



Cardiac Tamponade Complicating Aortic Dissection

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Abstract:

Aortic dissection is a relatively rare but dreadful illness, often presenting with tearing chest pain and acute hemodynamic compromise. We report a case of a patient with suspected food poisoning that turned out to be aortic dissection. With high level of suspicion, the patient was diagnosed at the earliest but soon developed cardiac tamponade for which pericardiocentesis was done, but the patient developed cardiac arrest and died within few hours of presentation to the hospital. We discuss the controversial role of pericardiocentesis in cardiac tamponade complicating aortic dissection.

Key words: Chest Pain, Aortic Aneurysm, Cardiac Tamponade, Pericardiocentesis, Cardiac Arrest.

Introduction

Aortic dissection is defined as separation of the layers within the aortic wall. It has a high mortality with nearly two third of the deaths in those cases where proximal dissection produces cardiac tamponade [1,2]. Many patients die before presentation to the hospital or before diagnosis is made in the emergency department. It usually presents with severe chest pain which is ripping or tearing in nature. Other symptoms include syncope, altered mental status, dyspnea, cerebrovascular accident symptoms, hemoptysis, dysphagia, flank pain, abdominal pain (with abdominal aorta involvement). Because of such variable presentation, diagnosis usually gets delayed. We report an atypical presentation of an aortic dissection with cardiac tamponade and the controversial role of pericardiocentesis in this condition.

Case Report

With a prior intimation of an unconscious patient arriving to emergency department with suspected food poisoning, a 54 year old male was brought with chief complaints of juice ingestion 1 hour back following which patient developed upper abdominal pain and became unconscious 30 minutes later. The patient was obese, unconscious on the stretcher with labored breathing. He had a pulse rate of 54 beats per min, a blood pressure of 100/70 mm Hg, a respiratory rate of 16/min, temperature was 98°F, oxygen saturation on room air was 80% and capillary blood glucose was 140 mg/dL. Airway was patent but threatened. Breathing was laboured, abdominal, no tracheal shift, resonant note bilaterally on percussion and air entry was bilaterally equal with no adventitious sounds. In circulation, peripheral pulses were

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feeble. Glasgow coma scale (GCS) was E1V1M3 and pupils were 3 mm sluggishly reacting to light. Exposure was unremarkable. The patient was hypertensive, smoker and was on atenolol, cilacar and clonidine with no allergic history. Examination of chest/cardiovascular system/ abdomen was normal. CNS examination showed unconscious patient with decreased tone, deep tendon reflexes present and plantar were bilaterally extensor. ECG showed T wave inversions in V3-V6. E-FAST was negative. Patient was intubated, ryles tube was placed and intravenous fluids were started. BP improved to 110/70 mm Hg and the patient was shifted for CT brain and CT thorax. In the meantime, the BP dropped to 80/60 mm Hg. Airway, breathing and circulation were reassessed. Peripheral pulses were absent, heart sounds were muffled and neck veins were engorged. ECHO was repeated which revealed pericardial tamponade. CT brain was normal and NCCT thorax revealed pericardial effusion, dilated aortic root (53 mm) and dilated ascending aorta (50 mm). Cardiologist and cardiothoracic surgeon were informed and ultrasound guided pericardiocentesis was done. Approximately 100 ml of blood was drained. Pigtail catheter was placed and blood was drained but the patient had a cardiac arrest. Resuscitation was done as per ACLS guidelines but the patient did not survive and was declared dead within few hours of presentation to the hospital.

Discussion

Acute aortic dissection is an emergent condition with high mortality despite advances in diagnostic and therapeutic modalities [3,4]. The clinical manifestations are diverse making the diagnosis difficult and necessitating a high index of suspicion [3-5]. In our case, the patient presented with an atypical presentation of food poisoning but due to clinical suspicion, he was diagnosed at the earliest. An estimated 38% of acute aortic dissections are missed on initial evaluation. Therefore, high level

of suspicion is always required to diagnose aortic dissection at the earliest. The clinical outcome, although is determined by number of factors, a high level of suspicion is the key in the management of acute aortic dissection.

Pericardiocentesis is considered the standard treatment for patients suffering from cardiac tamponade complicating aortic dissection while they await surgical repair [6,7]. However, some authors have raised concerns that performing pericardiocentesis in such cases may in fact be dangerous, possibly precipitating hemodynamic collapse and death [8] and should therefore be avoided. We faced the similar problem in our case. The patient presented with acute aortic dissection, developed cardiac tamponade, for which pericardiocentesis was done and 100 ml of blood was aspirated, but soon the patient developed cardiac arrest and died. If the etiology of cardiac tamponade is other than hemopericardium, pericardiocentesis is usually an effective and safe procedure. But performing pericardiocentesis is controversial in a case of cardiac tamponade caused by aortic dissection, because it may be harmful to lower the pericardial pressure which causes recurrent bleeding. However, if the patient's blood pressure is so low that it compromises cerebral or vital organ perfusion, there may not be enough time to wait for surgery in order to save the patient, and in this setting, urgent controlled pericardiocentesis would still be warranted. As drawing a small volume of fluid in the pericardial tamponade results in rapid clinical and hemodynamic improvement because of drastic decrease in pericardial pressure [9], therefore a small amount of blood should be aspirated to stabilize the patient's circulation.

Conclusion

Aortic dissection with cardiac tamponade is a rare and fatal condition. Possibility of atypical presentation should be kept in mind to suspect

and diagnose aortic dissection at the earliest to decrease the mortality. It remains controversial whether pericardiocentesis should be performed in cases of pericardial tamponade complicating aortic dissection but can be avoided till blood pressure is so low that it compromises cerebral or vital organ perfusion.

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