diagnosis of a mediastinal mass, the possibility of a massive left atrial thrombus should be considered.

REFERENCES
1 DeSantis RW, Dean DC, Bland EF: Extreme left atrial enlargement. Circulation 29:14, 1964
5 Best PB, Heath D: The right ventricle and small pulmonary arteries in aneurysmal dilatation of the left atrium. Br Heart J 26:312, 1964
9 Nicholas CF, Ostrum HW: Unusual dilatation of the left auricle. Am Heart J 8:305, 1933
11 Bach F, Keith TS: Enlargement of the left heart. Lancet 2:766, 1929

**Isolated Massive Chylopericardium**

Complication of Open Heart Surgery for Aortic Valve Replacement

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Chylopericardium following open-heart surgery for aortic valve replacement in a 53-year-old woman is described. Five weeks after surgery, the chylous pericardial effusion was detected when the patient developed recurrent chest pain and cardiomegaly. Treatment included drainage of the fluid and partial pericardietomy. No recurrence of the chylopericardium was observed in this patient up to 14 months after surgery.

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408 KANSU, Fraimow, Smullens

_CHEST, 71: 3, MARCH, 1977_
Laboratory Data

The hemoglobin level was 11.7 gm/100 ml, and the white blood cell count was 8,800/cu mm, with a normal differential count. Findings from urinalysis, automated blood chemistry studies (SMA-6), and a coagulation profile were normal. An electrocardiogram revealed a -130° axis, low voltage, and first-degree heart block. Chest x-ray films showed massive cardiomegaly (Fig 1). A pericardial scan revealed chamber enlargement and pericardial effusion (Fig 2). Echocardiographic studies confirmed these findings. A diagnosis of congestive heart failure and postpericardiotomy syndrome was considered. The patient did not show any improvement after nine days of therapy with prednisone (60 mg/day), diuretics, and digoxin. A pericardiocentesis revealed 50 ml of cloudy and milky fluid. The characteristics of this pericardial fluid were as follows: milky appearance; specific gravity, 1.025; glucose level, 125 mg/100 ml; simultaneous blood glucose level, 190 mg/100 ml; cholesterol level, 80 mg/100 ml; total lipid level, 1,941 mg/100 ml; triglyceride level, 1,680 mg/100 ml; phospholipid level, 245 mg/100 ml; complement (C3), 50 mg/100 ml; lupus erythematosus preparation, negative; Gram’s stain, no organisms; no acid-fast bacilli; no growth in aerobic and anaerobic cultures; no crystals on microscopic examination (fat droplets stained with Sudan 3 stain); and no malignant cells on cytologic studies. These characteristics of the fluid were consistent with a chyloous effusion.

In November 1973, approximately 600 ml of fluid were evacuated through a left anterior thoracotomy, and a partial pericardiectomy was performed. Pathologic examination of the pericardium showed “chronic pericarditis.” The cardiac size was significantly reduced and remained reduced for 30 months. Chest x-ray films taken 14 months later showed no reaccumulation of fluid (Fig 3).

DISCUSSION

To our knowledge, open heart surgery for aortic valve replacement had never been complicated by isolated chylopericardium. In the absence of trauma, neoplastic disease, or lymphangiectasis, primary isolated chylopericardium is a very uncommon problem.6,7

In 1935, Yater6 reported three cases out of 100 patients in his review of nontraumatic chylothorax and chylopericardium. The first case report of a chyloous effusion in the pericardial space occurring after cardiopulmonary bypass was by Thomas and McGoon.8 The patient underwent surgery for pulmonary arterial atresia, patent ductus arteriosus, and a ventricular septal defect. Two months later, she developed chylopericardium. A left subclavian venogram revealed a recanalized thrombosis, and this was considered to be an etiologic factor in the development of the chyloous effusion.

In 1972 Hawker et al9 reported a case of chylopericardium after repair of tetralogy of Fallot with an anastomosis between the ascending aorta and the right pulmonary artery. The cause of the chylopericardium was considered to be a leak through the small pericardial incision posterior to the superior vena cava. Successful treatment consisted of pericardiocentesis and a diet containing medium-chain triglycerides.

Recently Jacob et al10 published a case report of chylopericardium following anastomosis between the ascending aorta and right pulmonary artery. Treatment included drainage of the fluid and subsequent surgical narrowing of the anastomosis. The child did not show any signs of reaccumulation of fluid three months later.

