clinical response. All other initial cultures were negative. Ear, nose, and throat examination revealed no evidence of paranasal sinusitis or otitis media. Head computed tomographic scan, including sinus cuts, confirmed the clinical examination. Two weeks into the hospital course, the patient developed polymicrobial superinfection and died on the 25th hospital day. Permission for autopsy was refused by the family.

Discussion

Respiratory syncytial virus generally causes a mild clinical infection in normal adults, usual symptoms being cough, coryza, and fever. The most common roentgenographic abnormalities that were seen in patients with RSV pneumonitis were bilateral interstitial/alveolar infiltrates followed by lobar infiltrates. Most of these patients went on to full recovery and were discharged from the hospital in stable condition.[3,10] However, to our knowledge, there are no previously reported cases demonstrating RSV infection in patients with WG. Thus, this is the first case report of clinically significant RSV infection occurring in a patient with WG. Previous fatal cases of RSV pneumonia have been described,[3,7,8] but without autopsy evidence, it is difficult to prove that this is a "fatal" RSV infection. However, we did diagnose RSV infection in a manner similar to that previously described,[7] and other forms of infection and vasculitis were ruled out by our initial extensive examination of this patient. Therefore, we believe this patient had RSV pneumonitis.

The fact that RSV pneumonitis can cause significant lower respiratory tract disease in immunocompromised adults is well known, but its potential to be fatal may be underemphasized. However, RSV pneumonitis complicating WG has not yet been described. As such, we would recommend that the diagnosis of RSV infection be considered in the differential diagnosis of patients with WG presenting with new-onset wheezing, diffuse interstitial/alveolar infiltrates, and/or respiratory failure. Further case reports will be necessary to establish the true outcome of RSV infection in patients such as the one described herein.

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Hemianomalous Pulmonary Venous Connection of the Left Lung Surgically Corrected*

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Hemianomalous pulmonary venous connection is a rare congenital abnormality that leads to significant left-to-right shunt and complications related to that. Earlier surgical correction of this disorder was associated with the problem of stenosis at the anastomotic site with the left atrium. We describe the diagnosis of this abnormality in a 24-year-old woman and present the details of surgery to avoid the stenosis at the site of anastomosis.

(Chest 1992; 101:1718-19)

Partial anomalous pulmonary venous connection, which is not an uncommon abnormality, is found to occur in approximately 14 percent of patients with atrial septal defect. However, anomalous pulmonary venous connection of the entire lung is an extremely rare congenital anomaly.[1] Early reports of surgical correction of this disorder are limited, and reimplantation of the anomalous vein into the amputated left atrial appendage had been advocated which involved the possible complication of stenosis at the anastamotic site.[2] Ports et al[3] devised a venoatrial anastomotic technique designed to maximize the cross-sectional area at the anastomotic site reducing the possibility of postoperative stenosis. We reproduced this technique for a patient with hemianomalous pulmonary venous connection of the left lung with atrial septal defect with good result.

Case Report

A 24-year-old woman presented with a history of frequent episodes of respiratory tract infections since childhood and exertional dyspnea and palpitation of two years' duration.

There was no abnormality detected on general physical examination. Cardiovascular system revealed normal arterial and jugular venous pulse. There was cardiomegaly with left parasternal heave and palpable pulmonary artery. A grade 3/6 ejection systolic murmur was audible in the left upper sternal border with wide and fixed splitting of the second heart sound. A short middiastolic murmur was audible in the left lower sternal border. Electrocardiogram

