Case Report

Cardiac tamponade following sternal acupuncture

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Abstract

We present a rare complication of acupuncture in a young man who collapsed after the acupuncture needle advanced into his sternum resulted in hemopericardium and pericardial tamponade. The patient was resuscitated including intubation and mechanical ventilation. Emergency department pericardiocentesis was performed under echocardiographic guidance, which revealed hemopericardium, and then an emergency pericardial window was performed. The patient's condition stabilized and required no further surgical intervention.

Although acupuncture has the reputation of being safe, this case report should remind people of the potential catastrophic risks of this procedure and that acupuncture practitioners should exercise caution and be prepared with sound anatomical knowledge when passing needles through the chest wall.

Keywords: acupuncture, cardiac tamponade

Introduction

Acupuncture is a relatively safe therapeutic intervention. However, a few traumatic life-threatening complications have been reported(1). Acupuncture related cardiac tamponade is a rare complication that has been reported both as an immediate and a delayed sequel(2-7). Accumulation of blood or fluid in the pericardial sac results in impairment of the cardiac filling leading to cardiac tamponade and cardiogenic shock when tension develops within the pericardium. It is a life-threatening condition that requires immediate evacuation either percutaneously or through a surgical incision or both. Surgical placement of a pericardial drain can stabilize the patient until definitive management is available.

We report a case of an acute cardiac tamponade that developed immediately after a sternal acupuncture. To our knowledge not more than six cases have been reported for acupuncture–associated cardiac tamponade(3-7).
Case description
A forty-five year old healthy male patient collapsed with severe hypotension (SBP 60 mmHg) and diaphoresis following a sternal acupuncture performed for the purpose of treating bronchial asthma. The acupuncture needle was introduced through the lower end of the sternum. He was resuscitated in a community hospital for cardiogenic shock secondary to pericardial tamponade, as evidenced by echocardiography, with immediate intubation, mechanical ventilation and pericardiocentesis which revealed the presence of hemopericardium. Through subxiphoid approach the general surgeon at the community center performed an emergency pericardial window. More than 200 mls of blood was drained from the pericardial sac. A pericardial drain was placed and the patient was emergently transferred to our center for further possible pericardial surgical intervention. The details of the acupuncture needle caliber and the precise site of puncture could not be obtained. The patient was admitted to our cardiac surgery recovery unit in a stable hemodynamic condition, with further drainage of 25 mls over the next 12 hours; thereafter, a conservative management approach was pursued. A 12-lead ECG did not reveal myocardial ischemia as possible sequelae of needle induced coronary injury. A trans-thoracic echocardiography was performed 12 hours later, showed no recollection of pericardial fluid with normal heart function. The patient was extubated uneventfully and was discharged to the referring hospital after 24 hours in a stable condition for further follow-up. The pericardial drain was subsequently removed after 48 hours with no further immediate sequelae and the patient was discharged home in a stable condition.

Discussion
The use of “complementary and alternative medicine (CAM)” for the treatment of adults and children is growing. This is particularly the case for bronchial asthma and other allergic diseases. Mechanical injuries may be observed following acupuncture leading to pneumothorax, cardiac tamponade or spinal injury. Our case report represents one of rare, but life-threatening complications of acupuncture which is acute cardiac tamponade. About six cases have been reported in the literature for this complication; one of these was related to a congenital foramen in the sternum that had ended with a fatal outcome. This congenital sternal defect occurs in 5-8% of the population. Bearing in mind the possibility of having this foramen is obviously important. A needle puncture through an area underlain by a bony structure should raise suspicion if the tissues yield to the needle after a certain depth. This is an essential technical skill that all acupuncturist should know for patient’s safety, especially when dealing with the chest wall. Our patient did not have a sternal foramen when assessed by simple clinical examination and chest radiography. A definitive testing by CT scan was not practical in this case.

Of all the cases that have been reported, with the exception of one fatality, there had been a facility to treat this life threatening condition. This patient was properly managed by a general surgeon in a small community hospital. General surgeons trained in the initial management of cardiothoracic trauma can save lives in such community centers.

This case report should not be taken, by any means, as an argument against this commonly practiced interventional procedure, but emphasizes the attention to extreme vigilance when breaching the chest wall with the acupuncture needle. Moreover, patients who seek acupuncture as a treatment should be counseled for all the potential serious complications, as there is a general belief that this procedure is devoid of any complications.
References