Bilateral Congenital Chylothorax: Antenatal Diagnosis

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Detection of fetal anomalies and pleural effusions has been possible with the use of ultrasonography for the last several years. A case of congenital chylothorax was diagnosed by antenatal ultrasonography. Prior knowledge of this condition was an important factor in producing a favourable outcome. The essential aspects of the case management are described.

Chylothorax in the neonatal period is rare and most of the reported cases are diagnosed when infants present with respiratory distress immediately after birth. A few cases have been diagnosed antenatally with a varied outcome. The present report describes an infant with chylothorax, with no associated anomalies, diagnosed antenatally by ultrasonography. Prior knowledge of the condition was an important factor in producing a favourable outcome.

Case Report
A 2375 g male infant was born at 34–35 weeks of gestation with a history suggestive of labour pains. Examination showed an irritable, large-for-dates uterus with a vertex presentation of the fetus. The antenatal ultrasound scan showed polyhydramnios and bilateral fetal pleural effusions, with both lungs collapsed (Fig. 1). The fetal kidneys, heart, stomach, bladder, spine, extremities and placenta were normal.

Labour began spontaneously 4 days after admission, and vaginal delivery took place. The baby's condition was poor, the 1 min, 5 min and 10 min Apgar scores being 1, 4 and 5. Physical examination of the infant showed no gross anomalies except generalized oedema. The liver edge was 3 cm below the right costal margin and there was some ascites. Respiratory failure at birth needed immediate intubation, ventilation and bilateral needle thoracocenteses. A total of 166 ml straw colour fluid was aspirated from the pleural cavities, 110 ml from the right and 56 ml from the left. There was immediate improvement in respiratory function. Bilateral chest drains and an umbilical arterial catheter were inserted. The infant needed mechanical ventilation.

Laboratory data included: complete blood cell counts which showed total white cell count of 50.8 thousand/mm³, haemoglobin 13.7 g/dl, haematocrit 42.2%, platelet count 186 thousand/mm³. The arterial blood gases were satisfactory 3 h after birth. Biochemistry of the blood showed normal urea and electrolytes, blood glucose, calcium, total protein 32 g/l, albumin 20 g/l. Pleural fluid analysis showed sodium 140 mol/l, potassium 4.2 mmol/l, protein 15 g/l, specific gravity 1020. The cell count 1900/mm³ with 90% lymphocytes. It was sterile on culture. On the 10th day, biochemical analysis of the pleural fluid showed triglycerides 11.2 mmol/l and cholesterol < 1 mmol/l. Chromosomal analysis was not done.

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establishing the diagnosis of chylothorax. The infant was maintained on total parenteral nutrition, for 30 days using a peripheral vein. Oral feeds were restarted using Premium MCT-1 milk formula and this feed was continued for a month. Premium MCT-1 formula was replaced with Similac formula over the succeeding month.

Follow-up examination at 3 months showed that the infant was thriving well and there was no reaccumulation of pleural fluid.

Discussion

The ultrasonographic detection of fetal pleural effusions calls for a detailed search for associated anomalies, pericardial effusion and ascites. A planned delivery should be undertaken to avoid prolonged birth asphyxia. Our case is similar to recently reported cases of congenital chylothorax diagnosed in utero by ultrasound scanning. The pleural fluid rapidly reaccumulates following intrauterine thoracocentesis. Further, there is a controversy as to whether this procedure is therapeutically useful. The lungs of these infants develop normally in the presence of pleural effusion in utero, although they have been described as hypoplastic. Indeed, the outcome of congenital chylothorax, even when bilateral, is excellent.

The diagnosis of chylothorax, before milk feeds are given, is made by the examination of pleural fluid for lymphocytes. The key factor in the treatment is to keep lungs expanded by repeated thoracocenteses, or by pleural drainage. The reduction of lymph formation is achieved by oral MCT milk formula and if required by total parenteral nutrition.

Mothers with suspected polyhydramnios are candidates for detailed ultrasonography. We agree with Lange and Manning’s triad for the diagnosis of congenital chylothorax: polyhydramnios, pleural effusion and the presence of a scrotum observed on the ultrasound scan.

References