A 3.2 kg boy was born by Cesarean section because of maternal pre-eclampsia. There was no history of prenatal infection or meconium staining of the amniotic fluid. Apgar score was 9 at one and five minutes. Upon admission to the neonatal intensive care unit, the infant was in moderate respiratory distress with grunting, retractions, a respiratory rate of 90/min, and a heart rate of 150/min. Blood pressure was 60/40 mm Hg in the right arm. Bilateral crepitant rales were present over both lungs. No heart murmur was audible; S2 was split. An electrocardiogram revealed right ventricular predominance with QRS axis of +140°. Echocardiogram was normal. Umbilical artery blood specimen with the infant breathing 40 percent oxygen was pH 7.48, PCO2 32 mm Hg, and PO2 64 mm Hg. Figure 1 was obtained when the infant was two hours old.
**Diagnosis:** “Wet lung” syndrome vs amniotic fluid aspiration

Figure 1 showed prominent, coarse infiltrates and ill-defined vessels throughout the lungs, with hyperinflation and mild cardiomegaly. There was no evidence of consolidation or atelectasis as in meconium aspiration syndrome, and no generalized granularity and air bronchograms to suggest hyaline membrane disease. At the age of 12 hours, the respiratory rate had fallen to 42/min and the heart rate was 140/min. He tolerated 25 percent oxygen without grunting or retractions. A repeat chest radiograph (Fig 2) revealed complete clearing of the lungs. At 20 hours, the oxygen therapy was discontinued. He was discharged on the fourth day. The clinical and radiographic features are compatible with the diagnosis either of wet lung syndrome or amniotic fluid aspiration.

Wet lung syndrome, also called transient tachypnea of the newborn, is commonly seen in small infants, infants born by Cesarean section, and infants born precipitously. It has been postulated that the syndrome is caused by delayed resorption of lung fluid or failure to clear the airway of mucus or debris shortly after birth. Ineffective thoracic elastic recoil following vaginal compression of the thorax is believed responsible for the fluid retention. The associated hypoxia or acidosis commonly seen in these infants may further impair lymphatic drainage of lung fluid.

The chest radiograph taken during the first few hours of postnatal life in infants with wet lung syndrome shows a diffuse pattern of alveolar edema and pulmonary hyperaeration. Mild cardiomegaly and small pleural effusions in the costophrenic angle or minor fissure are occasionally seen. The clearing pattern of the lung fluid is from periphery to center and from upper to lower lung fields. Complete clearing usually takes place in 24 hours in full term infants and in 48 to 72 hours in premature infants. Serial chest radiographs are essential to make the diagnosis.

Distinguishing wet lung syndrome from amniotic fluid aspiration is difficult. Aspiration of amniotic fluid, which has a lower pH than lung fluid, may cause pulmonary irritation. Since infants with wet lung or amniotic fluid aspiration have a benign course, identification of either of these syndromes is essential so that overzealous management can be avoided.

The differential diagnosis in a one-day-old newborn with diffuse coarse reticular infiltrates on the chest radiograph includes the following cardiac conditions: total anomalous pulmonary venous drainage with obstruction, hypoplastic left heart syndrome, con triatriatum and atresia of the common pulmonary vein. Pulmonary lesions that should be included in the differential diagnosis are meconium aspiration, congenital pulmonary lymphangiectasis, hemorrhage, congenital pneumonia, wet lung, and amniotic fluid aspiration.

Congenital cardiac lesions require early differentiation from primary pulmonary diseases if there is to be successful surgical treatment. The electrocardiogram may be helpful in differentiating pulmonary venous obstruction from primary pulmonary disease since extreme right ventricular hypertrophy is often found in pulmonary venous obstruction. Echocardiography may be helpful in the diagnosis of hypoplastic left heart. Radiographic estimation of heart size in the newborn is not always reliable in differentiating between cardiac and pulmonary disease. Newborns with pulmonary venous obstruction may present a normal heart silhouette, whereas infants with wet lung syndrome frequently have cardiomegaly. The rapid improvement in clinical course, blood gas levels, and radiographic findings in wet lung syndrome or amniotic fluid aspiration are the most important features in distinguishing these two disorders from other pulmonary or cardiac lesions.

**References**