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Case Report

Congenital chylothorax managed with octreotide and skimmed milk: a case report

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ABSTRACT

Pleural effusion occurs when a large amount of free fluid accumulates in the pleural space. A chylothorax is caused by chyle-containing lymphatic fluid draining into the pleural cavity. This is the most common type of pleural effusion observed during the neonatal period. It causes a number of respiratory and nutritional issues and has a significant mortality rate. It is usually treated by intercostal chest tube drainage and total parenteral nutrition. Octreotide is a relatively newer strategy in the management. Here we describe the case of a 16 days old male neonate who presented to us with sudden onset severe respiratory distress requiring invasive ventilation. Radiology suggested pleural effusion and so intercostal chest tube was inserted, which revealed Chylous effusion. The patient was successfully managed with dietary therapy including skimmed milk and octreotide infusion.

Keywords: Chylothorax, Octreotide, MCT, Pleural effusion, Skimmed milk, Lymphatic

INTRODUCTION

Chylothorax is defined as abnormal accumulation of lymphatic fluid in the pleural space and is a relatively rare condition in newborns.[1] In neonates, chylothorax occurs in situations causing damage to the thoracic duct, such as cardiothoracic surgery, birth trauma, and great vessel thrombosis.[2] It also occurs in dysmorphic syndromes, such as Turner or Noonan syndrome. However, in many situations, the etiology of the chylothorax is uncertain and is believed to be caused by abnormality of thoracic or pulmonary lymphatic system. This is termed idiopathic congenital chylothorax. Regardless of the underlying mechanism, chylothorax causes respiratory, nutritional, and immunological complications.[3] Octreotide is a long-acting somatostatin analogue that acts on somatostatin receptors in the splanchnic vessels to inhibit lymphatic fluid production. Octreotide has been used in the treatment of postoperative or spontaneous chylothorax in infants and older children.[4] Along with octreotide, dietary therapy also has an important role to play in the management. Double skimmed milk fortified with medium chain triglycerides has been found to be beneficial in such patients.

CASE REPORT

A term outborn male neonate delivered by normal vaginal route presented to us with chief complaint of sudden onset respiratory distress at day 16 of life. As per the parents, the patient was asymptomatic in first 15 days of life and had a normal birth weight of 2.8 kg with no significant antenatal, natal or postnatal history till the current episode. The baby was on formula feeds and had a weight of 2.7 kg on admission. Clinically, the baby had severe respiratory distress with decreased air entry on right side of chest on auscultation. In view of the possibility of impending respiratory failure, the patient was intubated and started on invasive ventilation. Chest x-ray was done which showed a white-out lung on the

right side with obliteration of right costo-phrenic angle and slight deviation of trachea towards the left side.

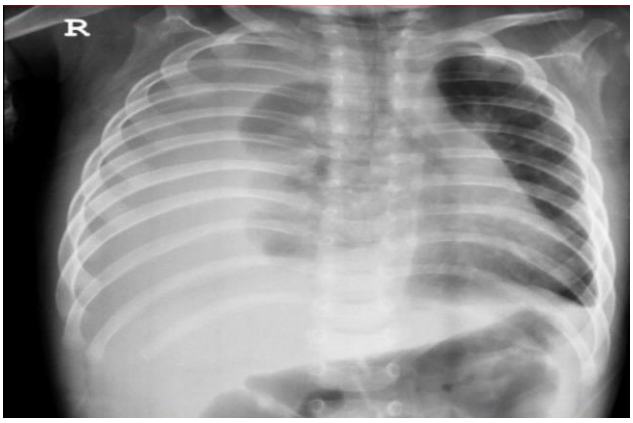

Figure 1: Chest X-ray of white out right lung with obliteration of right costo-phrenic angle and tracheal shift to left side.

Keeping in mind the possibility of right sided pleural effusion, intercostal chest tube was inserted and around 250 ml of pale colored fluid was drained.

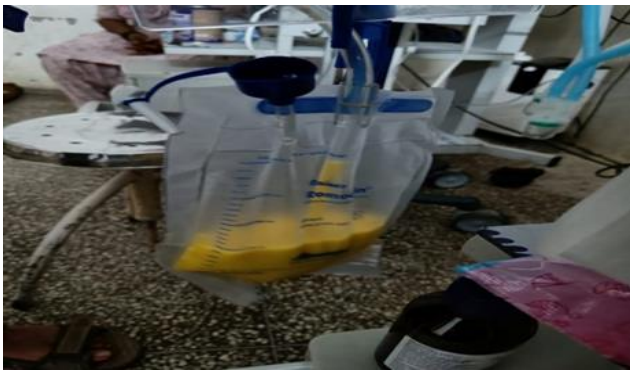

Figure 2: Intercostal chest tube drainage showed pale colored fluid.

Analysis of the fluid showed 35% neutrophils with glucose of <5 mg/L, proteins 2.3 mg/dl, triglycerides of 250 mg/dl and culture showing gram positive cocci. Lipid profile was also done which was normal. The baby was started on octreotide infusion at 0.3 microgram/kg/day. Fundus examination was done which didn't reveal cherry red spot. The patient was also started on intravenous vancomycin in view of blood culture growing MRCONS with sensitivity to vancomycin. There was rapid clinical improvement after intercostal drainage and the patient was extubated after 3 days. Chest tube was removed after 10 days of admission. Gradually the octreotide was shifted to subcutaneous route at 10 microgram/kg in three divided doses. MCT feeds were started but the patient developed feed intolerance. Subsequently she was started on double skimmed milk which was tolerated well. The baby started accepting feeds well and weight gain was also noticed. Ultimately the patient was discharged in stable condition with plan to continue subcutaneous octreotide for 6 weeks. During follow up, there was no reaccumulating of pleural fluid with normal weight gain and development.

DISCUSSION

Congenital chylothorax is defined as the accumulation of lymphatic fluid or chyle in the pleural space which may develop as early as early neonatal period. Chylothorax is suspected in the neonatal period when the neonate, who has respiratory distress and pleural effusion on radiology workup, has chest tube drainage showing milky or pale colored fluid.[5] In our case also, when chest tube was inserted, it revealed pale colored fluid. Analysis of pleural fluid shows a high triglyceride level which was also seen in the index case.[6] Available approaches in management include a combination of interventions like restriction or temporary cessation of enteral feedings, drainage by intercostal chest tube, octreotide infusion, MCT rich feeds etc, though there is no modality of management which is superior compared to others. Octreotide seems to be the most widely used therapy for congenital chylothorax. It decreases the splanchnic blood flow in thoracic duct as well as decrease the triglyceride content of chyle.[7] We also started the patient on octreotide infusion, after which there was marked reduction in the chest tube output. Subsequently, the patient was shifted to subcutaneous octreotide. The total duration for therapy with octreotide wasn't clear, so we searched literature and came across a similar case who was treated with a long course octreotide without any adverse effects.[8] We also gave octreotide injection for a total duration of 6 weeks, following which there was no re-accumulation of pleural fluid. On resolution of the effusion, enteral feeds need to be started using low-fat or fat-free milk formulas which are costly, not freely available and non-standardised in resource-poor countries. Human milk has long-chain triglycerides, hence is not recommended. In our index case, we used double skimmed milk with addition of MCT oil which was well tolerated by the patient.

CONCLUSION

In summary, octreotide seems to have a good safety profile in newborn infants and remains a promising alternative to surgery for cases of congenital chylothorax. Locally available skimmed milk fortified with MCT oil is a safe and cheap alternative when the usual therapy fails.

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