Case report

Late pericarditis secondary to pericardial patch implantation 25 years prior

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Abstract

We report a rare case of a 50-year-old man with signs of right heart failure due to localized pericarditis that was secondary to implantation of an artificial pericardial patch 25 years prior following pericardectomy for constrictive pericarditis. The patient’s clinical symptoms resolved completely in the 3 years following patch removal.

Keywords: Late pericarditis; Teflon patch; Constrictive pericarditis; Pericardectomy

1. Introduction

Extensive pericardectomy may require a pericardial patch to circumvent cardiac herniation. We encountered an unusual case of localized pericarditis secondary to pericardial patch implantation performed 25 years earlier.

2. Case report

A 50-year-old man was admitted to our hospital for dyspnea upon exertion. He had undergone pericardectomy for constrictive pericarditis 25 years earlier at another hospital. Serum C-reactive protein and the erythrocyte sedimentation rate were slightly elevated at 0.94 mg/dl and 20 mm/h, respectively. Blood cell counts were normal. Blood chemistry findings indicated slight congestive liver failure. Ultrasonographic cardiography revealed a low echoic lesion anteriorly compressing the right ventricle during diastole. Elasticity of the inferior vena cava was decreased; moreover, the vena cava itself was increased to 21 mm in diameter. Right cardiac catheterization showed a cardiac index of 2.5 l/min/m² and a pressure gradient of 31 mmHg between the right ventricle and pulmonary artery during systole. Pressure tracing of the right ventricle showed an early dip in diastolic pressure. Chest computed tomography scan showed encapsulated fluid compressing the right ventricle and calcification of the posterior wall of the residual pericardium (Fig. 1). Thickness of the capsula prevented needle puncture; thus, surgical intervention was required.

Repeat median sternotomy was avoided to prevent sternal osteomyelitis. The left parasternal wall containing the third through fifth rib cartilages was resected under general anesthesia. The thick wall was opened longitudinally, allowing removal of a 27 × 9 cm Teflon graft previously fixed for reconstruction of the anterior wall of the pericardium after pericardectomy (Fig. 2). Microorganisms were not detected in the evacuated turbid pericardial effusion (150 ml). Patch removal was easily performed. Histologic examination showed slight inflammatory change in the patch and residual pericardium. The right ventricular pressure gradient returned to normal, and the cardiac index increased to 4.6 l/min/m². No fluid collection was observed in the 3 years following surgery.

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3. Comment

The late localized pericarditis we observed in this case was unusual. Histologic examination at the time of the former surgery did not clarify the cause of the constrictive pericarditis. The cause of constrictive pericarditis is typically unclear [1]. In the 1960s, tuberculosis was viewed as a causative agent. Several causes have been reported since that time, including surgical trauma, injury, allergy, and bacterial and viral infections. Constrictive pericarditis following cardiac surgery has been highlighted in particular, and onset has been reported at 2 weeks to 21 years following surgery [2,3].

Surgical intervention for constrictive pericarditis usually involves excision of the pericardium from the level of the diaphragm to the great vessels and from the right phrenic nerve to the left phrenic nerve. Cardiac herniation after pericardectomy for constrictive pericarditis is commonly impossible. Pericardial substitution may be inappropriate in the constrictive pericarditis patient requiring pericardectomy.

The late pericarditis in our patient was at first thought to be due to a recurrent infection; however, histologically there was only slight inflammatory change. It may be due to that the Teflon patch induced a fibrotic response and calcification like that occurs with the xenograft patch and synthetic materials [4]. The expanding polytetrafluoroethylene (PTFE) surgical membrane is less reactive [5].

There are several possible explanations for the onset of localized pericarditis 25 years after pericardectomy, including inflammatory episodes such as infection or blunt injury causing pericardial effusion. The pericardial space was problematic because it was enclosed by artificial material and residual calcified pericardium, which may have been a contributing factor. Thus, artificial patch closure of the pericardium should be avoided after pericardectomy for constrictive pericarditis. In the case of extensive pericardectomy, the expanding polytetrafluoroethylene patch should be used.

References