Chylopericardium developed in our patient in the absence of posterior pericardial dissection or direct trauma to the lymphatic channels. The possible mechanism may have been the development of a thrombus in the left subclavian vein secondary to an indwelling catheter. The obstruction of flow in this area would cause blockage of the thoracic duct with subsequent

Figure 2. Pericardial scan showing chamber enlargement and halo around cardiac blood pool, indicating pericardial effusion.

Figure 3. Chest x-ray film taken 14 months after partial pericardiectomy and drainage (March 1975). Heart is slightly larger than normal size, and there is no recurrence of chyloous effusion.

CHEST, 71: 3, MARCH, 1977
back-leakage of chyle into the pericardial space. This mechanism would appear to be similar to that postulated by Thomas and McGoon, venous obstruction causing blockage of the thoracic duct.

In general, the treatment for chylopericardium includes (1) surgical drainage of the fluid, (2) prevention of reaccumulation by pericardectomy and ligation of the thoracic duct above the diaphragm, and, finally, (3) diets containing medium-chain triglycerides (since their source of fat can be a valuable adjunct in the clinical management of these patients).

REFERENCES

Myocardial Dysfunction and Hemolytic Anemia in a Patient with Mycoplasma pneumoniae Infection*  

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A patient with evidence of myocardial abnormalities and hemolytic anemia is described, in whom the responsible pathogen appeared to be Mycoplasma pneumoniae (as indicated by a 64-fold rise in complement-fixation titers, and by a change in cold-agglutinin titers from 1:8 to 1:4,096). Both cardiac and hematologic problems occurred during the recovery phase from pneumonia and were associated with marked deterioration in the patient's clinical status. Electrocardiographic and serum enzymatic changes mimicked the patterns seen in acute myocardial infarction.

Mycoplasma pneumoniae is a common respiratory pathogen that may be associated with a variety of other complications, including erythema multiforme, meningitis, peripheral neuropathy, and hemolytic anemia. Myocarditis has also been previously described in association with infection with this organism, but the manifestations have been minor, both in the electrocardiographic change (nonspecific abnormalities of the ST-T wave) and in signs of cardiac dysfunction. In this communication, we present a patient who developed signs and symptoms of myocarditis during the course of infection with Mycoplasma pneumoniae associated with severe hemolytic anemia.

CASE REPORT
A 49-year-old white woman was hospitalized for evaluation of increasing shortness of breath, a cough productive of moderate amounts of yellowish-brown sputum, and fever of four days' duration. There was no prior history of cardiac disease.

On physical examination, the patient's oral temperature was 39°C (102.2°F), the pulse was 132 beats per minute, the blood pressure was 150/80 mm Hg, and the respiration rate was 30/min. The veins in the neck were flat at 45° in the semirecumbent position. On auscultation of the chest, diffuse rhonchi and rales were heard bilaterally. A soft grade 1/6 systolic ejection murmur was heard along the left sternal border. The physical examination was otherwise unremarkable.

On admission, the hematocrit reading was 44 percent, and the white blood cell count (WBC) was 13,600/cu mm, with 68 percent polymorphonuclear cells and 20 percent band cells. The platelets were estimated to be normal. The serum electrolyte levels were as follows: sodium, 122 mEq/L; potassium, 3.8 mEq/L; and chloride, 89 mEq/L. Simultaneously determined urinary levels were sodium, 156 mEq/L; potassium, 39 mEq/L; and urinary osmolality, 602 mOsm/kg H2O. Arterial blood gas levels with the patient on a 10-L oxygen rebreathing mask were as follows: pH, 7.35, carbon dioxide tension, 36 mm Hg; oxygen pressure, 56 mm Hg; and calculated carbon dioxide content, 21 mEq/L, with oxygen saturation of 87 percent. Initial titers of cold agglutinins were positive at a 1:8 dilution. The chest roentgenogram revealed bilateral basilar interstitial infiltrates, and the electrocardiogram exhibited sinus tachycardia with borderline first-degree atrioventricular block (Fig 1).

Because of a presumptive diagnosis of viral pneumonia with a possible superimposed bacterial infection, the patient was treated with cephalazin sodium (3 gm intravenously per day), methylprednisolone (80 mg/day), and oxygen therapy, which resulted in gradual improvement. On the sixth day of hospitalization, the therapy with cephalazin was discontinued, but the methylprednisolone dosage was maintained at 20 mg/day.

On the tenth day of hospitalization, the patient noted worsening of her shortness of breath and orthopnea. Physical examination now revealed a grade 3/6 pansystolic murmur at the lower left sternal border and apex, an S4 gallop rhythm, diffuse pulmonary rales, and distended neck veins.

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410 MARESH, KLIMEK, QUINTILIANI

CHEST, 71: 3, MARCH, 1977