Case Report

Colchicine in Treatment of Intractable Postpericardiotomy Syndrome in an Elderly Patient†

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SUMMARY

Postpericardiotomy syndrome is a specific type of acute pericarditis because of a delayed pericardial and/or pleural reaction following opening of the pericardium. It manifests with fever, chest pain, and pleural or pericardial effusion, sometimes both1,2. It may develop in approximately 30% of patients, 1–12 weeks after the surgery, no matter whether the pericardium alone or a cardiac chamber, valve, or vessel is opened2–4,5. Treatments include aspirin, nonsteroidal anti-inflammatory drug (NSAID), and corticosteroid. Recurrent episode of pericardial inflammation or unremitting is the most troublesome situation. Colchicine is effective and safe for treatment and prevention of the recurrence of pericarditis especially when conventional treatment fails4,5–8.

In this report, we present a PPS case who received an open-heart surgery for mitral valve annuloplasty and tricuspid valve replacement. The pericardial and pleural effusion was refractory to conventional therapy plus pleural and pericardial drainage. Combination therapy with colchicine and prednisolone made the pleural and pericardial effusion cleared up rapidly. The total course of colchicine therapy was two and half months. No recurrence was noted after 1-year follow-up.

2. Case report

An 82-year-old Taiwanese woman was transferred to our hospital for refractory pleural and pericardial effusion after the open-heart surgery. Approximately 4 months earlier, she was admitted to our cardiology service because of congestive heart failure. Rheumatic heart disease with moderate-to-severe mitral regurgitation, severe tricuspid regurgitation, and atrial fibrillation were diagnosed.

She was transferred to a medical center at Taipei after the acute event had been controlled. Mitral valve annuloplasty and tricuspid valve replacement with porcine valve were done 3 weeks later. The course was smooth during surgical intervention. Sputum impaction related respiratory failure occurred 3 days after the intervention. She was reincubated. Steroid therapy was given. The pericardial drainage and endotracheal tubes were removed, 21 days after that operation when the symptoms improved. Unfortunately, right pleural effusion developed and thoracocentesis was done the next day. The general condition became stable and she was discharged on the 24th day after the operation. Medications included valsartan 20 mg twice daily.
a day, warfarin 4.5 mg once a day, prednisone 5 mg once a day, and furosemide 40 mg once a day were given when she was discharged.

Unfortunately, she experienced progressive shortness of breath and was rehospitalized to that medical center again 1 week later. Chest X-rays showed reaccumulation of right side pleural effusion. Right chest thoracostomy with pig-tail drainage was done the next day. Dyspnea and orthopnea were improved. She was discharged on the eighth day of the second hospitalization after the pig-tail was removed.

Approximately 1 week after the second discharge, she noted dyspnea on exertion and admitted again. Right pleural effusion and pericardial effusion were found. There was no fever or chest pain during this period. Because of intolerance to aspirin and NSAID, steroid was only given. Because of poor response to medical treatment, pig-tail drainage for plural effusion and pericardial drainage with chest tube was done on 25th and 28th days, respectively after she was readmitted. Yellowish, clear, transudatory fluid was drained from both pleural and pericardial cavities. Pericardial biopsy revealed pericardial soft tissue with fibrosis histologically. Refractory pericardial effusion persisted with daily drainage around 300 mL. She was transferred to our hospital on the 45th day after this admission.

On admission, the patient appeared thin (body weight: 49.5 kg and body mass index: 19.5 kg/m²) and had dyspnea on exertion. Cardiovascular system examination disclosed irregularly irregular heart beat with rate about 100/min, a Grade I/VI systolic murmur along lower left sternal border was noted. Extremities had no edema. The right-sided pleural and pericardial drainage tubes were in places and straw color fluid was drained out. The 12-lead electrocardiogram disclosed atrial fibrillation with ventricular rate at 100/min, incomplete right bundle branch block, and right ventricular hypertrophy. The chest film showed cardiomegaly and tortuosity of the aorta with curvilinear calcification at aortic arch, engorgement of pulmonary vascularity over bilateral parahilar regions, right side pleural effusion with pig-tail in right costophrenic angle and a mediastinal drainage tube in place, and retention surgical wires in the chest wall.

The transthoracic echocardiogram demonstrated trivial mitral regurgitation and porcine valve replacement of tricuspid valve with trivial tricuspid regurgitation, thickening and calcification of aortic valve with mild aortic regurgitation, minimal pericardial, and right pleural effusion; and LV ejection fraction was 50.5%.

