monary disease in adults and children. Pulmonary GVHD following BMT has been a common and serious problem, often with an inexorable downhill course, despite dramatic medical treatment.

Calhoon et al recently reported the case of an adult who received a single lung transplant because of severe pulmonary fibrosis following allogeneic BMT. We present a patient who received a BMT for aplastic anemia and then developed a decline in her pulmonary function over the ensuing 4 years. She eventually was left with severe restrictive and obstructive pulmonary disease with a long-term oxygen requirement and exercise intolerance. She has done well in her 15 months following double lung transplantation.

We believe that this case demonstrates the potential efficacy of lung transplantation in children for the treatment of severe pulmonary disease associated with chronic GVHD. Double lung transplantation may offer a therapeutic option for the treatment of GVHD.

REFERENCES

Heimlich Valve Treatment and Outpatient Management of Bilateral Metastatic Pneumothorax*

Peter Van Hengel, M.D.; and Jan H. A.M. Van de Bergh, M.D.

A 51-year-old man was treated for bilateral pneumothorax secondary to pulmonary metastases from malig-

*From the Department of Pulmonology Medisch Centrum Alkmaar, Alkmaar, the Netherlands. Reprint requests: Dr. Van de Bergh, Medisch Centrum Alkmaar, Wilhelminelaan 12, 1815 JD Alkmaar, the Netherlands

Figure 1. Bilateral pneumothorax with chest tube drainage on the left side.

Spontaneous bilateral pneumothorax complicating metastatic sarcoma has been reported before, especially in children. In case of recurrence of the pneumothorax, chest tube drainage alone most often fails. Bleomycin or tetracycline pleurodesis seems to be more successful. The chest tube with one-way valve described by Heimlich provides a good alternative to standard chest tube drainage and suction.

We describe a patient in whom bilateral pneumothorax due to metastatic malignant fibrous histiocytoma was effectively treated with the Heimlich flutter valve after failure of repeated attempts to achieve chemical pleurodesis.

Case Report

A 51-year-old man suffered from a malignant fibrous histiocytoma of the left thigh with pulmonary metastases. Just before chemotherapy (epidoxorubicin) was to have been started, the patient was examined elsewhere for a pneumothorax on the left side. Chest tube drainage and tetracycline pleurodesis resulted in complete expansion of the lung. Three weeks thereafter, shortly after the first dose of chemotherapy, the pneumothorax relapsed and again drainage and tetracycline pleurodesis followed.

Four days later, the patient was admitted to our hospital with complaints of shortness of breath. The chest x-ray film revealed bilateral pneumothorax (Fig 1). A computed tomographic scan showed, in addition to one large hilar mass on the right, multiple small metastases and bullous changes especially near the pleura on both sides. Bilateral chest tubes were inserted and connected to suction. Because of the poor reaction to tetracycline that ensued, bleomycin pleurodesis was carried out after 4 (right side) and 9 (left side) days of drainage. Unfortunately, again pneu-
Discussion

Although rare, spontaneous pneumothorax is a well-known complication in lung metastases of sarcoma, especially when there is osseous origin. Bilateral pneumothorax only due to pulmonary metastases of fibrosarcoma has been reported infrequently.

The mechanisms leading to pneumothorax in patients with pulmonary metastases may be quite variable. Pneumothorax might be the result of either spontaneous or chemotherapy-induced rupture of a necrotic tumor causing a bronchopleural fistula. Partial airway obstruction can lead to a ball-valve effect and to subsequent distention and rupture of the overexpanded portion of the lung. Recent investigations have concluded that small, apparently benign bullous changes could be the only pulmonary feature of metastatic sarcoma causing pneumothorax. As possible causative factors in our patient, we would suggest necrosis of the tumor after chemotherapy as well as subpleural nodules and bullous changes.

Therapy consisting of closed-chest tube drainage alone usually is insufficient to prevent recurrence of metastatic sarcoma-induced pneumothorax. Therefore, most often chemical pleurodysis is applied with bleomycin or tetracycline therapy. In our patient, all therapies mentioned previously failed. Finally, Heimlich flutter valves were attached to the chest tubes and revealed many advantages. Ambulation and outpatient management were feasible, which we believe to be extremely important in patients with such a poor prognosis. The first unilateral pneumothorax resolved after 3 weeks, and the chest drain was removed. The other drain had to be removed after 6 weeks because of malfunctioning due to chest empyema. The infection of the pleural space represents the most important complication of this approach; however, it also might contribute to pleurodysis by stimulating an inflammatory reaction in the pleural space. Besides the empyema in our patient, no further problems were noted during this period. In a similar way, Heimlich valves have been successful in the treatment of primary pneumothorax and in AIDS patients with a secondary pneumothorax. The use of Heimlich valves for pneumothorax as a result of metastatic sarcoma presents an alternative when regular therapy fails. In this way, outpatient management can be facilitated.

References


Pseudo-Atrioventricular Dissociation Caused by Interpolated Ventricular Extrasystoles in the Presence of Dual Atrioventricular Nodal Pathway*

Francesco Luzza, M.D.; and Giuseppe Oreto, M.D.

This report describes a patient manifesting with ventricular extrasystoles. The pause occasioned by extrasystoles often is followed by narrow QRS complexes not preceded by P waves, but at times is followed by a sinus P wave. At first glance, the pattern suggests a diagnosis of atrioventricular (A-V) junctional escape complexes. Analysis reveals that ventricular extrasystoles are, in fact, interpolated; the sinus P wave that follows the extrasystole is conducted to the ventricles with a very prolonged P-R interval (up to 0.80 s). The phenomenon is due to the presence of a dual A-V nodal pathway. The sinus impulse that follows the extrasystole is blocked in the fast pathway but may still be conducted to the ventricles through the slow pathway, resulting in a very prolonged P-R interval. (Chest 1994; 105:1587-89)

Ventricular extrasystoles are, at times, followed by an atrioventricular (A-V) junctional escape complex. This occurs when the postextrasystolic pause is so long that it permits the emergence of an escape rhythm. We report a case of interpolated ventricular extrasystoles that are associated with an inordinate prolongation of the ensuing P-R interval. As a consequence, the following beat appears as an A-V junctional escape complex rather than as a conducted sinus beat. The phenomenon is due to the presence of a dual A-V nodal pathway.

Case Report

A continuous 10-min ECG was recorded from a 79-year-old woman who had breast cancer who clinically was free of any cardiovascular disease. Figure 1 (selected strips of lead aVL) reflects the following (1) sinus rhythm at a rate of about 70 beats per

*From the Instituto Pluridisciplinare di Clinica Medica e Terapia Medica Generale e Speciale, Cattedra di Malattie Cardiovascolari, Università di Messina, Messina, Italy. Reprint requests: Dr. Oreto, Via Terranova 9, Messina, Italy 98122

CHEST / 105 / 5 / MAY, 1994 1587