

Case Report

## Chylothorax in a Neonate

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**Abstract:** Congenital chylothorax is very rare neonatal disease causing respiratory distress in newborn. It is defined as the accumulation of chyle in pleural cavity. It is however most common cause of pleural effusion in newborn. Here we report a case of congenital chylothorax who presented with respiratory distress and cyanosis on day 7 of life.

**Keywords:** Congenital chylothorax, hydrops fetalis, thoracic duct, pleurodesis

### INTRODUCTION

Congenital chylothorax is defined as the accumulation of chyle in pleural cavity [1]. It is a very rare neonatal condition [2]. However it is the most common cause of pleural effusion in newborn [3]. It is due to traumatic rupture of thoracic duct because of congenital fistula between thoracic duct and pleural space. Chylothorax can be a manifestation of Down's syndrome, Turners syndrome or Noonan syndrome. It may be associated with generalised hydrops or can occur as isolated chylothorax. Initially it may be asymptomatic. Rapid accumulation of large volume of chyle can lead to respiratory distress. The diagnosis is based on chest X ray and pleural fluid examination. Spontaneous resolution occurs in most of the cases.

### CASE PRESENTATION

The study case is a female neonate (fig 1), who was delivered vaginally at 41 week of gestation from a 24 year old mother of gravida 2. The labour was uneventful and the baby cried immediately after birth. Weight of baby was 2.6 kg. Baby was alright till 6 days of life. On day 7 of life, the baby developed respiratory distress with bluish discoloration of palm and soles while feeding. On clinical examination, baby was tachypneic with respiratory rate of 88/min. There was chest in drawing. Heart rate was 180/min with SPO2 70%. On percussion, there was dull note on whole left hemithorax. On auscultation, there was grossly diminished breath sound on left hemithorax. Chest X-ray showed left sided opacity suggestive of left sided pleural effusion with mediastinal shifting to right side.

On diagnostic tap, 50 ml of milky pleural fluid was aspirated. Pleural fluid examination showed 2200 nucleated cells/ mm<sup>3</sup> (90% lymphocytes and 1% mesothelial cells). Test for chyle was positive. Gram staining showed no microorganisms, as it was sterile. Because of severe respiratory distress, we kept the baby NPO for initial 3 days and antibiotics started even though sepsis screen was negative. Gradually respiratory distress decreased and enteral feeding was started. Repeat chest X ray was done after 7 days and there was some clearing of lung fields. Then the baby was discharged on day 10 of hospitalisation.



**Fig 1: neonate with congenital chylothorax**



**Fig 2: plain X ray showing left sided pleural effusion with mediastinal shifting to right side**

## DISCUSSION

Congenital chylothorax is very rare neonatal condition [2]. However it is most common of pleural effusion in newborn [3]. Prevalence is between 1:8600 to 1:15000 live births [4]. Its aetiology is unknown in most of the cases [5]. It may be due to birth trauma leading to traumatic rupture of thoracic duct [6]. It may be due to congenital fistula between thoracic duct and pleural space or due to hypoplasia of lymphatic system. It may be associated with generalised hydrops fetalis or occur as isolated chylothorax. It may be manifestation of Downs, Turner and Noonan syndromes well as right diaphragmatic hernia, congenital cytomegalovirus, congenital lymphangiectasia, adenoviral infections, lung tumors, congenital goiter and group-B streptococcal infections [7]. Symptoms of chylothorax are related to accumulation of fluid in pleural space. Patient can be asymptomatic initially. However dyspnea, cough and chest discomfort gradually develop with time [2, 3]. Pleuritic chest pain and fever are very rare. If the cause is trauma, a latent period of 2 to 10 days is required between trauma and onset of symptoms [8]. Rapid accumulation of large volume of chyle can lead to adverse hemodynamic complications like hypotension, cyanosis with significant respiratory distress.

Diagnosis is done by chest X ray and pleural fluid study. Chyle obtained on thoracentesis is milky white and odourless. Characteristics of chylous fluid include high cell count ( $>1000/\text{mm}^3$ ) with lymphocytic predominance and sterile culture and triglycerides  $>110\text{mg/dl}$ , cholesterol  $65\text{-}220\text{ mg/dl}$ , albumin  $1.2\text{-}4.1\text{ gm/dl}$  and total protein  $2.2\text{-}5.9\text{ gm/dl}$ .

**Test for chyle:** on addition of ether, chyle was dissolved which turned milky chyle to clear fluid. In most of the cases spontaneous resolution occurs. However feeding with medium chain triglyceride (MCT) is required to reduce chyle production. Newborn presenting with severe respiratory distress may require immediate respiratory support and urgent drainage. Surgical procedures like pleurodesis should be performed on resistant cases [9].

## CONCLUSION

As congenital chylothorax is a rare condition, reporting of such case can be a great assistance to paediatricians for managing this disease, hence may help in reducing morbidity and mortality.

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