Suppression of Fluid Accumulation Following Pericardial Inflammation in a Patient with Primary Chylopericardium

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SUMMARY
The patient was a 50-year-old woman with primary chylopericardium. Triglyceride rich chyloid fluid was continuously drained from the pericardial space through an indwelling catheter. A surgical procedure was scheduled since a medium chain triglyceride diet was insufficient to control the fluid accumulation. Before the operation, inflammatory signs were apparent around the indwelling catheter and the catheter was removed immediately. The inflammation was easily treated with antibiotics, and the pericardial effusion no longer accumulated during a follow-up period of 10 months.

The inflammatory process may have caused fibrin production and tissue adhesion in the pericardial cavity, and these might have prevented an accumulation of chyloid fluid and occluded the connection between the thoracic duct and the pericardial cavity. (Jpn Heart J 1996; 37: 271-274)

Key words: Primary chylopericardium Pericardial inflammation

PRIMARY chylopericardium is a rare disease, and the pericardial effusion usually re-accumulates in spite of a medium chain triglyceride diet and/or pericardiocentesis. Recently, we experienced a case of primary chylopericardium and the patient was treated with an indwelling drainage catheter. Fluid accumulation ceased thereafter, possibly due to inflammation in the pericardial cavity.

CASE REPORT
A 50-year-old woman who had complained of palpitations and dyspnea

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Figure. M mode echocardiograms. Panel A shows a pre-pericardiocentesis echocardiogram demonstrating accumulation of fluid in the pericardial space (anterior 0.6 cm, posterior 1.6 cm in diastole). Systolic and diastolic dimensions of the left ventricle were 3.2 and 4.6 cm, respectively. The wall motion was normal and ejection fraction of the left ventricle was 60%. Panel B is an echocardiogram which was recorded 10 months after the pericardiocentesis. There was no pericardial effusion during the whole cardiac cycle, suggesting a suppression of fluid accumulation by the inflammatory process.

since October 1994 was studied. Cardiomegaly was demonstrated by chest X-ray. Two-dimensional echocardiogram showed a moderate pericardial effusion (Figure), and she was referred to our hospital.

On admission her physical examination was normal, except for the neck veins which were moderately distended bilaterally. Her blood pressure was 120/60 mmHg in expiration and 112/58 mmHg in inspiration and pulse rate 69 bpm. All laboratory examinations, including serologic tests and tumor markers, were within normal ranges. Her twelve-lead electrocardiogram showed normal sinus rhythm and low voltage. CT-scan of the thorax and abdomen showed no abnormalities, except for a moderate accumulation of pericardial effusion. She had no history of infectious diseases, surgery, or thoracic trauma.

Surgical pericardiocentesis was attempted and 400 ml of pericardial effusion was drained. The effusion was milky white and fat was demonstrated by Sudan III staining. Cholesterol crystals were not detected in the effusion. The fluid composition showed a cholesterol level of 94 mg/dl (serum 225 mg/dl) and triglycerides of 379 mg/dl (serum 167 mg/dl). Cytology was normal and the culture was negative.
Technetium-99m labeled albumin was injected into the lower extremity subcutaneously, and it was detected in the pericardial fluid. A medium chain triglyceride diet was instituted after diagnosis of primary chylopericardium, but 50–100 ml of chyloid fluid had to be drained daily through an indwelling catheter and surgery was scheduled for the patient. On the 20th day of drainage therapy, inflammatory signs were noted around the indwelling catheter, and CRP increased. Antibiotics were immediately administered and the catheter removed. Echocardiography was repeated to check for accumulation of the fluid. The inflammation was easily controlled, and the pericardial effusion no longer accumulated. She was discharged and followed up in our out-patient clinic at least once per month. Echocardiography has shown no fluid accumulation during a follow-up period of 10 months (Figure).

**DISCUSSION**

Primary chylopericardium is a very rare disease, and less than 100 cases have been reported up to the present.1,2) The pericardial fluid of our patient consisted of triglyceride rich chyle. Secondary chylopericardium that is associated with malignant diseases, surgery,3) or inflammatory diseases was excluded by conventional examinations. The patient was diagnosed as having primary chylopericardium.

In primary chylopericardium, chyloid fluid accumulates through the connection between the thoracic duct and the pericardial cavity, and a medium chain triglyceride diet has been reported to be useful to control the effusion. However, surgical intervention (thoracic duct ligation, etc.) is required in most patients because of repeated accumulation of the pericardial effusion.1,2) In the present case, the connection between the thoracic duct and pericardial cavity was confirmed by radionuclear examination, and chyloid fluid was continuously drained even after treatment with a medium chain triglyceride diet. Therefore, the patient was considered to be a candidate for surgical treatment. However, inflammation at the site of drainage and possibly in the pericardial space complicated the patient’s condition, and the indwelling catheter had to be removed before surgery.

Fortunately, accumulation of the chyloid effusion ceased after the inflammation healed and did not recur during a follow-up period of 10 months. The precise mechanism of suppression of the chyloid fluid accumulation is uncertain. To our knowledge, such a case has not been reported before. We speculate that the inflammatory process produced fibrin and tissue adhesion in the pericardial cavity which may have prevented an accumulation of chyloid fluid so as to occlude the connection between the thoracic duct and pericardial space. How-
ever, careful follow-up is required to detect possible re-accumulation of the pericardial effusion.

**REFERENCES**