Case report

Pneumopericardial tamponade after coronary artery bypass operation

Jaroslav Benedík*, B. Uchytil, J. Černošek

Laboratory of Human Genetics, Center for Cardiovascular Surgery and Transplantations, Vystavni 17-19, 603 00 Brno, Czech Republic

Received 25 September 2001; received in revised form 22 November 2001; accepted 15 December 2001

Abstract

A case of relatively uncommon post-operative cardiac tamponade caused by air is described. © 2002 Elsevier Science B.V. All rights reserved.

Keywords: Air tamponade; Coronary artery bypass

1. Introduction

Most frequently, cardiac tamponade results from accumulation of fluids within the pericardial sac. However, a growing body of clinical evidence shows that pneumopericardium can lead to cardiac tamponade in a significant number of patients as well [1]. Pneumopericardium that results in tamponade occurs most frequently in trauma patients [2–5], or in newborn infants that require positive pressure ventilation [6]. A unique case of air tamponade after uncomplicated coronary artery bypass (CABG) with a delayed recovery due to soft tissue healing complication is described in this article.

2. Case report

A 69-year-old male with a prior history of pneumonia with pleuritis developed unstable angina pectoris and at catheterization was found to have a severe three-vessel disease. He underwent CABG of the left internal mammary artery (LIMA) to the left anterior descending artery, and venous grafts to obtuse marginal and posterior interventricular arteries. His post-operative course was slightly delayed by one episode of supraventricular tachycardia, controlled by sotalol, and partial soft tissue healing complication. On the 14th post-operative day, immediately after bowel movement, he became suddenly unconscious, with distended neck veins and signs of heart failure. He was promptly intubated and transferred to an intensive care unit on a high dose of inotropic support. The massive pulmonary embolism was excluded by the canulation of the pulmonary artery. The ECG demonstrated low-voltage sinus tachycardia and no signs of infarction with negative enzymatic response of Troponin T, CK-MB and AST, and the X-ray examination showed pneumopericardium (Fig. 1). Pneumopericardium was immediately decompressed at bedside by opening the chest, with prompt improvement of haemodynamic status. Following this procedure, the patient was taken to the operating room, re-examined, and the sternum was closed. During re-examination, multiple pleural adhesions and ruptured emphysematic bulla were found to be the causes of air tamponade. The post-operative course was complicated by a peptic bulbar ulcer with bleeding, requiring operative revision, repeated endoscopic coagulations and sternal dehiscence on the 20th post-operative day with secondary closure. Despite all the complications described, the patient was discharged in good condition on the 36th post-operative day.

3. Discussion

The causes of pneumopericardium vary widely [1]. Pneumopericardium is complicated by cardiac tamponade only rarely. This condition has been reported following pulmonary [7] and mediastinal surgery [8], after positive pressure mechanical ventilation [6], after penetrating cardiac injury [4], after blunt thoracic trauma [3], or due to tuberculosis [9]. In the literature, one case of post-CABG pneumopericardial tamponade due to sternal dehiscence was found [10]. In our case, pneumopericardium was possible due to a ruptured emphysematic bulla with pleural adhesion, and communication to the pericardial sac after harvesting of LIMA. There was no evidence of oesophagitis or tracheal
rupture, and the patient was not artificially ventilated. Before the event the patient was haemodynamically stable, without any inotropic support, without signs of perioperative myocardial infarction and without any dysrythmia. The chest X-ray confirmed the clinical signs of tamponade caused by air. Urgent decompression was needed in the management of the condition. Our diagnosis was confirmed by a prompt improvement of the haemodynamic status of the patient.

References