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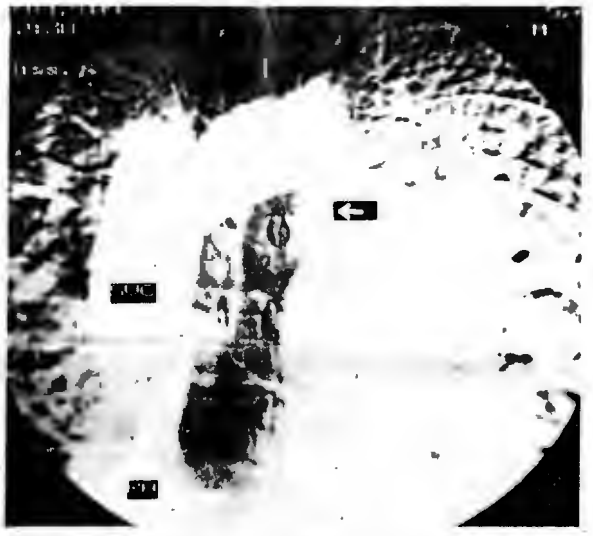

FIGURE 1. Selective pulmonary angiography demonstrated both left pulmonary veins draining into the left vertical vein *(arrow)* that emptied into the left brachiocephalic vein. SVC = superior vena cava; RA = right atrium.

showed right axis deviation of QRS and partial right bundle branch block. Chest roentgenogram revealed cardiac enlargement with dilated pulmonary arteries and increased pulmonary vascularity. There was a vertical shadow seen in the left upper cardiac silhouette. Echocardiography revealed ostium secundum atrial septal defect with features of right ventricular volume overload.

Cardiac catheterization confirmed the presence of ostium secundum atrial septal defect with significant left-to-right shunt. An oxygen step up of 10 percent was noticed at the left brachiocephalic vein. The right heart catheter could be negotiated through the left brachiocephalic vein into the left vertical vein and into the upper and lower left pulmonary veins. Selective pulmonary angiography demonstrated normal drainage of the right pulmonary veins into the left atrium and the pulmonary veins of the left lung draining totally into the left vertical vein which emptied into the left brachiocephalic vein (Fig 1).

During surgery, the entire left lung was seen draining into an anomalous vertical vein that was connected to the left brachiocephalic vein. The right lung was seen draining normally. The vertical vein was ligated at its junction with the brachiocephalic vein and divided proximally. The divided end of the vein was incised longitudinally so as to produce a "cobra head" configuration at its distal end. The left atrium was then incised from the base of the atrial appendage to the region of the right pulmonary vein. The modified end of the vertical vein was then anastomosed to the left atrium using continuous 5/0 polypropylene sutures (Fig 2). The oval anastomotic orifice thus created had a cross-sectional area several times that of the anomalous vein. The right atrium was opened and the anastomotic site was visualized through an atrial septal defect. The atrial septal defect of 3 × 4 cm was closed with a Dacron patch. The patient's postoperative course was uneventful, and she was discharged from the hospital on the tenth postoperative day. Follow-up cardiac catheterization and selective pulmonary angiography showed a patent anastomosis between the left vertical vein and the left atrium with adequate flow.

FIGURE 2. Left atrial body opened on its roof starting from the base of appendage *(dotted arrow)*. Vertical vein opened longitudinally *(arrow)*.

DISCUSSION

Anomalous pulmonary venous return represents a congenital anomaly with considerable anatomic variation. Partial anomalous pulmonary venous connection is twice as common from the right lung than from the left lung. When it occurs on the left side, either the left upper or both left pulmonary veins drain to an anomalous vertical vein that will empty into the left brachiocephalic vein. Partial anomalous pulmonary venous connection of the left side with intact interatrial septum is very rare.[4] In our case, both left pulmonary veins drain into the vertical vein and this is associated with atrial septal defect. When there is complete anomalous venous connection of one lung, the left-to-right shunt is usually greater than 50 percent.[5] Hence, surgical correction is indicated even if it occurs as an isolated abnormality.

The problem of stenosis at the anastomotic site with left atrium had been the most important complication of surgery for all types of anomalous pulmonary venous return. The anastomotic techniques mentioned by Ports et al[3] in 1979, which were adopted in this patient, have provided excellent results by maintaining an anastomotic site with a maximal cross-sectional area so as to prevent venous obstruction, thereby avoiding late complications of repair.

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