a rapidly fatal complication seen after open-heart surgery making timely diagnosis and intervention essential. Echocardiography is the first-line imaging technique to diagnose and evaluate all pericardial disease etiologies that may lead to cardiac tamponade.¹ In postoperative open-heart patients, cardiac tamponade is often the result of loculated pericardial effusions or blood clots that compress only select chambers creating a regional tamponade.² In contrast to “classical” tamponade, which is the result of circumferential pericardial effusions leading to global chamber compression, the typical physical exam, hemodynamic, and echocardiographic findings are often absent in regional tamponade.³

Case Presentation: A 75-year-old man, with a past medical history significant for hypertension and coronary artery disease, underwent cystoscopy after which he developed chest pain and had an elevated troponin level. Cardiac catheterization demonstrated >95% occlusion of the left main coronary artery. He was taken to the operating room for an urgent three-vessel CABG. Intra-operative events were notable for cardiac arrest on induction requiring CPR and an emergent sternotomy, and profound hypotension during emergence from bypass after a three-vessel graft surgery. After resumption of bypass, three additional arterial grafts were placed. Postoperatively, the patient was admitted to the CVICU on numerous inotropic and vasopressor support, an intra-aortic balloon pump, as well as inhaled nitric oxide. The next day, the patient remained hemodynamically unstable, with worsening lactic acidosis, liver enzymes, and creatinine. A coagulopathy required multiple transfusions. Mixed cardiogenic and vasoplegic shock was suspected. Transthoracic echo was unhelpful due to postsurgical chest changes and subcutaneous emphysema. Transesophageal echo by a cardiologist was deemed negative for cardiac tamponade. Concern for ischemic bowel led to an exploratory laparotomy which too was unrevealing. Further chest exploration showed a “large” blood clot compressing the right and left ventricles. Upon clot evacuation, blood pressure and cardiac index (from <2 to >3) immediately improved. The culprit bleeding mammary artery was controlled. The patient was readmitted to the CVICU without vasopressor support and decreased inotropic requirements.

Discussion: Echocardiography remains the gold standard for diagnosis and evaluation of cardiac tamponade.¹ However, echocardiography may be less reliable in postoperative open-heart surgery patients who have a propensity for regional tamponade as well as post-surgical chest wall changes that can reduce visibility. Additionally, typical signs of cardiac tamponade may be confounded by cardiogenic and vasoplegic shock, in these patients.

References:

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3. Klein, AL et al. (2013) Journal of the American Society of Echocardiography 26(9):965-1012 e1015.