The daily drainage of pleural effusion and pericardial effusion were 5–10 mL and 200–300 mL, respectively. Cytology study of pericardial and pleural fluid was negative for malignancy, and pericardial fluid contained reactive mesothelial cells and lymphocytes in the pericardial fluid. Prednisolone 30 mg/d combined with colchicine was given on the eighth hospital day. The amount of fluid drainage from right pleural and pericardial cavity began to decrease 3 days after this regime (Fig. 1). The pig-tail tube for right pleural drainage was removed on 30th day.

Finally, the pericardial drainage was pulled out 2 weeks later. She was discharged with colchicine and prednisolone, 0.5 mg and 5 mg per day, respectively on the 37th day. The dosage of prednisolone was tapered down in 1 week and colchicine was given for another 2 weeks. The total course of colchicine therapy was about two and half months. There is no evidence of recurrence of pericardial and pleural effusion in 1 year of clinic follow-up (Fig. 1).

### 3. Discussion

Colchicine was first proposed for the treatment of recurrent pericarditis in 1987 by Rorigue de la Serna et al⁴ based on its proven efficacy to prevent relapses of polyserositis in familial Mediterranean fever. Three years later, in 1990, Guindo et al⁵ published the first clinical study supporting the efficacy of colchicine in preventing recurrence of pericarditis. Recently, the Colchicine for Recurrent Pericarditis (CORE) trial stated that colchicine therapy led to a clinically important and statistically significant benefit over conventional treatment, decreasing the recurrence rate in patients with a first episode of recurrent pericarditis⁶. In this study, 48 consecutive patients with first episode of recurrent pericarditis were randomly assigned to receive conventional treatment with aspirin alone, or conventional treatment plus colchicine (1.0–2.0 mg the first day and then 0.5–1.0 mg/d for 6 months). When aspirin was contraindicated, prednisolone (1.0–1.5 mg/kg daily) was given for 1 month and then gradually tapered. During 1,682 patient-month, treatment with colchicine significantly decreased the recurrence rate (actuarial rate at 18 months were 24% vs. 50.6%; p = 0.02) and the symptom persistence at 72 hours (10% vs. 31%; p = 0.03).

Another clinical study, the Colchicine for Acute Pericarditis (COPE) trial provides evidence that colchicine in combination therapy with aspirin or prednisolone is safe and effective in the treatment of the first episode of acute pericarditis and decreasing the recurrence rate⁷. In this study, a total of 120 patients with a first episode of acute pericarditis (idiopathic, viral, PPS, and connective tissue diseases) were randomly assigned to conventional treatment with aspirin or conventional treatment plus colchicine 1.0–2.0 mg for the first day and then 0.5–1.0 mg/d for 3 months. Corticosteroid therapy was restricted to patient with

![Fig. 1](image-url)
aspirin contraindication or intolerance. The addition of colchicine reduced the recurrent rate at 18 months from 32.3% to 10.7%. Persistence of symptoms at 72 hours after the onset of acute pericarditis was also significantly reduced by two-thirds in colchicine treatment group. Both CORE and COPE data confirmed that the prior corticosteroid use remained an independent risk factor for the development of recurrent pericarditis.

In this report, in our case treated by combination therapy of colchicine and prednisone, the pericardial effusion cleared up about in 1 month after this therapy. The total course of colchicine therapy was two and half months. No recurrent was noted 1 year later. Here, in Taiwan, Chien and Shen report a case of chronic PPS with cardiac tamponade last for 2 years after an open-heart surgery. The patient was treated successfully with thoroscopic partial pericardiectomy. But low-dose maintenance steroid and colchicine were also given for 2 months. In the series of patient studies for an average of 10 years by Fowler and Harbin, nine had undergone pericardiectomy but clear improvement resulted in only two patients. This unsatisfactory outcome differed from an earlier enthusiastic recommendation that recurrent pericarditis should be treated by pericardiectomy.

In summary, the PPS is a specific type of acute pericarditis because of delayed pericardial and/or pleural reaction after pericardial opening. In the last decade, many enthusiastic reports confirmed the efficacy of colchicine as adjuvant treatment of acute pericarditis. Recently, CORE and COPE studies reconfirmed the efficacy of colchichines in preventing relapse.

In addition, these studies give us other two messages: first, colchicine should be considered as the first-line treatment for acute pericarditis and for preventing recurrent episodes. Second, corticosteroid therapy is a risk factor for development of relapse in pericarditis. Accordingly, it was recommended that steroids not be used for initial treatment of pericarditis or recurrences, unless the patient has no response to NSAID or colchicine or if these drugs are both contraindicated.

References