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# CONGENITAL CHYLOTHORAX –SUCCESSFUL MANAGEMENT WITH CHEMICAL PLEURODESIS

Clinical Research

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## ABSTRACT

Congenital chylothorax in newborn is a rare disease but a common cause of pleural effusion in neonate. We report a case of congenital chylothorax associated with congenital heart disease in a term baby managed with intercostal drainage, octrotide and chemical pleurodesis.

## KEYWORDS

Chylothorax, Neonate, Octreotide, Chemical Pleurodesis

## INTRODUCTION

Congenital chylothorax in newborn is a rare disease but a common cause of pleural effusion in neonate, prevalence ranging between 1:10,000 to 1:24,000.(1)There are only 753 cases reported from 157 studies published between 1990 to 2018. (2)Congenital chylothorax complicated with congenital heart disease is a very rare entity and incidence unknown. We report a case of congenital chylothorax associated with congenital heart disease in a term baby.

## CASE REPORT

- Early term male neonate born to 3rd degree consanguineous parents by caesarean section, with birth weight 2.2 kg, 31 week gestation scan detected fetal pleural effusion Post delivery, neonate was shifted to NICU in view of respiratory distress.
- On examination baby had Subcostal and Intercostal Retraction with downe's score-4 with reduced air entry on right side hemithorax on auscultation. Chest x ray was done which revealed right sided pleural effusion (Fig 1). Intercostal tube (ICD) were inserted 60 ml straw colored pleural fluid was drained and analysis revealed LDH 119mg/dl, Lymphocyte 50%,Albumin 2.5 ,AFB – negative, Glucose 75mg/dl.ECHO done at birth was normal. On day 3 of life 2D echo showed a Large PDA of 4mm.Diuretics were started. Day 2 feeds were initiated, after few days of initiating tube feeds, color of the fluid changed to milky white (Fig 2).
- The fluid was sent for analysis which revealed Triglyceride 250 mg/dl, Cholesterol 21.6mg/dl, Triglyceride to cholesterol ratio 11.5, Total counts 45,000 with 90% lymphocytes. Culture was sterile. A diagnosis of congenital chylothorax was made.

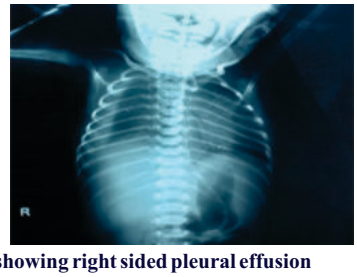

**Fig 1: X ray showing right sided pleural effusion**

**Fig 2: Thoracostomy tube drainage showing milky fluid**

TORCH profile was negative. Enteral feeding were discontinued on day 4 due to significant reaccumulation and parentral nutrition was instituted along with octrotide infusion. Infusion was started at 1mcg/kg/hr and increased to 6mcg/kg/hr.As the response was poor on day 17 chemical pleurodesis was done {due to persistent chylous fluid} with 20mg/kg oxytetracycline and 2%lignocaine injected through ICD tube into pleural cavity and was retained for 5 hours. Since drain output was >20ml/kg/day, chemical pleurodesis was repeated after 48 hours.

Octreotide infusion was tapered and stopped over next 4 days. Serial monitoring of drain output showed <5ml/day. ICD clamped and removed on day 23. Neonate –Started on MCT based feeds on day 22 and gradually weaned onto full breast milk feeding without reaccumulation of chylothorax observed through serial USG. Karyotyping sent showed 46XYqh- chromosome. Repeat 2D Echo on day 42 showed normal cardia.The baby improved with no distress, good bilateral air entry and maintaining saturation at room air. Radiograph showing resolution of pleural effusion.(Fig 3)

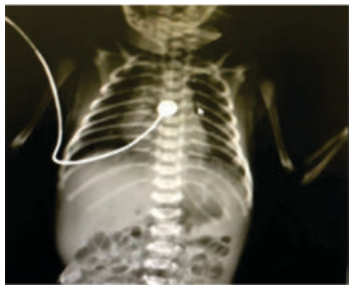

**Fig 3: After treatment: No fluid or air leak**

## DISCUSSION

Congenital chylothorax is a rare but serious entity in neonates evidenced by incidence 1 in 24000. [2]Male: Female ratio is of 2:1.[3,4]It is usually complicated by hydrops fetalis in utero, and has substantial morbidity and mortality. In our patient, there were no known predisposing risk factors that could lead to this congenital chylothorax, considering it as idiopathic congenital chylothorax .The strategy of treatment is the same regardless of the cause.

Chylothorax that occurs in the fetus can lead to pulmonary hypoplasia (pressure effect), congestive heart failure and even hydrops (hypoproteinaemia and impaired venous return). When chylothorax is associated with hydrops, mortality can be as high as 98%. [6]

As stated in a recent review, interventions include thoracostomy drainage and attempts to decrease chyle flow using a stepwise approach as far as evidence-based treatment choices are still lacking.[5]
The first step in the treatment of CCT is respiratory support as far as needed (mainly noninvasive ventilation with continuous positive airway pressure or high flow nasal cannula), pleural fluid drainages,

and TPN with nothing per mouth. If CCT resolves, MCT diet might cautiously be initiated until full enteral feeding volumes are reached; thereafter, diet might be switched to human milk (even breastfeeding) or formula diet over several days decreasing the amount of MCT diet steadily. In case of fluid losses over 3 weeks of age, octreotide might be used on a try-and-error basis, starting with 4 μg/kg/h, thereafter doubling the dose if necessary (if there was no treatment effect within 24 h) and no higher dose than 12 μg/kg/h. If CCT does not resolve, surgical intervention might be necessary using either ligation of the thoracic duct and/or surgical and/or chemical pleurodesis congenital malformation of lymphatic system or associated with syndromes, affecting the prognosis.

- ✓ Level of thoracic duct damage determine the side of effusion
- ✓ Cornerstone for treatment remains stepwise proceeding from respiratory support, thoracocentesis, Octreotide infusion lastly chemical and surgical pleurodesis.
- ✓ Complications include pulmonary hypoplasia, malnutrition, secondary immunodeficiency.

## CONCLUSION

Aided by the advantage of prenatal diagnosis many causes of congenital chylothorax can be successfully managed by combination of nutritional and medical management and avoidance of infection and careful assessment of fluid and electrolyte balance, thereby avoiding need for thoracic duct ligation.

### Contribution

All authors were involved in clinical care, collecting data, writing and reviewing the manuscript.

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**Conflicts Of Interest:** There are no conflicts of interest

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