Cardiogenic Shock due to Right Ventricular Infarction

To the Editor:

We report the findings in a patient in whom clinical suspicion and hemodynamic monitoring made possible the recognition and successful treatment of shock due to acute right ventricular infarction.

Case Report

A previously healthy 69-year-old woman developed cardiogenic shock 18 hours after suffering an acute inferoposterior myocardial infarct (Fig 1) that was unresponsive to therapy with dopamine. Initial complications were transient complete heart block and two episodes of ventricular tachycardia requiring emergency defibrillation. Physical examination revealed unrecordable blood pressure, impalpable peripheral pulses, clear lungs, no murmurs, and normal heart sounds.

Hemodynamic monitoring revealed a high right ventricular filling pressure (right atrial pressure) of 12 mm Hg, a relatively low left ventricular filling pressure (pulmonary wedge pressure) of 10 mm Hg, pulmonary arterial pressure of 28/12 mm Hg, and a cardiac index of 1.2 L/min/sq m. After 2.5-L volume expansion over two hours, there was little change except for a rise in right atrial pressure and pulmonary wedge pressure to 20 mm Hg. Counterpulsation with an intra-aortic balloon was then instituted, with prompt improvement in the cardiac index to 4.2-L/min/sq m and spontaneous urinary output greater than 20 ml/hr. Emergency catheterization and angiographic studies revealed inferobasal akinesis of the left ventricle, with an ejection fraction of 50 percent and occlusion of the right coronary artery in its proximal portion with normal left coronary system. Rapid recovery occurred over the next two weeks, with discontinuation of intra-aortic balloon counterpulsation after 48 hours.

Discussion

The features of right ventricular infarction are embodied in this patient, in particular the absence of left ventricular failure with hypotension and acute right ventricular failure in the presence of inferoposterior myocardial infarct. The inability of an acutely infarcted right ventricle to generate a systolic pulmonary arterial pressure despite high right atrial pressure supports the concept that the right ventricle is not merely a conduit from the right atrium to the pulmonary artery. Counterpulsation with an intra-aortic balloon may have resulted in lowering the right ventricular afterload and appeared to be responsible, with volume overloading, for the resolution of the cardiogenic shock. Hemodynamic monitoring allowed rational therapy for this condition and helped in excluding massive pulmonary embolism,

Figure 1. Electrocardiogram from 69-year-old woman 18 hours after acute inferoposterior myocardial infarction.

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tamponade, and constrictive and restrictive cardiomyopathies which closely mimic right ventricular infarction.

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Intrapleural Therapy with Tetracycline in Malignant Pleural Effusions

The Importance of Proper Technique

To the Editor:

Effective management of the malignant pleural effusion remains both controversial and challenging. Recently, intrapleural instillation of tetracycline has been advocated in the treatment of malignant effusions,1,4 and administration of tetracycline has been shown to cause pleural synphysis in experimental animals.3 If used properly, this agent holds great promise in the treatment of malignant effusions; however, too often, the technique of drainage of the pleural space, the selection of the appropriate dosage of tetracycline, the choice of the proper time of instillation, and the method of instillation are not given precise attention. In our experience, treating patients with malignant effusions with intrapleural instillation of tetracycline on a clinical research ward with careful attention to procedural detail has resulted in a rate of successful treatment of 80 percent. In contrast, on our general medical wards, the rate of successful treatment has been less than 50 percent. We think that with more careful technique, the overall rate of successful treatment should be better.

The pleural space should be drained completely with a chest tube that is inserted in the eighth or ninth intercostal space in the posterior axillary line and is connected to water-sealed drainage with a pressure of −15 to 20 cm H₂O for 24 hours or until drainage has stopped. Placement of the chest tube should be evaluated by a chest x-ray film, and the patient should be positioned to give optimal drainage of fluid. Once drainage is complete, the solution of tetracycline (15 to 20 mg/kg of body weight, in 75 ml of sterile water) should be instilled through the chest tube into the pleural space. This is followed by 200 ml of air, which should facilitate the contact of tetracycline with both visceral and parietal pleural surfaces. The patient then should be rotated to the left and right lateral decubitus, prone, and supine positions for intervals of two to three minutes, in an attempt to disperse the solution of tetracycline throughout the pleural cavity. The patient then should be left in each of these four positions for 30 minutes with the tube clamped. At the end of two hours, the chest tube should be reconnected to negative pressure. The chest tube may need to remain in place for 48 to 72 hours following instillation if a large amount of drainage persists, and the tube should be removed when drainage is less than 150 ml/24 hours.

Careful attention to these details will increase the rate of successful pleural syeriphysis from the intrapleural instillation of tetracycline in malignant pleural effusions.

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Fistula from Coronary Artery to Pulmonary Artery after Blunt Trauma to Chest

To the Editor:

Acquired coronary arterial fistulae are rare, occurring usually after a penetrating wound to the chest.1,2 Fistulae from the aorta4 or left coronary artery6 to the right ventricle after nonpenetrating trauma and also a fistula between the internal mammary artery and the pulmonary artery after closed-chest cardiac massage5 have been reported. Because of its rarity, we present a case of a fistula between the left coronary artery and the pulmonary artery after blunt trauma to the chest.

CASE REPORT

A 33-year-old woman was involved in an automobile accident in which she suffered an anterior contusion of the chest against the steering wheel, because the seat belt was not fastened. She was conscious and complained of pains in the anterior portion of the chest. An x-ray film showed a sternal fracture without dislocation; otherwise, the chest x-ray film

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